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► **To cite this version:**

Fernando O de Carvalho, Françoise Rose. Comparative reconstruction of Proto-Mojeño and the phonological diversification of Mojeno dialects. *Liames*, 2018, 18:1, pp.7 - 48. 10.20396/liames.v18i1.8648804 . halshs-01722917

**HAL Id: halshs-01722917**

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Submitted on 7 Mar 2018

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## Comparative reconstruction of proto-mojeño and the phonological diversification of mojeño dialects<sup>1</sup>

**ABSTRACT:** This paper addresses nine open issues in the historical phonology of Mojeño, an Arawak language of Bolivia. We propose solutions to these problems by postulating reconstructed forms for Proto-Mojeño based on a comparison of the two extant varieties of the language, Ignaciano and Trinitario, and on 17<sup>th</sup> century sources on Old Mojeño. Contrarily to a recent claim, we argue that the contrast between \**n* and \**ɲ* can be straightforwardly reconstructed for Proto-Mojeño. We suggest that the marginally contrastive opposition between *s* and *ʃ* in Ignaciano derives from sound symbolism. We argue for a contrast between \**a* and \**o* in Proto-Mojeño that was later lost in Ignaciano. We reconstruct the accentual system of Proto-Mojeño, as a basis for explaining diachronic rhythmic syncope in Trinitario. Syncope of vowels in weak metrical positions accounts for the emergence of consonant clusters and morphophonological alternations in Trinitario. Besides, hiatus resolution has led to the phonologization of the consonant /*c*/, while the vowel /*æ̃*/ emerged from a process of monophthongization. Indirect consequences of Trinitario rhythmic syncope are the phonologization of the consonant /*ç*/, consonant loss and the development of phonological vowel length. An appendix presents 191 Proto-Mojeño reconstructions and cognate sets.

**KEYWORDS:** Historical Phonology; Reconstruction; Mojeño; Arawak; Syncope.

**RESUMO:** Neste trabalho abordamos nove fenômenos ou questões em aberto acerca da fonologia histórica do Mojeño, uma língua Arawak falada na Bolívia. Propomos soluções para essas questões com base em uma reconstrução do Proto-Mojeño, partindo da comparação entre as duas variedades existentes da língua, o Ignaciano e o Trinitario, e fazendo uso de fontes do século 17 sobre o Mojeño Antigo. Discordando de parte da literatura sobre o tema, mostramos que o contraste entre \**n* e \**ɲ* pode ser reconstruído para o Proto-Mojeño. Apresentamos evidências de que o contraste entre *s* e *ʃ* encontrado somente no Ignaciano resulta de um processo de simbolismo fônico. O mesmo dialeto também inovou ao perder o contraste entre \**a* e \**o* reconstruído para a proto-língua. Reconstruímos o sistema acentual do Proto-Mojeño e, a partir disso, explicamos a emergência de encontros consonantais e alternâncias morfofonológicas em Trinitario, como resultado da síncope de vogais em posições métricas fracas. Processos de resolução de hiato e de monotongação deram origem à /*c*/ e à /*æ̃*/ nesse mesmo dialeto. Consequências indiretas da síncope diacrônica incluem ainda a fonologização da fricativa /*ç*/, a perda de certas consoantes e o desenvolvimento de duração vocálica contrastiva. Por fim, um apêndice apresenta um conjunto de 191 etimologias com étimos reconstruídos para o Proto-Mojeño.

**PALAVRAS-CHAVE:** Fonologia histórica; reconstrução; Mojeño; Arawak; Síncope.

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<sup>1</sup> We thank Lev Michael and Denis Creissels for comments and suggestions. All remaining shortcomings are our own.

## 1. Introduction

This paper consists of a historical and comparative investigation of the phonological developments accounting for the diversification of Proto-Mojeño (henceforth, PM) into its attested, extant varieties: Ignaciano (ISO 639-3: ign) and Trinitario (ISO 639-3: trn), spoken by some 9.000 individuals in the Bolivian lowlands. We will also rely on varieties of the language documented by Jesuit missionaries in the late 17<sup>th</sup> century, usually called Old Mojeño (see Rose 2015a: 242), which constitute an interesting, and mostly understudied source of information on PM and its later diachronic development. Other Arawak languages will be compared to Mojeño in the remainder of the paper, including the closely related Paunaka, Terena and Baure and the more distantly related Paresi, Piapoco and the Campa subgroup.

The focus of the discussion will center around some controversial issues in the published literature on Mojeño, or on issues whose implications for the historical linguistics of the Mojeño language and its dialects have not been addressed in their full extent. The following topics will be dealt with here:

- (1) *Issues discussed in the present paper:*
  - (a) The nature of the contrast between *n* and *ɲ*;
  - (b) The nature of the marginal contrast between *s* and *f* in Ignaciano;
  - (c) The merger of *\*a* and *\*o* in Ignaciano;
  - (d) The diachrony of syncope in Trinitario;
  - (e) The development of *c* in Trinitario;
  - (f) The development of *æ̃* in Trinitario ;
  - (g) The status of the Trinitario fricative *ç*;
  - (h) Intervocalic consonant loss in Trinitario;
  - (i) The development of long vowels in Trinitario.

After a brief introduction to the sources of the data on all three Mojeño varieties and a summary presentation of the segmental phonology of the Mojeño varieties (section 2), we will discuss each of the issues in (1) in section 3. The presence of a contrastive palatal nasal stop *ɲ* in the Ignaciano and Trinitario varieties has been analyzed as an independent innovation in both dialects (see Jolkesky 2016: 30). We claim here, instead, that *\*ɲ* can be straightforwardly reconstructed for PM (3.1). The existence of a contrast between the two coronal fricatives *s* and *f* is an innovation of the Ignaciano dialect. We suggest that the distribution of Ignaciano *f* points to the operation of phono-symbolism in its emergence, not to regular sound change (3.2). Section 3.3 deals with the merger of PM *\*a* and *\*o* in the Ignaciano variety. Though there seems to be ample evidence in support of this development, some complications arise once Old Mojeño data is

brought to focus. The topic of diachronic syncope in the Trinitario dialect is the most complex one discussed here. We argue, in section 3.4, that Rose's (2008, 2014, 2017) hypothesis relating the operation of these reductive developments in the language and the prosodic system of 'a previous stage of language' is essentially correct. We show that reconstructing tentatively for PM an accentual system virtually identical to the one attested for the Ignaciano variety offers a more precise and empirically-grounded formulation to her account, even though, unsurprisingly, exceptional forms and apparent counterexamples - the nature of which is explicitly discussed - remain. The last sections deal with historical changes in Trinitario only that either relate to hiatus resolution or arise as a consequence of the syncope process pervasive in that variety. We briefly show in 3.5 and 3.6 that the emergence of *c* is to be found in hiatus resolution strategies and that *æe*, a complex monophthong, results from a development simplifying diphthongs. For the emergence of the Trinitario fricative *ç* we show that, contrary to the claims in Jolkesky (2016: 10), this is a *bona fide* member of this dialect's contrastive inventory (3.7). We argue that the extensive process of diachronic syncope was responsible for the phonologization of a previous allophonic variation in the realization of PM \**k*. It is also shown how syncope feeds a process of deletion of originally intervocalic consonants, often the rhotic *r*, yielding the compensatory lengthening of the preceding vowel and therefore making vowel length phonological (3.8). A synthesis of the paper and general conclusions are presented in section 4 and an Appendix includes 191 reconstructed PM etyma with their reflexes in Ignaciano, Trinitario and Old Mojeño.

## 2. A brief outline of Mojeño phonology and comments on the sources used

For the Mojeño Ignaciano variety, we relied on the description in Olza Zubiri *et al.* (2002) and on Ott & Ott (1983), the latter as a privileged source of lexical data. Sparse reference is also made to Ott & Ott (1959), an early report on the phonology of this dialect. For the extant Trinitario variety, we relied on Gill (1957, 1970), recent papers by Rose (2014, 2015a, 2015b, 2017) as well as Rose's extensive Trinitario *corpus*. For Old Mojeño we relied on the existing documentation of the 17<sup>th</sup> and 18<sup>th</sup> century variety of Mojeño known as 'Old Mojeño'. Very few studies on Mojeño have addressed in a systematic way this data (see Rose 2015a for an example). We hope to show here that these early documents often provide interesting insights on historical and diachronic issues.

The first yet much less extensive Old Mojeño source occupies a special place within Arawak historical linguistics. It was on the basis of a short Old Mojeño vocabulary, compiled by a certain Father Iraisos (see Olza Zubiri *et al.* 2002: 54), that Filippo Salvatore Gilij established the existence of the Arawak language family. He did so by showing the existence of far-reaching similarities, of the kind that call for a common origin explanation, between Old Mojeño and Maipure, an extinct Arawak language of the upper Orinoco whose description we also owe to him (see Zamponi 2003). The Iraisos Old Mojeño forms appear in the third book of Gilij's (1780: 367-371) *Saggio di Storia Americana*.

The second, much more extensive source is a grammar, vocabulary and catechism published in 1702 by the Jesuit Pedro Marbán. In addition to their differences in the amount of material available, Marbán uses a Spanish-based convention in writing the Old Mojeño materials, while Iraisos employed Italian orthographic conventions (see Gilij 1780: 367). Most of the transcriptions are transparent and, although slightly unsystematic, seem most often phonetically precise. As will become clear when forms from Marbán (1702) are cited, verbs and nouns, in particular inalienable nouns such as body part terms, appear in his documents preceded by the 1SG person prefix *nu-*.<sup>2</sup> We will make further comments regarding the interpretation of these documents as they become relevant for the paper. Finally, we adopt a convention here of presenting Old Mojeño forms followed by (M) for Marbán (1702) and (I) for Iraisos (*apud* Gilij 1780), so as to make clear the source of the forms discussed (the two sources are also kept apart in the cognate sets presented as an appendix).

For the extant varieties, the original transcriptions have been adapted, in particular those of the dictionaries of Ott & Ott (1983) and Gill (1993), opting instead for a more phonetically transparent transcription.<sup>3</sup> Symbols are used here with their standard IPA phonetic values, except for the flap *r*, represented here as *r*. Tables 1 and 2 present the phonological inventory that we reconstruct for PM; in the remainder of this paper we offer justifications for these reconstructions and for implied developments in the two extant varieties.

**Table 1:** Proto-Mojeño (PM) Consonants

	Labial	Alveolar	Palatal	Velar	Glottal
Oral Stops	* <i>p</i>	* <i>t</i>		* <i>k</i>	* <i>ʔ</i>
Affricates		* <i>ts</i>	* <i>tʃ</i>		
Fricatives		* <i>s</i>			* <i>h</i>
Nasal Stops	* <i>m</i>	* <i>n</i>	* <i>ɲ</i>		
Rhotic		* <i>r</i>			
Approximant	* <i>w</i>		* <i>j</i>		

The phonological inventory that is reconstructed for PM does not differ in important respects from that described for the modern varieties, which, in turn, are not very distinct one from the other. The Ignaciano segments are the same as those of PM, plus the *f* sound that will be the topic of section 3.2, and minus the *o*, as discussed in section 3.3. The Trinitario inventory has been described with three more consonantal phonemes than PM (see Rose 2014: 377; 2015b: 62-63). The palatal fricative *ç* is an innovation of the Trinitario dialect, and in section 3.7 we assume its status as an independent member of the contrastive inventory, following Gill (1957) and Rose (2014: 377; 2015b: 63), despite

<sup>2</sup> Glossing conventions and grammatical abbreviations used here are as follows: 1SG ‘first person singular’, 1PL ‘first person plural’, 3NH ‘third person non-human’, 3M ‘third person masculine’, 3F ‘third person feminine’, PLURACT ‘Pluralactional’, PAT.NZ ‘Patient Nominalization’, MID ‘Middle voice’.

<sup>3</sup> In adapting the transcriptions from the sources to the present paper, where forms are given in a more transparent phonetic representation, the following adjustments will be made to all forms: <*v*> = *w*, <*hu*> = *w*, <*ch*> = *tʃ*, <’> = *ʔ*, <*g*> = *ç*, <*qu*, *c*> = *k*, <*ñ*> = *ɲ*.

the criticisms of Jolkesky (2016: 10). The palatal stop *c* is also an innovation of Trinitario (3.5), and is considered an independent member of the contrastive inventory by Rose (2015b: 63). Gill (1957: 10) only notes that its pronunciation differs from the sequence of a *t* and a palatal approximant *j*. Both Gill (1957: 23) and Rose (2014, 2015b) describe an opposition between  $\beta$  and *w* in Trinitario, while available descriptions of the Ignaciano dialect postulate a single consonant, usually written <*v*>, with [w] and [β] as allophones (Ott & Ott 1983: 6; Olza Zubiri *et al.* 2002: 7). The distribution of  $\beta$  and *w* is basically the same in the two language varieties, with [β] found before front vowels, and [w] before non-front vowels. Trinitario shows one exception to this distribution (besides loanwords like *wiye* ‘ox’ from Spanish *buey*): the negation word shows two variants *wo* ~ *wi*, thus showing [w] before a front vowel. This exception can convey a meaning difference, as shown by the minimal pair [βiʝʔo] ‘we call’, [wiʝʔo] ‘not yet’ (based on the negation word). Taking this into account leads to considering [w] and [β] as two phonemes; overlooking this exception leads to analyzing them as allophones of a single phoneme. In this paper, we will not consider this emerging contrast as relevant since the reconstruction of one phoneme only for PM is rather straightforward. Now, for the back fricative often likened to the Spanish *jota* (and, accordingly, represented as <*j*> in most practical orthographies), there is a difference of phonetic realization between Trinitario and Ignaciano. Ott & Ott (1959: 4) describe the fricative *h* of Ignaciano as a glottal, while Rose (2017) describes an allophony between a velar and a glottal fricative. Interestingly, Rose’s description seems to resonate with Marbán’s description of Old Mojeño <*h*>, explicitly described as close to a velar fricative (Marbán 1702: 1).<sup>4</sup> Despite the allophonic variation between [x] and [h] in Trinitario, there are phonological reasons for treating this segment as a glottal and we will represent it uniformly as *h*.

**Table 2:** Proto-Mojeño (PM) Vowels

	Non-Back	Back Unrounded	Back Rounded
High	* <i>i</i>		* <i>u</i>
Mid	* <i>e</i>		* <i>o</i>
Low		* <i>a</i>	

We reconstruct the vowels *a*, *e*, *i*, *o*, *u* for PM. Trinitario additionally shows a central, complex monophthong əē (Gill 1957: 6; Rose 2015b: 62); Ignaciano has neither the back rounded vowel *o* nor a central monophthong (Ott & Ott 1983: 5; Olza Zubiri *et al.* 2002: 7). From a comparison of the two extant varieties it can be shown that PM \**a* and \**o* merged as *a* in Ignaciano (see Rose 2015a: 245; Jolkesky 2016: 30), though the Old Mojeño evidence is ambiguous (see section 3.3). The Trinitario central monophthong emerged as a result of a monophthongization change that inserted a synchronic rule, still active and targeting diphthongs derived by from hiatus configurations (see section 3.6). Finally, vowel length is contrastive in Trinitario, but not in Ignaciano (Rose 2015b: 63). This will be shown to be an indirect consequence of syncope (see section 3.9)).

<sup>4</sup> In the original: “La H usa mucho esta lengua, y quando es aspiracion, la pronuncia el Indio com tanta fuerza, que parece G” (Marbán 1702: \*\*1). Note that Spanish <*g*> is a velar fricative ɣ in most contexts.

### 3. Problems in the historical phonology of the Mojeño dialects

This section constitutes the core of the paper, where specific proposals concerning the development of the attested Mojeño varieties and some hypotheses on the structure of PM are advanced. Original claims are also made on Old Mojeño and its representation in the two existing sources documenting this variety.

#### 3.1. The palatal nasal *ɲ*

Jolkesky (2016: 30) claims that the palatal nasal *ɲ* is rare (i.e. has a low frequency in representative *corpora*) in both Ignaciano and Trinitario. As to its historical origin, he speculates that context-dependent developments of PM *\*j* or *\*n* could be involved in their independent origin in each of the two varieties.<sup>5</sup> We disagree with this proposal. As we show in this section, *ɲ*, though infrequent in both extant varieties, is a reflex of PM *\*ɲ*.<sup>6</sup>

At least five basic lexical items, some less basic items and one grammatical morpheme allow for the straightforward reconstruction of PM *\*ɲ* as shown in Table 3.

**Table 3:** Evidence for PM *\*ɲ*

	Ignaciano	Trinitario	Old Mojeño
louse	<i>ɲeti</i>	<i>-ɲe, ɲere</i>	< <i>niyñe, yñere</i> > (M)
belly	<i>-ɲuriʔe</i>	<i>-ɲuri</i>	< <i>ñuri</i> > (M)
waist	<i>-ɲaʔe</i>	<i>-noʔe</i>	-
ear	<i>-kɲa</i>	<i>-çɲo</i>	< <i>nuquiña</i> > (M)
finger nail	<i>-hipaɲa</i>	<i>-hipno</i>	< <i>nujipogno</i> > (I)
be a coward	<i>-puɲakawa</i>	<i>-puɲokwo</i>	-
bend, bent	<i>-epɲu</i>	<i>-epɲu-ko</i>	< <i>epiñu</i> > (M) <sup>1</sup>
gather, collect	<i>-ɲu-pai-ka</i>	<i>-ɲu-ʔe-ko</i>	-
sand	<i>-ɲariri-</i>	-	< <i>ñaririqui</i> > (M) < <i>gnagnirichi</i> > (I)
3M (female speaker)	<i>ɲi-</i>	<i>ɲi- ~ ɲ-</i>	< <i>ñi</i> > (M)

<sup>5</sup> We quote the referred source in full on this issue, so as to exclude the possibility that we have misunderstood it: '(...) a presença do fonema /ɲ/ in TRI [i.e. Trinitario] é rara e parece ter emergido em um período recente, provavelmente associado a contextos particulares de realização dos fonemas *\*n/* e *\*j/* do PTRI [i.e. Proto-Trinitario] (...) Além disto, se observa a emergência dos fonemas IGN [i.e. 6Ignaciano] /s/ e /ɲ/: ambos são raros e devem ter emergido em um período recente, provavelmente associado a contextos particulares de realização dos fonemas *\*s/*, *\*n/* e *\*j/* do PIGN [i.e. Proto-Ignaciano].' (Jolkesky 2016: 30).

<sup>6</sup> This should not be understood as implying that PM *\*ɲ* is the only and exclusive source of *ɲ* in Ignaciano and Trinitario. Palatal nasal stop occurs in some fauna items such as Ignaciano *asaɲare* 'wild cat sp.' and *amaɲa* 'lizard sp.' (Olza Zubiri *et al.* 2002: 12-13) that may be loans.

<sup>7</sup> Marbán's (1702: 474) gloss is 'El torno o Vuelta del Río'.

Old Mojeño and Trinitario have two forms for ‘louse’, a possessed form (with 1SG prefix *n-* in Old Mojeño) and an absolute, non-possessed form marked with the suffix *-re*. It differs from the Ignaciano non-possessed form that uses the suffix *-ti* even though the absolute suffix *-re* is also attested in Ignaciano (see Olza Zubiri *et al.* 2002: 40-45). The modern forms for ‘sand’ seem to have become restricted in their distribution. Old Mojeño <*gnagnirichi*> (I),<sup>8</sup> <*ñaririqui*> (M) has no cognate as independent nouns in either Ignaciano or Trinitario, where the forms for ‘sand’ are *tawaparu* (Ott & Ott 1983: 484) and *tawoparu* (Gill 1993: 5), respectively. But Ignaciano *-nariri-haka* ‘to feel sand in one’s mouth’, *-nariri-waʔu* ‘to have sand in the hand’ and *-nariri-kiaʔe* ‘to have sand stuck between the teeth’ (Ott & Ott 1983: 292), where the rightmost element in each case is a body-part verb classifier, show a cognate root *nariri-* (see Olza Zubiri *et al.* 2002: 192-319 on the verb classifiers). We were unable to find any Old Mojeño cognate for the set Ignaciano *-puna-ka-βa* ‘to be a coward’ (Ott & Ott 1983: 304), Trinitario *-puno-k-wo* ‘to be a coward’ (Gill 1993: 35), both including the thematic suffix *-ka/-ko* and the reflexive *-wa/-wo* (see Olza Zubiri *et al.* 2002: 444-445). Finally, an etymon *\*ju-* ‘to gather, collect’ can be reconstructed based on the set: Ignaciano: *-ju-pai-ka* ‘to collect’ (fallen objects), *-ju-ki-ʔa* ‘to collect’ (grains, rice), *-juju-me-ka* ‘to collect carefully (grains, lice)’ (Ott & Ott 1983: 292); Trinitario: *-juhko* ‘to collect grains (coffee, rice)’, *-jupweko* ‘to collect’, *-juʔeko* ‘to collect, gather’ (Gill 1993: 31). In each case the root is followed by classifiers and the thematic syllable deriving active verbs (see Olza Zubiri *et al.* 2002: 53-99 and Rose 2014: 380 for a discussion of the thematic syllables in Ignaciano and Trinitario). Ignaciano *-juju-me-ka* ‘to collect carefully (grains, lice)’ is particularly interesting for underscoring the status of *ju-* as a root, since reduplication in the language seems to be restricted to root elements (see Olza Zubiri *et al.* 2002: 905-921; Rose 2014).

Though some of the instances of a palatal nasal in the data in table 3 occur next to front vowels, usually the conditioning environments for their emergence, *\*n* and *\*ɲ* did contrast, even in the context of front vowels, in PM. This is most easily shown by the free occurrence of *\*n* preceding or following these segments (see table 4).

**Table 4:** Evidence for PM *\*n* in the context of front vowels

	Ignaciano	Trinitario	Old Mojeño
tongue	<i>-nene</i>	<i>-nene</i>	< <i>nunenê</i> > (M)
house	<i>-pena</i>	<i>-peno</i>	< <i>nupeno</i> > (M)
son-in-law	<i>-fina</i>	<i>-fina</i>	< <i>nuchina</i> > (M)
jaguar	<i>iʔfɪni</i>	<i>ʔfɪni</i>	< <i>ichini</i> > (M)
garden	<i>-esane</i>	<i>-esane</i>	< <i>nesane</i> > (M)
achiote	<i>i'nire</i>	<i>ʔniire</i>	-

<sup>8</sup> Note that the Iraisos source follows Italian orthographic conventions where <*gn*> = *j*.



We conclude, therefore, that compelling evidence exists for reconstructing a PM contrast between *\*n* and *\*ɲ*, a better hypothesis than that which assumes independent innovation of *ɲ* in both extant varieties from context-dependent developments of other PM phonemes. Of comparative significance, note that *ɲ* occurs only as an allophone of *n* in Baure (Danielsen 2007: 47) and only in a few probable loanwords in Paunaka (Danielsen & Terhart 2014: 228). In Terena, however, *n* and *ɲ* occur as marginally contrastive segments, and their distribution in minimal or near-minimal pairs can be made sense of by reference to front vowels in their Mojeño cognates: Terena *-kêɲo* ‘ear’ vs. *-êno* ‘mother’: Proto-Mojeño *\*-kiɲo* ‘ear’ vs. *\*-eno* ‘mother’.<sup>9</sup>

### 3.2. The Ignaciano *s* - *f* contrast

Philological issues relating to the representation of fricatives and affricates in early Colonial Spanish sources are a classical area of investigation - and often a source of complex problems - in the analysis of older documents on indigenous languages (see for instance the discussion in Mannheim 1988 for Southern Peruvian Quechua and Lockhart 2001: 104-115 for Classical Nahuatl). Fortunately, the issues faced in dealing with the Old Mojeño documents are far simpler than the norm and we will go through them while addressing the status of the (alveo-) palatal fricative *f* reported for Ignaciano. Jolkesky (2016: 30) attributes the emergence of Ignaciano *f* to a recent, context-dependent development of *\*s* in this variety (see footnote 5). We argue here that the chronology proposed may be correct, but that the development in question was not a regular sound change.

Table 5 presents data bearing on the correspondences attested between the fricatives and affricates of the three Mojeño varieties under discussion, as well as on the philological issue of how these segments were represented in the Marbán (1702) Old Mojeño materials. Assuming *<x>* to be the grapheme usually employed for *f* in Colonial Spanish sources (see e.g. Mannheim 1988: 172; Lockhart 2001: 112), the absence of *<x>* in Marbán (1702) is a first indication that *f* was not found in Old Mojeño. As the assumption that *<ch>* stands for *f* is non-problematic,<sup>10</sup> and given that *<s>* regularly stands for *s*, we will focus here on the representation of *ts*.

<sup>9</sup> Unless noted otherwise, Terena data come from the first author’s fieldwork. The topic of marginally contrastive oppositions in this language, such as *n* and *ɲ*, is currently under investigation.

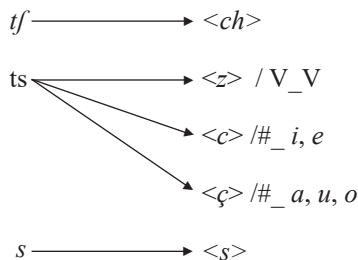
<sup>10</sup> Since there is no vacillation in the use of *<ch>* by Marbán (1702) and that it always corresponds to Ignaciano and Trinitario *f*, we see no reason to doubt that it maintains the Spanish value and represents therefore a voiceless alveo-palatal affricate. Regular correspondence with *<ci>/<cci>/<cc>* in the Italian orthography of the Iraisos source offer additional support to this interpretation.

Table 5: Mojeño Fricatives and Affricates

	Ignaciano	Trinitario	Old Mojeño
jaguar	<i>i'ʔfini</i>	<i>ʔʔfini</i>	<ichini> (M)
person	<i>aʔfane</i>	<i>ʔʔfane</i>	<achanè> (M)
spine	<i>-mitsuki</i>	<i>-mitsçiçi</i>	<mizuqui> (M)
eyelashes <sup>11</sup>	<i>-matsi</i>	<i>-motsipa</i>	<mozicò> (M)
grandmother	<i>-atse</i>	<i>-otse</i>	<oze> (M)
white mud <sup>12</sup>	<i>patsa</i>	<i>-patsa-ʔfo</i>	<pazo> (M)
shin	<i>-tsana-ki</i>	<i>-tsano</i>	<çanaqui> (M)
elbow	<i>-tsutsu</i>	<i>-tsutsu</i>	<çuçu> (M)
ashes	<i>-tsima</i>	<i>-tsima</i>	<cima> (M)
tear	<i>-tsera</i>	<i>-tsera-mo</i>	<cera> (M)
nose	<i>-siri</i>	<i>-siri</i>	<nusiri> (M)
crab	<i>sase</i>	<i>sose</i>	<sose> (M)
roast	<i>-suru-ka</i>	<i>-suu-ko</i>	<nusuruquiò> (M)
resemble	<i>-wasi</i>	<i>-wosi</i>	<nubosi> (M)

As seen by an inspection of the data in Table 5, Marbán (1702) uses <z>, <c> and <ç> to represent modern Mojeño *ts*. The grapheme <c> represents [k] preceding <a>, <o> and <u>. <sup>13</sup> The same grapheme <c>, preceding the front vowels <i> and <e>, is an allograph of <ç> for the sound [ts], a recurrent pattern in Colonial Spanish orthographies (see Mannheim 1988: 171-173 for the <c> ~ <ç> allography; see Alexander-Bakkerus 2005: 86 on the pluri-functionality of <c>). A composite statement of the relation between fricative/affricate phonemes and their graphemic representation in the Old Mojeño material of Marbán (1702) is given in (2).

(2) Graphemic representation of Old Mojeño (M) fricatives/affricates.



<sup>11</sup> The Old Mojeño form is a verb meaning “caerse las pestañas”.

<sup>12</sup> The Old Mojeño gloss is ‘white mud’ (“Tierra blanca”, Marbán 1702: 568). For Ignaciano the gloss in Ott & Ott (1983: 297) is ‘whitewash’ (“la cal”). The Trinitario form is a verb meaning ‘to paint’ (Gill 1993: 33). Right below <pazo> “tierra blanca”, Marbán (1702: 568) gives <nupazochô> “blanquear con ella”, that is, to make something turn white using <pazo>.

Old Mojeño must have had only *s* and the affricates *ts* and *tʃ*, being in this respect identical to Trinitario. There is no evidence that 17<sup>th</sup> century Old Mojeño had an alveo-palatal fricative *f*. However, an early statement on the phonology of Ignaciano, Ott & Ott (1959: 3), reported the occurrence of *f* in three lexemes: *mifi* ‘cat’, *fipu* ‘girl’ and *fena* ‘woman!’ (a greeting used among women). Later, Ott & Ott (1983: 324) added *juima* ‘young man’, a vocative form used among males, *fuakima* ‘young boy’, a vocative form used by older males addressing younger ones, to the limited set of forms showing *ʃ* (Olza Zubiri *et al.* 2002: 45 describes these as ‘absolute vocatives’). Ott & Ott (1983: 324) also described *fena* and *fipu* as vocative forms. The other forms cited are *ʃipururuki* ‘bird (sp.)’ and *ʃapiti*, an exclamation of surprise (Ott & Ott 1983: 323-324).

Starting with *mifi* ‘cat’, though an obvious loanword (ultimately of Spanish origin), there is no obstacle to treat it as a cognate in the Mojeño varieties. The form is attested among South American indigenous languages from the start of 17<sup>th</sup> century (Kiddle 1964: 300) and, given the shallow time depth reasonably assignable to the diversification of Mojeño, it may have entered the language at the PM stage. Note, however, that the correspondence for the medial consonant is irregular. Given Trinitario *mitsi* (Gill 1957: 18; 1993: 20) and Old Mojeño <*mizi*> (Marbán 1702: 241) we expect Ignaciano *mitsi*, not *mifi* (see table 5). One explanation for this irregularity is to assume that Ignaciano borrowed this term independently, perhaps from a source *mifi*. Another explanation is that this is indeed a reflex of PM *\*mitsi*, but that it was altered by some process other than regular sound change. In our view, the overall distribution of *f*, discussed in the following paragraphs, supports the second hypothesis.<sup>14</sup>

We were unable to find any obvious cognate of the other forms, *fipu*, *fena*, *juima* and *fuikima*, in the other two Mojeño varieties. The vocative *fena* ‘woman’ is arguably related to the non-vocative *esena* ‘woman’, though the other vocatives seem to lack a clear, non-vocative source. The form *juima* has apparent external cognates in Paresi *hoima* (Brandão 2014: 376) and Piapoco *sùmà-i* ‘boy’, *sùmà-u* ‘girl’ (Klumpp 1995: 140), which suggests that it is really part of the inherited lexicon, even if no cognates are preserved in Trinitario and Old Mojeño. In spite of the existence of cognates elsewhere, the isolated status of Ignaciano *f* is underscored by a preliminary survey of correspondences with these more distantly related languages: the Paresi fricative *q* in *hoima* seems to correspond to either *j*, preceding *a*, as in Paresi *θawati* ‘axe’ (Brandão 2014: 165); Ignaciano *jawati* (Ott & Ott 1983: 564) and Paresi *θatini* ‘night’ (Rowan 2001: 78); Ignaciano *jati* (Ott & Ott 1983: 593), or to *h*, elsewhere, as in Paresi: *θoretse* ‘star’ (Brandão 2014: 176); Ignaciano *harairiki* (Ott & Ott 1983: 550),<sup>15</sup> Paresi *θera* ‘sing’ (Brandão 2014: 201), Ignaciano *-hira* ‘sing’ (Ott & Ott 1983: 501).

<sup>13</sup> [k] is written <*qu*> preceding front vowels.

<sup>14</sup> A reviewer claims that OM and Trinitario forms *mitsi*, also, presumably, PM *\*mitsi*, call for an explanation since the usual sources of this word in the indigenous languages of South America would make *tʃ* the expected segment in medial position. I agree with the reviewer, but I consider this an independent issue that will remain a matter for a future investigation. Note that Kanichana, an isolate previously spoken close to the Mamoré river in the the Mojos province, has a form <*metse*> ‘cat’ (Créqui-Montfort & Rivet 1913: 366).

<sup>15</sup> The change *\*k* > *ts* preceding *e* (whether from *\*i* or *\*i*) seems to be regular in Paresi. See the cognate sets for ‘eat’, ‘fish’, ‘eye’ and ‘hear’ in Payne (1991: 402-407).

The combination of exceptions to regular correspondence patterns (in the reflex of PM *\*mitsi*) and a distribution restricted to vocatives (address forms) strongly suggests the operation of sound symbolism as the factor behind the emergence of *ʃ* in Ignaciano (see Matthews 1970 for the classic case of the Siouan fricatives and De Reuse 1986 for sound symbolism and the fricative *ʃ* of Santiago del Estero Quechua). Particularly relevant is the fact that a process deriving address/vocative forms involving the palatalization of a base or referential form is attested among the languages of the Campa branch of the Arawak language family. In Nomatsigenga, for instance, one has *na-síntjo* ‘my daughter’ (voc.), versus *na-sínto* ‘my daughter’ (ref.), *no-tjómi* ‘my son’ (voc.), versus *no-tómi* ‘my son’ (ref.) (Shaver 1996: 268). An identical pattern is attested in Ashéninka (Payne 1980: 87; Apurucayali variety), where the frequent presence of palatal consonants among vocatives is a noteworthy regularity (e.g. *ʃeʃa* ‘grandmother’ (voc.), *ʃʰooki* ‘sister’ (voc.); 1980: 58, 146), also attested elsewhere in the family (see Baure: *-iaʔ* ‘father’ (ref.) versus *ʃaʃ* (voc.); *-piri/-aj* ‘brother’ (ref.) versus *ʃon* (voc.); Danielsen 2007: 122-123). Finally, note that the use of palatalization as a sound-symbolic device to iconically express ideas related to ‘smallness’, ‘childishness’ or ‘affection’ is cross-linguistically recurrent (see Kochetov & Alderete 2011 for a recent overview), implying that it is very plausible that the non-regular change of certain consonants to *ʃ* in these Ignaciano items has been innovated independently after the PM stage. That such an innovative segment eventually became contrastive is far from surprising, as similar developments are documented for other languages, as in Basque expressive palatalization (see Trask 1997: 148-149).

We conclude that facts related to the distribution of Ignaciano *ʃ* and comparisons with forms having this consonant and their cognates elsewhere, where these are available, are best explained by postulating the occurrence of expressive palatalization.

### 3.3. The merger PM *\*a*, *\*o* > *a* in Ignaciano

As noted in section 2, Ignaciano differs from Trinitario in having a single back rounded vowel *u*, while Trinitario has both *o* and *u*. Rose (2015a: 245, fn. 3) suggested that Ignaciano neutralized the opposition between *o* and *a* which is attested in Trinitario and Jolkesky (2016: 30) explicitly proposes a merger of PM *\*a* and *\*o* as *a* in Ignaciano. In this section we consider in detail the relevant comparative correspondences, bringing to fore the data on Old Mojeño that raise some issues that so far have not been addressed.

The distribution of the two correspondences, (1) Ign *a* : Trin *o* : OM *o* (Table 6) and (2) Ign *a* : Trin *a* : OM *a* (Table 7), do not suggest any contextual factor that could point to a split in Trinitario and in Old Mojeño. Since the latter identity correspondence is non-controversially accounted by reconstructing *\*a*, a sensible assumption is to assign the former, non-identity correspondence to *\*o*, implying a merger of the two phonemes in Ignaciano.

**Table 6:** Correspondence set Ign *a* : Trin *o* : OM *o*

	Ignaciano	Trinitario	Old Mojeño
fog	<i>ijaru</i>	<i>ʔjoru</i>	< <i>yoru</i> > (M)
cloud	<i>uka</i>	<i>uko</i>	< <i>ucô</i> > (M) < <i>ucóji</i> > (I)
earth, mud	<i>mate</i>	<i>mote</i>	< <i>motehi</i> > (M) < <i>moteji</i> > (I)
grandmother	<i>-atse</i>	<i>-otse</i>	< <i>nuoze</i> > (M)
wife	<i>-jena</i>	<i>-jeno</i>	< <i>nuyeno</i> > (M) < <i>nujèno</i> > (I)
shoulder, arm	<i>-pawa</i>	<i>-powo</i>	< <i>nupoboqui</i> > (M)
tooth	<i>-aʔe</i>	<i>-oʔe</i>	< <i>nuoe</i> > (M) < <i>nuòì</i> > (I)

**Table 7:** Correspondence set Ign *a* : Trin *a* : OM *a*

	Ignaciano	Trinitario	Old Mojeño
sky	<i>anu-ma</i>	<i>anu-mo</i>	< <i>anumô</i> > (M) < <i>anumó</i> > (I)
stone, stony floor	<i>mari</i>	<i>mari</i>	< <i>mari</i> > (M)
sun	<i>satʔe</i>	<i>satʔe</i>	< <i>saachê</i> > (M) < <i>sâcce</i> > (I)
person	<i>atʔane</i>	<i>ʔʔʔane</i>	< <i>achanè</i> > (M)
son-in-law	<i>tʔina</i>	<i>tʔina</i>	< <i>nuchina</i> > (M)
name	<i>-iha</i>	<i>-iha</i>	< <i>niharè</i> > (M)
hear	<i>-sama</i>	<i>-samo</i>	< <i>nusamo</i> > (M)

Consideration of more extensive data on Old Mojeño raises some issues, though, as a third correspondence, Ign *a* : Trin *o* : OM *a*, has to be recognized (e.g. OM <*tihapú*> ‘white’, Trin. *-hopu*, Ign. *-hapu*; OM <*yati*> (M) ‘night’, Trin. *joti*, Ign. *jati*). Setting up this third correspondence is necessary only to accommodate some OM forms that behave exceptionally in relation to the correspondences noted in tables 6 and 7.

For the moment we will place greater trust on the testimony of the better-described extant varieties, thus accepting the postulation of a merger of PM *\*o*, *\*a > a* in Ignaciano. The reasons behind the existence of this third correspondence set deserve further investigation but dialect mixture in these earlier materials seems to be a plausible explanation (see Denevan 1966: 31-33). Actually, Marbán (1702) mentions marginal morphosyntactic variants in the variety spoken in the missions of the Pampa (arguably Pre-Ignaciano), but does not discuss phonological variation. It is plausible that some word forms from Pre-Ignaciano have inadvertently been integrated in his work. Note as well that, as shown in Carvalho (2017: 10-11), external evidence from Terena, one of the closest relatives of Mojeño, provides additional support for the reconstruction, at a stage earlier than PM, of *\*o* for the correspondence exemplified in table 6 (cf. e.g.

Terena *ûko* ‘cloud’, *môte* ‘mud’, *jêno* ‘wife’) opposing \**a*, whose unchanged reflexes are attested in table 7 (cf. e.g. Terena *káfe* ‘sun’, *fâne* ‘man, person’, *-kâmo* ‘hear’). For those cognate sets where the OM data calls for the recognition of a third correspondence, Terena cognates always agree with the conservative state attested in Trinitario, cf. Terena *jóti* ‘night’, *-hopú-* ‘white’. What this shows is that a contrast between \**a* and \**o* can be probably reconstructed to the common ancestor of Terena and Mojeño, called Proto-Achane in Carvalho (2017: 13-14), making it more likely that this contrast was present in PM and that Ignaciano alone has innovated by losing it.

### 3.4. A diachronic account of syncope in Trinitario

In this section we will try to provide a comprehensive and unified approach to historical syncope in Trinitario, relying, to a large extent, on the synchronic descriptions of morphophonological  $V \sim \emptyset$  alternations in this variety and its close interaction with the language’s prosodic system (Rose 2017). The PM reconstructions proposed here and the implied developments of these etyma in Trinitario are entirely consistent with the diachronic account of Trinitario syncope proposed in Rose (2008; 2014: 377-379), the sole difference being that we explicitly identify what she calls ‘a past stage of the language’ (Rose 2015b: 69) with PM and that we rely systematically on descriptions of the prosodic systems of the modern varieties for inferring the likely proto-system.<sup>16</sup>

Comparative data such as that in table 8 have been recently presented as involving diachronic syncope in Trinitario (Rose 2008, 2014). Lost vowels are indicated in bold in the Ignaciano and Old Mojeño cognates.

**Table 8:** Comparative evidence for syncope in Trinitario

	Trinitario	Ignaciano	Old Mojeño
eye	- <i>uç-ʔa</i>	- <i><b>uki</b>-ʔa</i>	< <i>nuuquì</i> > (M)
arm	- <i>powçi</i>	- <i><b>pawaki</b></i>	< <i>nupoboqui</i> > (M)
person	<i>ʔfane</i>	<i><b>a</b>fane</i>	< <i>achanè</i> > (M)
grandson	- <i>amri</i>	- <i><b>a</b>mari</i>	< <i>nuamori</i> > (M)
ant	<i>kʔfîru</i>	<i><b>ka</b>fîru</i>	< <i>cachirû</i> > (M)

Though the innovative character of Trinitario *vis-à-vis* Ignaciano and Old Mojeño, as far as the correspondences exemplified in table 8 are concerned, can be safely established (see Rose 2008; Jolkesky 2016: 31), advancing a more precise diachronic account for the patterns in question is still needed.

<sup>16</sup> Following a proposal of Fox (2000: chapter 3), who in turn relied on Beckman (1986), we employ the term ‘accent’ as an abstract, superordinate term for describing the syntagmatic pattern whereby an element of the speech chain is singled out in relation to surrounding elements, irrespective of the (phonetic) means by which this is achieved or implemented (e.g. independently of whether the accent in question can be described as a *pitch-accent* or a *stress-accent*). The term accentuation is used in the broader sense of the overall organization of speech with respect to accents (Fox 2000: 115).

We will assume for PM an accentual pattern virtually identical to the one described in Ignaciano, and reconcile it with the current accentual system of Trinitario. This will allow to neatly explain the emergence of both consonant clusters and of synchronic V ~ Ø alternations in Trinitario, as well as accounting for some irregularities in the distribution of accented elements in Ignaciano.

### 3.4.1. Accentual pattern in Ignaciano

The placement of accent in the Ignaciano variety seems to be bounded to the left edge of the prosodic word: as briefly noted by Ott & Ott (1983: 6), the second syllable of the word is accented, unless a word is disyllabic, in which case accent falls on the first or word-initial syllable, a statement in agreement with Olza Zubiri *et al.* (2002: 7). The accentuation of disyllabic forms is of crucial importance, for it shows that there is a strong constraint against accenting the word-final syllable, suggesting that these are invisible/extrametrical as far as accentuation rules are concerned. A few words with three or more syllables show, exceptionally, word-initial accent (such as 'sarare 'animal', cf. Olza Zubiri *et al.* 2002: 7, 11) and, for this reason, accent is said to be phonemic in the language (see e.g. Ott & Ott 1959: 9). The transcription employed by Olza Zubiri *et al.* (2002) assumes this basic understanding of Ignaciano prosody, using a special diacritic, the acute mark <'>, to indicate only the exceptional word-initial accent of certain words with three or more syllables; elsewhere the accented syllable is not indicated. From now on we will use the IPA symbol ['] to mark the accented syllable in all Ignaciano forms.

At different points in their description of Ignaciano, Olza Zubiri *et al.* (2002: 23, 36) insist quite emphatically on the fact that prefixable roots - possessable nouns, transitive verbs and some intransitive verbs - are accented in their root-initial syllable. For consonant-initial roots the resulting word-level accentuation pattern is trivially consistent with the *default* distribution: the second-syllable of the word is accented and the first, pre-accent syllable is usually a CV-shape person prefix. When the root is vowel-initial, however, accent falls on the first syllable of the word, as exemplified below (data from Olza Zubiri *et al.* 2002: 22-23):

#### (3) *Ignaciano accentuation.*

- |     |           |               |                          |
|-----|-----------|---------------|--------------------------|
| (a) | <i>nu</i> | <i>-pena</i>  | [nu'pena]                |
|     | 1SG       | -house        |                          |
|     |           | 'my house'    |                          |
| (b) | <i>nu</i> | <i>-apera</i> | ['napera]                |
|     | 1SG       | -bone         |                          |
|     |           | 'my bone'     |                          |
| (c) | <i>ma</i> | <i>-upana</i> | ['mawpana] <sup>17</sup> |
|     | 3M        | -liver        |                          |
|     |           | 'his liver'   | (man speaking)           |

<sup>17</sup> We assume that what is written as <au> actually consists of a glide [aw]. This is supported by the accentuation (see below).



In (a), where a CV prefix surfaces preceding a consonant-initial root, the default accentuation pattern occurs, with accent falling on the second syllable of the word. In (b) we have a 1SG prefix whose underlying form is *nu-*; preceding a vowel-initial root, however, its vowel is subject to elision and surfaces as *n-* to avoid hiatus. Due to the loss of the prefix vowel, the word ends up having its initial syllable accented. Synchronically, it is possible to postulate for this Ignaciano word an underlying form /*nu'apera*/, which surfaces as [*'napera*] after loss of the prefix vowel, accounting for the exceptional word-initial accentuation by ordering the *default* accent placement rule before the rule of prefix vowel elision (as seen below, a virtually identical analysis is offered by Rose (2017) for Trinitario hiatus resolution). In (c), the third person masculine prefix *ma-* does not have its vowel elided, thus surfacing with a diphthong. Here again, hiatus resolution leads to the loss of the initial unaccented syllable, and accent appears on the initial syllable on the surface. The cases in (b) and (c) exemplify a systematic morphophonological pattern of exceptions in the accentuation pattern of Ignaciano.

It is not true, however, that prefixable roots are always accented on their initial syllable in Ignaciano. When they are preceded by both a person prefix and another morpheme (called infix by Olza Zubiri et al.), the second syllable of the word is accented and then the accent is not on the root. (4) gives examples with the two verbalizers *ka-* and *si-* (Olza Zubiri et al. 2002 :762, 765, 824).

(4) *Accentuation of Ignaciano words with two prefixes.*

<i>nu</i> <sup>1</sup> - <i>ka-pena</i>	'I live, I have my dwelling' (from <i>pena</i> 'house')
<i>su</i> <sup>1</sup> - <i>ka-mwiri?a</i>	'she wears (clothes)' (from <i>mwiri?a</i> 'someone's dress')
<i>nu</i> <sup>1</sup> - <i>si-pera</i>	'I have plenty of mounts' (from <i>pera</i> 'mount')
<i>nu</i> <sup>1</sup> - <i>si-pekatura</i>	'I am a big sinner' (from <i>pekatura</i> 'sin').

Olza Zubiri et al. (2002) account for this stress placement by presenting these "infixated" morphemes as accented. We believe instead that accent placement in these cases, as elsewhere, is best described as falling on the second underlying syllable of the word (whatever its morphological analysis), except on bisyllabic words and some rare trisyllabic nouns where it falls on the word-initial syllable.

### 3.4.2. Accentual pattern in Trinitario

A much more detailed and theoretically informed analysis of Mojeño prosody is found in Rose's (2017) account of syncope in the Trinitario variety. Trinitario main accent falls on the last foot, whatever the metrical parse (unfooted syllables are indicated by braces {}). Trinitario shows a default iambic rhythmic parse that is entirely consistent with the *default* stress pattern of the Ignaciano variety. The rhythmic pattern applies to the underlying form of words, posited as being constituted by a succession of open syllables. Words are parsed from left to right by binary iambs, that is, Prosodic Feet with a weak-strong pattern, and the last syllable is extrametrical, as shown in (5). Just as in Ignaciano, disyllabic nouns (and a few trisyllabic nouns like 'sorare 'animal', cognate with Ignaciano 'sarare) are accented on the first syllable.



(5) *Trinitario iambic parse*

(. x) <>  
CV.'CV.CV

po.'ku,re	[ <sup>h</sup> pkure]	'canoe'
nu.'pe.no	[ <sup>h</sup> mpeno]	'my house'

(. x)(. x) <>  
CV.CV.CV.'CV.CV.CV

nu-etʃo.'hi.ko	[setʃ <sup>h</sup> 'hiko]	'she speaks'
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(. x)(. x) { } <>  
CV.CV.CV.'CV.CV.CV

nu-tanu-ko-wore	[ntan <sup>h</sup> 'kowre]	'I look for it again'
-----------------	----------------------------	-----------------------

Rose (2017) suggests a second and marginal metrical parse, a trochaic pattern found exclusively with disyllabic roots (and a handful of exceptional trisyllabic roots), and only when they are bare or carrying post-root morphology only (disyllabic roots with prefixes fall under the default iambic parse). The trochaic parse applies also from left to right, and no extrametricality needs to be posited to explain the absence of accent on the final syllable because it is anyway either in a weak position within the trochaic foot or unfooted, as shown in (6).

(6) *Trinitario trochaic parse*

(x .)  
'CV.CV

paku	[ <sup>h</sup> paku]	'dog'
------	----------------------	-------

(x .) { }  
'CV.CV.CV

'kuhu-pa	[ <sup>h</sup> kuhpa]	'manioc root'
----------	-----------------------	---------------

(x .)(x .)  
CV.CV.'CV.CV

paku-çira	[pak <sup>h</sup> çira]	'small dog'
-----------	-------------------------	-------------

Assuming the iambic parse as the basic or regular metrical parse of the language, the trochaic pattern can be derived by noting that some roots are lexically-specified as having specific syllables bearing a word-level accentual mark or that it can be at least historically explained by reference to etymological morphological structure. The trochaic parse on disyllabic roots can be derived based on the culminativity assumption ('every open class word-form must have at least one word-level accent') and of the general ban on the accentuation of word-final syllables (see Rose 2014: 377-378; 2015a: 253). Evidence suggests that trisyllabic roots with a trochaic parse go back to etyma with disyllabic roots, as pointed out by Rose (2017), and that they developed from \*<sup>h</sup>CVCV-CV sources by the incorporation of a then independent suffix.

The metrical parse system can therefore be said to be cognate in the two language varieties, with iambs as a default pattern, and trochees on disyllabic roots. What differs is that Rose (2017) describes the main accent in Trinitario as falling on the last foot (whether iambic or trochaic). A secondary accent is nevertheless often perceived on the first foot in Trinitario, where the Ignaciano main accent is found.

### 3.4.3. Proto-Mojeño accent, its reflexes and syncope

This section details how the accentual system reconstructed for PM fits within a general account of diachronic syncope in Trinitario. In (7) below we offer an outline of the Proto-Mojeño (PM) accentual system postulated in the present work.

(7) *Proto-Mojeño accentual system.*

- (a) Words are parsed by building binary iambic Feet from left to right;
- (b) Word-final syllables are extrametrical;
- (c) Some roots are marked as having trochaic Feet.

Rose's (2017) synchronic account of Trinitario vowel syncope is based on this accentual system, as described in (8).

(8) *Trinitario rhythmic syncope*

- (a) Vowels in foot-internal non-head position, as well as unfooted moras, are deleted (see the realization of the words in (5) and (6)).
- (b) The word-final syllable, extrametrical in the iambic parse, is not eligible as a target for syncope.<sup>18</sup>
- (c) Rhythmic syncope underapplies and certain vowels of individual morphemes are immune to syncope (see Rose 2017 for more details, as maintenance of deletable vowels in specific morphemes is not a problem for the historical analysis presented here).

Starting with nouns that usually lack synchronic alternations in Trinitario, data such as that in table 9 shows quite straightforwardly that the distribution of accentual marks in PM forms allows for a prediction of which vowels were lost in Trinitario.<sup>19</sup> The iambic parse on these trisyllabic and quadrisyllabic words predicts an accent on the second

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<sup>18</sup> As noted by a reviewer, the fact that a word-final vowel is exempt from syncope arguably requires an additional constraint, perhaps related to a ban on consonant-final words. The historical status of this pattern and its action in the diachronic development of Trinitario will not be explored here in any detail. Note, however, that vowel loss in Baure, a closely related southern Arawak language, applied word-finally as well, producing many consonant-final words (see e.g. Danielsen 2007: 51-52).

<sup>19</sup> For simplicity's sake we will ignore the fact that where the Trinitario segment matching Ignaciano *a* has been lost without trace due to syncope there may be uncertainty as to the quality of the PM vowel, since, as noted in section 3.3, Ignaciano *a* is a reflex of both PM \**o* (in which case Trinitario retains *o*) and PM \**a* (in which case Trinitario retains *a*). This uncertainty is explicitly reflected in some of the PM reconstructions offered in the Appendix.

syllable in Proto-Mojeño and Ignaciano. It also predicts an accent on the second syllable in Trinitario, but this syllable surfaces as the initial syllable of the word once the vowel of the previously initial syllable has been lost to syncope.

**Table 9:** Ignaciano stress placement and Trinitario syncope

	PM	Trinitario	Ignaciano
person	*a' <i>ʃfane</i>	'ʃfane	a' <i>ʃfane</i>
woman	*e' <i>seno</i>	'ʔseno	e' <i>seno</i>
ant	*ka' <i>ʃfiru</i>	'kʃfiru	ka' <i>ʃfiru</i>
jaguar	*i' <i>ʃfini</i>	'ʔʃfini	i' <i>ʃfini</i>
peccary	*si' <i>moru</i>	'smoru	si' <i>maru</i>
toucan	*ha' <i>nore</i>	'hnore	ha' <i>nare</i>
smoke	*ki' <i>hore</i>	'çhore	ki' <i>hare</i>
north	*ka' <i>hoʔo</i>	'khoʔo	ka' <i>haʔa</i>
earth, soil	*a' <i>pokeʔe</i>	'ʔpoçʔe	a' <i>pakeʔe</i>
river	*ka' <i>hokure</i>	'khokre	ka' <i>hakure</i>
peanut	*ku' <i>rikere</i>	'kriçre	ku' <i>rikere</i>

In the trisyllabic forms (all but the three in the bottom), since final syllables are protected, only the vowel of the word-initial syllable is lost in Trinitario.<sup>20</sup> In the last three forms, those with four syllables, the vowel of both the initial and the third syllables of the PM etymon are lost. This pattern is neatly derived by the assumption of a metrical structure with binary iambic feet in PM and syncope of both non-head and unfooted vowels in Trinitario:

(9) *PM iambic parse and Trinitario syncope.*<sup>21</sup>

\*(si' mo)<ru> > 'smoru 'peccary'  
 \*(ka' ho){ku}<re> > 'khokre 'river'

The penultimate syllable in \**kahokure* remains unfooted, while the word-final syllable is predictably extrametrical. Vowels in non-head position within the Foot as well as unfooted vowels are syncopeated. Vowels in an extrametrical syllable never get deleted.

The Iraisos data on Old Mojeño (see Gilij 1780: 367-371) presents some evidence for a system of accent placement which is entirely in agreement with that attested for Ignaciano and reconstructed for PM. Disyllables have accent in the word-initial syllable, as in <*sáce*> 'sun', <*ciju*> 'manioc' and <*sipu*> 'turtle', while words of three or more syllables show accent in the second one (e.g. <*pacùre*> 'canoe', <*accène*> 'road', <*simèno*> 'forest', <*esèno*> 'woman' and <*cojòbo*> 'deer'). The Old Mojeño variety sampled in Marbán (1702) seems to have deviated more from the PM system, with accent placed most often on the last syllable of the word, according to Marbán (1702: 1-2).

<sup>20</sup> Note that a word-initial vowel in Ignaciano corresponds to a glottal stop in Trinitario, we will come back to this in the section 5.

<sup>21</sup> Foot parsing is indicated by parentheses and the head of the Foot is underlined.

Trinitario also displays many synchronic morphophonological alternations resulting from the diachronic processes of syncope, as shown in table 10 (syncopated vowels indicated in bold).

**Table 10:** Synchronic morphophonological patterns of cluster formation in Trinitario

	Absolute	Possessed
blood	<i>iti</i>	<i>n-it-ne</i>
fire	<i>juku</i>	<i>n-juk-ne</i>
garden	<i>ʔsan-ti</i>	<i>n-esane</i>
village	<i>ʔwosa-re</i>	<i>n-owsa</i>
canoe	<i>pkure</i>	<i>m-pokre</i>

Forms in the middle column of table 10 are unpossessed noun forms. Some require a suffix *-ti* or *-re* marking that they are not possessed. Forms in the rightmost column are the possessed forms of the same lexemes with a first person singular possessive prefix *n-* (this prefix in turn is a reflex of PM *\*nu-* and lost its vowel to the same metrically-conditioned syncope process). Some of these forms require a suffix *-ne* indicating that an alienable noun occurs in a possessed form (see Olza Zubiri *et al.* 2002: 37-40 for Ignaciano). Because the root is preceded by an additional syllable in the rightmost column, different vowels syncopate in the same root in the last two columns. The forms in both columns are correctly predicted by the distribution of word-level accent in PM, as described in (7). Trisyllabic and quadrisyllabic words in PM were iambically parsed, with stress on the second syllable in both cases (the final syllable being extrametrical). The word-initial syllable and the third syllable, being in non-head Foot-internal position or unfooted, syncopate in Trinitario, whether they are part of the root or of the person prefix. Disyllabic words in PM were trochaically parsed, but no vowel deletes because the word-final vowel is always stable. In the cases of *-esane* ‘garden’ and *owosa* ‘village’ the initial vowel is lost and an additional word-initial consonant, a glottal stop, appears. Note that for *-owosa* ‘village’, and *pokure* ‘canoe’, it is possible to postulate an underlying form with three syllables and retrieve all the vowels, given that different vowels are affected by syncope in the two forms.

Some misgivings have been expressed towards this basic account of Trinitario syncope in the published literature, but these seem to be mostly flawed. Jolkesky (2016: 31), after briefly commenting on the loss of vowels in Trinitario, presents a small set of forms that, according to him, are problematic for the prosodic account offered in Rose (2008, 2014). One of the forms listed by Jolkesky (2016: 31) is the Trinitario noun *kʃiru* ‘ant’ (< PM *\*ka ʃiru*) which, as shown in table 9, is not problematic at all. Another form which is supposedly exceptional, Trinitario *-samre* ‘heart’ (Gill 1993: 38; cf. Ignaciano *-samure*, Ott & Ott 1983: 311), turns out not to be exceptional once its morphological status is considered: since it is an inalienable noun, it always occurs with a prefix, usually of a CV shape. Assuming a PM form such as *\*nu- samure* ‘my heart’, showing default stressing of the second syllable, syncope of both the prefix vowel and the vowel following the stressed syllable follows automatically, as shown in table 9 for monomorphemic four-syllable words and in the last row of table 10 for a trisyllabic roots with a person prefix. This analysis correctly yields the attested Trinitario forms: a 1SG prefix *n-* and a root *-samre*.

As for the forms showing exceptional word-initial accent in both Ignaciano and Trinitario, these can be accounted for as reflexes of PM etyma showing the accentual pattern for words with prefixless disyllabic roots, once their morphological structure is considered. These are the forms with a trochaic parse in Rose (2017) and the identical accentuation of their Ignaciano cognates suggests that the analysis of these trisyllabic words as based on disyllabic roots followed by a suffix goes back to a PM or Pre-PM stage, as shown in table 11.

**Table 11:** Exceptional word-initial stress and PM morphology

	PM	Ignaciano	Trinitario
soil, mud	*'mote- <i>hi</i>	'matehi	'motehi
cloud	*'uko- <i>hi</i>	'ukahi	'ukohi
nest	*'moko- <i>hi</i>	'makahi	'moko <i>hi</i>
animal	*'sora- <i>re</i>	'sarare	'sorare

The suffix *-hi* denotes bulky, soft objects (Gill 1957: 84). It is clearly a distinct and productive morpheme synchronically (see e.g. Olza Zubiri *et al.* 2002: 192-243) but is obligatorily found attached to certain roots, such as those in table 11 (this was also noted by Jolkesky 2016: 29). In the form \*'sora-*re*, the nominal formative suffix *-re* can be inferred on the basis of its appearance in many other animal names (*ka'hiure* 'lizard', *a'tikure* 'anteater', *itire* 'eel', *kamare* 'rat', *asqare* 'wild cat (sp.)', *apere* 'monkey (sp.)', *ki'fjare* 'snake', etc.). It is arguably related to the gender suffixes on nouns in other Arawak languages.<sup>22</sup> Matteson (1972: 164) reconstructs *-ri* 'feminine' and *-ru* 'masculine' for Proto-Arawak, with reflexes such as *-ri/-ro* in the closely related subgroup Campa languages (see Mihas 2015: 328, 425-427 for Alto Perené, Michael 2008:295 for Nanti, Van Epps 2010 on Campan languages in general). These suffixes are particularly common in fauna terms, as in Matsigenka *kémari* 'tapir', *fintori* 'peccary', *matsóntori* 'jaguar, ocelot' and *tsímeri* 'bird' (Snell 2011: 790, 777, 793, 739). In some languages like Nanti, they are lexicalized and extraprosodic (Michael 2015:235-236).

The lexical stress in the words of Table 11 can be explained by the final syllables being extraprosodic, in relation with their etymological identification as suffixes/classifiers. The occurrence of these elements outside the prosodic word leave disyllabic forms - \*'mote, \*'uko, \*'moko and \*'sora - which, in accordance with the regularities of accent distribution presented in (7) for PM, show accent in their first syllable. In a synchronic analysis, the historical (C)VCV root and the -CV gender suffix/classifier are however lexicalized into a single unsegmentable unit. The prosodic pattern was nevertheless retained even after the incorporation of these suffixes as part of unanalyzable roots. Note however that, as shown by the other forms where *-re* or a classifier is present as well, this retention is sporadic and subject to levelling forces that incorporate the items in question into the synchronically transparent, default pattern (the iambic parse): Trinitario 'smoru 'pig', *pa'tore* 'spider monkey', 'khu-çi 'manioc stalk' (< *kuhu* 'manioc-related'+ -çi <classifier for cylindrical

<sup>22</sup> Cognate suffixes are largely used, within the family, as object suffixes/clitics on verbs and as nominalizers.

objects), *mo'pomo* 'honey' (< *mopo* 'bee-related'+*omo* 'classifier for liquids'). This classifier for liquids, whose Ignaciano cognate is *-ama* (see Olza Zubiri *et al.* 2002: 197-202), is particularly frequent in forms that can be accounted in these same terms, such as Trinitario 'tseramo 'tears' (Gill 1993: 24; cf. Ignaciano *-tsera* 'tears'; Ott & Ott 1983: 579, from PM \*-*tsera-omo*) and Ignaciano 'katsiama 'bitter chicha (fermented manioc drink)' (cf. *ti-katsi* 'sour'; Ott & Ott 1983: 473, from PM \*-*kotsi-amo*). This pattern has very likely led to the "freezing" of the trochaic parse on some trisyllabic roots, both in lexicalized forms and in words with a synchronically segmentable -CV or -VCV suffix. We postulate that this peculiar trochaic pattern has then been extended to longer words in Trinitario, those made of a disyllabic root and suffixes involving several syllables.

Of comparative relevance, note that the pattern reconstructed for PM bears a striking similarity to metrical/accental patterns described for other Arawak languages, in particular those of the Campa branch. Crowhurst & Michael (2005: 50-51) show that prosodic words in Nanti are generally parsed by building iambic feet from left to right, resorting to a trochaic parse only where special conditions apply. Virtually the same pattern is attested in Ashéninka (see Payne 1990 for the Pichis variety of Ashéninka). In both cases the surface generalization that disyllabic words show trochaic accentuation holds and, as in the case of certain bound morphological elements discussed above for PM, many (potentially cognate) suffixes are also metrically inert (see Crowhurst & Michael 2005: 49-50).

### 3.4.4. Proto-Mojeño accent, person prefixes and phonotactics

Given that examples of synchronic morphophonological syncope in Trinitario (such as those presented in table 10) depend on the occurrence of root and stems with person prefixes, among other morphological material, we will now take a closer look at the behavior of these prefixes. In the three varieties, most person prefixes are cognates and show variants CV- ~ C-. This alternation is due to hiatus resolution in all varieties, but also additionally to syncope in Trinitario.

In Old Mojeño data, the vowel of the person prefix is maintained before a non-front vowel, even in those cases where their Ignaciano cognates have lost this vowel. This is illustrated with the 1SG prefix *nu-*: <*nuamori*> 'grandson' (Marbán 1702: 289; cf. Ignaciano *n-amari* 'my grandchild', Ott & Ott 1983: 66), <*nuopè*>, <*nuopera*> 'bones' (Marbán 1702: 255; cf. Ignaciano *n-aperá* 'my bone', Olza Zubiri *et al.* 2002: 22). However, the vowel of the prefix never appears before a front vowel, which leads us to posit deletion of that vowel for hiatus resolution: <*nemotone*> 'my work' (Marbán 1702: 530), <*nima*> 'my husband' (Marbán 1702: 502).

Ignaciano also shows both conservation of the vowel of the person prefixes in some cases, and deletion in other cases, depending on both the individual prefix and the quality of the following vowel (see Olza *et al.* 2002:20 for a comprehensive presentation of all the configurations). Just like in Old Mojeño, the vowel of the prefix can be completely lost, especially before front vowels (but not only). If it is not lost, then a vowel hiatus is created, and this is solved by diphthongization, with either the vowel of the prefix or that of the root being glided (examples in 10 are from Olza *et al.* 2002: 20-23). As a result of either deletion or diphthongization at the boundary between the underlying first and second syllables, the stress that normally falls on the second (underlying) syllable shows up as word-initial stress.

(10) *Ignaciano hiatus resolution*

<i>/nu-iti-ne /</i>	→	[ 'nitne]	'my blood'
<i>/su-iti-ne /</i>	→	[ 'switine]	'her blood'
<i>/ma-upana /</i>	→	[ 'mawpana]	'his liver'

In Trinitario, the vowel of the person prefixes is systematically expected to syncopate. It is always metrically weak because it is found in word-initial position only and in words with iambic parse (remember that the trochaic parse is only found in absence of prefixes; see also table 10). It is not surprising thus that Trinitario looks less conservative than Ignaciano: for most prefixes, *p-* 2SG, *w-* 1PL and *t-* 3, there is no alternant with a syllabic (nuclear) vocoid and for *n-* 1SG and *s-* 3F no vowel is synchronically retrievable (9a).<sup>23</sup> But four prefixes unexpectedly retain their vowel: *ñi-* 3M, *ta-* 3NH, *ma-* 3M, and *na-* 3PL (a fact illustrated in (11b, c) and first noted in Rose 2015a). Their vowels, like many vowels of particular roots, are immune to syncope. Moreover, several hiatus-resolution processes operate in Trinitario (Rose 2017). (11c) illustrates diphthongization and coalescence. Here again, the strong metrical position of the second syllable shows up as an accent on the surface word-initial syllable. The prefixes *p-* 2SG, *w-* 1PL and *t-* 3 also undergo a morphophonological process, that will be discussed in 3.5.

(11) *Morphophonology of Trinitario person prefixes*

(a) <i>nu-iti-ne</i>	→	[ 'nitne]	'my blood'
<i>pi-ŋiŋfa</i>	→	[ 'pŋiŋfa]	'your son/daughter'
(b) <i>ni-jeno</i>	→	[ni'jeno]	'his wife'
<i>na-peno</i>	→	[na'peno]	'their house'
(c) <i>ta-iti-ne</i>	→	[ 'tæitne]	'her blood'
<i>ma-uçi?a</i>	→	[ 'moç?a]	'his eye'

We reconstruct most of the PM person markers as CV forms (except \**e-* 2PL). The account advanced here for syncope in Trinitario also accounts for the reduction in the form of the person prefixes in this dialect. Ignaciano shows reductive sandhi processes that may cause elision of the prefix vowel before vowel-initial roots or stems, and Old Mojeño does that only before front vowels. We will therefore postulate for PM a system in which prefixation of the person prefixes to vowel-initial roots did not trigger elision of the prefix vowel. This is crucial for the metrical parse and the consequent accentuation. The result is that the prefix vowel and the initial vowel of the root defined a single Foot, arguably with a disyllabic structure, that is, a hiatus configuration (preserved to a certain extent in OM). This is exemplified in (12) below with a noun and a verb:

<sup>23</sup> For *p-*, *w-*, and *t-*, the underlying vowel /i/ can be retrieved through morphophonological alternations. For *n-* and *s-*, identification of the underlying vowel as /u/ is mainly based on comparative evidence, but is also supported by the lack of morphophonological alternation that would be expected if it were /i/ or /a/ as in the other prefixes.

(12) *PM person-prefixes, Trinitario syncope and Ignaciano exceptional accentuation.*

<i>*(nu-a)mori</i>	*[nu'amori]	>	Ign.	['namori]	'my grandson'
			Trin.	['namri]	
			OM	<nuamori> (M)	
<i>*(nu-i)koffo</i>	*[nu'ikoffo]	>	Ign.	['nikaʃʃa]	'I bathe'
			Trin.	['nikʃfo]	

Note that this PM stage lacking *sandhi* processes undoing vowel sequences corresponds to an intermediate stage in synchronic derivations, as that sketched in (3) for Ignaciano and formally stated for Trinitario in Rose (2017), where metrical parse rules have been applied but syncope and other hiatus-resolving rules have not.

### 3.5. Trinitario *c*

The process behind the phonologization of /c/ in Trinitario is linked to hiatus resolution. It applies at morpheme boundaries anywhere in the word. The strategy for hiatus resolution between a front vowel and a following non-front vowel in Trinitario is the deletion of the front vowel and the palatalization of the preceding consonant (except if palatal or glottal) and is exemplified in (13). Palatalization occurs either as a secondary articulation, as in (13a), or as a simple palatal consonant ( $t \rightarrow c$ ,  $n \rightarrow ɲ$ ), as in (13b).

(13)  $CV^{[+front]}V^{[-front]} \rightarrow C^jV^{[-front]}$

(a) <i>pi-uri</i>	→	[pʲuri]	'you are well'
2SG-be.good			
<i>wi-amuri</i>	→	[wʲamri]	'our grandson'
1PL-grandson			
(b) <i>afane-ono</i>	→	[ʔʃaɲono]	'people'
person-PL			
<i>ti-uri</i>	→	[curi]	'it is good'
3-be.good			
<i>peti-ono</i>	→	[pecono]	'houses'
house-PL			

The palatal stop resulting from the palatalization of /t/ and the deletion of the subsequent front vowel can then be contrastive with a /t/ before a non-front vowel, justifying its phonemic status in synchrony. Example (14) shows how the third person prefix *ti-* is palatalized in *c-* before a non-front vowel, with the verbs *-amo* 'be swollen' and *-ahriko* 'write'. The prefix *ti-* is realized *t-* elsewhere, i.e. before front vowels and consonants (including the approximant /j/), due to syncope of the initial vowel, as shown on the verb *-jahriko* 'mix'. As a result, /c/ contrasts with both /t/ and a consonant cluster /tj/ that results from the deletion of /i/ before a root-initial /j/.



(14) *Trinitario c vs. t vs. tj*

<i>camo</i>	<i>tamo</i>	
ti-amo		
‘it is swollen’	‘loose thread’	(Ibáñez Noza et al. 2009:42)

<i>cahriko</i>	<i>tjahriko</i>
ti-ahriko	ti-jahriko
‘he/she writes’	‘he/she mixes’

The loss of contextual front vowels accounts, therefore, for the phonologization of *c*, another distinguishing property of the Trinitario variety of Mojeño.

**3.6. Trinitario  $\widehat{ae}$**

The phoneme  $\widehat{ae}$  is generally realized as a complex sound with a mid-central vocalic component followed by a mid-front vocalic component [æe]. It nevertheless shows a lot of variation, with the first element being possibly [ə, ɘ, i, ɔ, e, ε, w] and the second element [e, ə, j, i]. Comparative evidence from cognate sets where it occurs in morpheme-internal position shows that it derives from a monophthongization of diphthongs formed by *\*a* and a front vowel, that is, PM *\*ai* and *\*ae*: Ignaciano *aika* ‘river dolphin’ (Ott & Ott 1983: 60), Trinitario  $\widehat{aeko}$  (Rose 2015b: 62); Ignaciano *kaiŋa* ‘digging stick’ (Ott & Ott 1983: 98), Trinitario  $\widehat{kæŋa}$ ; Ignaciano *taire* ‘aro, arete’ (Ott & Ott 1983: 333), Trinitario  $\widehat{tære}$  ‘earring’. Moreover, morphophonological alternations suggest that this change introduced a synchronic rule in Trinitario, since diphthongs that are synchronically derived from a hiatus of a non-front vowel and a front vowel also map to surface [æe], as seen below:

(15) Trinitario /aV<sup>[front]</sup>/ à  $\widehat{ae}$

<i>nǣtʃhiri:wo</i>	<i>netʃhiri:wo</i>
na-etʃohi-ri-ru-wo	nu-etʃohi-ri-ru-wo
3PL-speak-PLURACT-PAT.NZ-MID	1SG-speak-PLURACT-PAT.NZ-MID
‘their language’	‘my language’

The examples in (15) also show that surface contrast between [æe] and [e] exists, a fact which, together with its occurrence of  $\widehat{ae}$  in morpheme-internal contexts, justifies attributing a phonemic status to it.

**3.7. Trinitario ç**

A clearly innovative feature of the Trinitario segmental inventory is the presence of a palatal fricative *ç*, absent from Ignaciano (see Gill 1957: 10 and Rose 2014: 377; 2015b: 63). Comparative evidence such as that in table 12 shows that Trinitario *ç* corresponds regularly to Ignaciano *k* in the context of a following *\*i* (or *\*e*, as shown in table 13), while the identity correspondence *k* : *k* is attested elsewhere.

**Table 12:** Evidence for \**k* > *ç* preceding front vowels in Trinitario

	Ignaciano	Trinitario	Old Mojeño
arm	<i>-pawaki</i>	<i>-powçi</i>	< <i>nupoboqui</i> > (M)
lake	<i>'kakiure</i>	<i>koçiure</i>	< <i>cachiùre</i> > (I) <sup>24</sup>
ear	<i>-kijna</i>	<i>-çijno</i>	< <i>nuquiña</i> > (M)
mouth	<i>-haka</i>	<i>-haka</i>	< <i>nujàca</i> > (I)
bird	<i>'kajure</i>	<i>kojre</i>	< <i>caiùre</i> > (I)
sugarcane	<i>a 'kutena</i>	<i>?kuteno</i>	< <i>ecùteno</i> > (I)

There is, however, some dissent as to the contrastive status of Trinitario *ç* and this question has a direct link to phonological developments in the history of the language. Jolkesky (2016: 10) analyzes Trinitario *ç* as an allophone of *k* preceding front vowels. Though it is true that synchronic alternations allow in many cases for the underlying conditioning contexts to be retrieved, as in *-uç?a* ‘eye’, but *-uçi-ono* ‘eyes’ (Gill 1993: 29; *-?a* in the singular form being a classifier for ovoid objects; see Ott & Ott 1983: 41; Olza Zubiri *et al.* 2002: 226), therefore making the distribution of *k* and *ç* complementary and (relatively) predictable, this is not always the case. For instance, there is no synchronic alternation that would show that the palatal fricative in *?poç?e* ‘earth’ is determined by a following front vowel. The existence of contrast in Trinitario, even if restricted to pre-consonantal position, has to be accepted. Moreover, *k* and *ç* contrast even in the context of a following front vowel, where *k* is attested in loanwords (e.g. *kilo*) and in morphologically derived environments, as *nkihare* ‘I am named...’, from underlying *nu-ko-ihare*, the surface *ki* sequence in this case resulting from hiatus resolution. Table 13 presents evidence compatible with this hypothesis: whether the reflex of PM \**k* is *k* or *ç* in Trinitario is predictable from the quality of the etymological vowels (retained in Ignaciano), with front vowels \**i* and \**e* conditioning \**k* > *ç*. Due to syncope the distribution of *k* and *ç* in Trinitario is no longer predictable.

**Table 13:** Comparative evidence for the phonologization of *k-ç* opposition

	Ignaciano	Trinitario	Old Mojeño
smoke	<i>ki 'hare</i>	<i>çhore</i>	< <i>quihorê</i> > (M)
cotton	<i>ka 'hare</i>	<i>khore</i>	< <i>cohore</i> > (M)
earth	<i>a 'pake?e</i>	<i>?poç?e</i>	< <i>epoquiè</i> > (M)
hungry	<i>- 'eku?a</i>	<i>-ek?o</i>	< <i>ecuo</i> > (M)
pet	<i>-itatikene</i>	<i>-itotiçne</i>	-
fire (poss.)	<i>-jukune</i>	<i>-jukne</i>	< <i>nuiucune</i> > (M)
peanut	<i>ku 'rikere</i>	<i>kriçre</i>	< <i>curiquierè</i> > (M)

<sup>24</sup> Note that in Italian orthographic conventions, used in the Iraisos source, <*ch*> stands for a velar stop *k* where a front vowel <*i*> or <*e*> follows.

The Old Mojeño data from Marbán (1702) indicates the existence of a transitional palatal glide between a velar stop *k* and a following *e*. This suggests the existence of allophonic variation in the realization of Old Mojeño *k*, symbolized as <*qui*> preceding <*e*> (the velar stop appears as <*c*> preceding <*a, o*> and <*qu*> preceding <*i*>, according to well-known ‘Romance’ conventions). This is, of course, expected, not only on the basis of phonetic ‘common sense’ but on the ordinary assumption that phonological splits start out as allophonic splits. Trinitario forms such as *-piçienu* ‘neck’ (Gill 1993: 31; see Ignaciano *-pikenu*; Ott & Ott 1983: 302; Old Mojeño *-<piquienu>* Marbán 1702: 572) and *-çieku* ‘on the backs, behind’ (Gill 1993: 18; Ignaciano *-keku*; Ott & Ott 1983: 305; Old Mojeño *<nuquiecu>* Marbán 1702: 229)) show that where *e* has not been lost by syncope, the palatal glide is still attested in the language. It is possible, therefore, to reformulate the change of *\*k > ç* in Trinitario as involving either *\*i* or *\*j* as its conditioning context. Be as that may, the fact is that widespread syncope in Trinitario obscured the predictability in the distribution of *k* and *ç*, rendering these segments contrastive.

### 3.9. Trinitario intervocalic consonantal loss and vowel length

Finally, two striking consequences of syncope are the apparent loss of *some* intervocalic consonants, and the development of phonemic vowel length. The two processes are related. Examples in (16) illustrate the vowel length contrast in Trinitario.

(16) *Contrast between long and short vowels in Trinitario*

<i>nhuko</i>	‘I smell’
<i>nhu:ko</i>	‘I grow up’
<i>nope</i>	‘my shinbone’
<i>no:pe</i>	‘paddle’
<i>tfehi</i>	‘niece’
<i>tfe:hi</i>	‘vulva’

Long vowels are not attested in Old Mojeño and in Ignaciano. The comparison with OM (table 14) establishes that long vowels derive historically from a sequence of VCV.

**Table 14:** Trinitario long vowels matching VCV sequences in OM

	Trinitario	Old Mojeño
‘I grow up’	<i>nhu:ko</i>	< <i>nuhuruco</i> > (M)
‘I grasp’	<i>nko:toko</i>	< <i>nucorotoco</i> > (M)
‘my moustache’	<i>nhi:sumu</i>	< <i>nuhiyosumú</i> > (M)
‘to tell a story’	<i>?föhri:kowo</i> ‘story’	< <i>efahirirucobo</i> >
‘I bathe’	<i>nko:-po</i>	< <i>nucobo</i> > (M)

There is also language-internal evidence in alternations like *-siri* ‘nose’ but *-si:-peno* ‘nostrils’ (Gill 1993: 28), *n-fowo* ‘I am coming back’ but *n-fo:-po* ‘I came back’, *n-hijo-?o* ‘my body hair’ but *n-hi:-sumu* ‘my moustache’, and *c-uri* ‘it is good, nice’, but *c-u:-peno*

‘it’s a nice house’. The most remarkable alternation is the imperfective clitic *-ri?i* that is realized as *-?i* if its first syllable is in a weak metrical position, and lengthens whatever vowel comes before, compare *tefhikonri?i* ‘they were speaking’ and *tefhiknu:?i* ‘(s)he was speaking to me’ or *tefhikwi:?i* ‘(s)he was speaking to you’.

Jolkesky’s (2016: 32-33) account of the correspondence between long vowels in Trinitario and *-VrV* sequences in the other Mojeño varieties is too simplistic and leaves a large set of cases unexplained. He claims that *\*r* was lost in intervocalic position, generally between identical vowels, and that the result of this loss is a long segment with the vowel quality of the vowel preceding *\*r*, through a process of regressive assimilation. This account misses several facts: first, that this phenomenon is observed only when the vowel following the lost consonant is in a weak metrical position, and therefore disappears due to rhythmic syncope; second, that the identical/different quality of the two vowels is not at stake here; third, that *\*r* is not the only target in this process. Moreover, his claim that the process of *\*r* loss is not synchronically recoverable is inaccurate, as seen above in the many instances of *r ~ Ø* alternations inducing vowel lengthening.

In fact, the trigger of this phenomenon is rhythmic syncope. When the second vowel of a VCV sequence (anywhere in the word) is deleted, it leaves the preceding consonant stranded and creates a consonant cluster. Some consonant clusters are not allowed in Trinitario. This, however, does not prevent syncope, but triggers a repair process of consonant deletion and compensatory lengthening, which is attested even in loanwords ([e:mana] ‘nun’ < Spanish *hermana* ‘sister’). Deletion of the stranded consonant occurs mainly with /r/, that is never allowed as a first consonant in a cluster, but also with /w/ before a labial consonant, and /j/ in some yet undetermined environments. The phenomenon of compensatory lengthening is a vowel lengthening process aiming at moraic conservation (deChene and Anderson 1979, Hayes 1989). This creates long vowels on the surface, that contrast phonemically with short vowels, as in (14). The diachronic emergence of Trinitario long vowels after the rhythmic syncope of medial vowels followed by the dissolution of consonant clusters and compensatory lengthening is schematized in (17) below.

(17) *Diachrony of Trinitario long vowels*

PM	$*-C_1V_1C_2V_2C_3V_3$		$*-huru-ko$	‘to grow’
	$*-C_1V_1C_2-C_3V_3$	( $V_2 > \emptyset$ )	$*-hur_-ko$	
	$*-C_1V_1-C_3V_3$	( $C_2 > \emptyset$ )	$*-hur_-ko$	
Trinitario	$-C_1V_1: C_3V_3$	( $V_1 > V_1:$ )	$*-hur-ko$	

The schema in (17) gives a general representation of how PM etyma with CV, monomoraic open syllables yield Trinitario reflexes with long vowels, after rhythmic vowel loss ( $V_2 > \emptyset$ ), the dissolution of medial consonant clusters ( $C_2 > \emptyset$ ) and compensatory lengthening ( $V_1 > V_1:$ ). It is exemplified with the verb *\*-huru-ko* ‘to grow’ which, in Trinitario, has an underlying long vowel, as seen in (16) (cf. the Ignaciano cognate *-huru-ka*; Ott & Ott 1983: 265). Note that compensatory lengthening is an argument for considering that the consonant stranded by syncope of the following vowel is resyllabified as the coda of the preceding syllable.

#### 4. Synthesis and conclusions

Given the limited diversity observed in a superficial comparison of the attested dialects of the Mojeño language, one might think that reconstructing the ancestral Proto-Mojeño language is neither a challenging nor a very rewarding task. Nevertheless, we hope to have shown here that a systematic comparative investigation of Trinitario, Ignaciano and Old Mojeño help to fruitfully address some recalcitrant and open issues concerning Proto-Mojeño and the historical phonology of the Mojeño dialects. It is also an unavoidable step towards reconstructing more inclusive and older intermediate proto-languages.

We have first shown here that Proto-Mojeño (PM) had a contrast between two coronal nasal stops, *\*n* and *\*ɲ*, a contrast between *\*a* and *\*o* that has been later lost in Ignaciano, and that the emergence of *f* in the patrimonial vocabulary of Ignaciano can be plausibly related to sound-symbolic processes. Furthermore, we presented an account of diachronic syncope in Trinitario by postulating, for the PM ancestral language, an accentual system that reconciles those described in the extant varieties of the language. In addition, sandhi processes at the prefix-root boundary were postulated for PM to explain a more representative set of syncopated reflexes in Trinitario while at the same time accounting for some patterns of exceptional word-initial stress in Ignaciano. Trinitario developed /c/ as a result of palatalization of /t/ before a hiatus, and /æ/ as a result of the monophthongization of diphthongs, including those derived from hiatus resolution at morpheme boundaries. The pervasive syncope process in Trinitario also led to a series of other changes: Trinitario phonologized a PM allophonic pattern in the realization of *\*k* after the loss of conditioning vowels, and it developed long vowels when ill-formed consonant sequences resulting from syncope were undone by deletion of a consonant and triggered compensatory lengthening of the preceding vowel.

Of the nine changes discussed here, seven of them characterize Trinitario, making it clearly less conservative than Ignaciano as far as phonology is concerned. Two of these changes account for much of the attested patterns of intercomprehension difficulties between speakers of the two dialects: while Trinitario speakers find it curious and funny that Ignaciano speakers use “only a”, Ignaciano speakers have a harder time understanding Trinitario speech, no doubt because of the massive vowel losses and the resulting consonant clusters; these intercomprehension hindrances yielded by drastic phonological changes may drive linguists to consider these varieties as actually being two different languages. Two other noteworthy aspects are, first, the fact that the morphosyntax of Ignaciano and Trinitario are very similar - their differentiation being thus mostly a result of phonological diversification - and, second, the rather spectacular changes observed in the temporal span of 250 years separating Trinitario and Old Mojeño. This is where the role of language contact, a virtually unexplored factor, should be brought into light: in the Jesuit Missions (Saito 2009), Old Mojeño was spoken by members of other ethnic groups, including other Arawak-speaking peoples, non-Arawak indigenous peoples, as well as Spaniards. Native speakers have been in contact with other languages, the language has been spoken by many second language learners, and it was used between speakers of different native languages. It is still unclear what exact role contact has played on each of the three language varieties under study in this paper, but it may be part of the explanation for the rapid changes undergone by Trinitario.

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## APPENDIX

This section contains a list of 191 cognate sets for the three Mojeño varieties under consideration. The sources and transcription conventions employed were discussed in section 2. Commentary is also offered on many of the cognate sets or reconstructed forms in footnotes.

For some PM etyma the identity of the proto-vowel as *\*a* or *\*o* is obscured due to syncope in Trinitario and the merger of PM *\*a* and *\*o* in Ignaciano. The evidence from Old Mojeño is ambiguous and seems to show the effects of dialect mixture. Since there is no independent evidence for PM *\*a* changing to *o*, as opposed to the regular change PM *\*o* > *a* in Ignaciano, we will reconstruct a single PM etymon with *\*o*, even in the absence of a Trinitario reflex, whenever Old Mojeño shows *o* <*o*> in the relevant cognate. For those etymologies where a Trinitario cognate is absent and, moreover, the OM cognate has <*a*> corresponding to Trinitario *a*, either *\*o* or *\*a* are possible.

Except for morphological segmentation, OM forms appear as given in the sources. Some PM verb roots are followed by one of the suffixes *\*-ko*, *\*-fjo* or *\*-ʔo*, in which case these suffixes stand for the thematic (Olza Zubiri *et al.* 2002: 76-99) or active suffix (see and Rose 2015b: 80). Given that in some cases phonologically identical syllables are part of the root, the morphological segmentation of the reconstructed PM verbs offered here should be taken as tentative, as detailed information on all extant varieties is necessary to decide on the proper segmentation of each form. The occurrence of a particular root with reduplication, which targets only the root-final syllable, or with certain suffixes and classifiers that occur between the root and the thematic/active suffixes, has to be taken into account, as discussed in Olza Zubiri *et al.* (2002) and Rose (2014, 2015b). Properly addressing the morphological structure of PM verbs is reserved for a future study dedicated to morphological reconstruction. Questions concerning the semantics of reconstructed PM etyma, as well as implied semantic shifts, that will be left open for now. Meanings of reconstructed forms are in many cases tentative - even duplicated, as in ‘Jaw1’ and ‘Jaw2’ - reflecting the need for improvements in semantic reconstruction.



Table 15: Proto-Mojeño Reconstructed Vocabulary

	Proto-Mojeño	Ignaciano	Trinitario	Old Mojeño (Marbán)	Old Mojeño (Iraisos)
1. Body	*- <i>okeʔe</i>	- <i>akeʔe</i>	- <i>oçʔe</i>	-	< <i>nu-òchie</i> > 'Corpo'
2. Head	*- <i>ʔtuti</i>	- <i>ʔtuti</i>	- <i>ʔtuti</i>	< <i>nu-chuti</i> > 'Cabeça'	< <i>nu-ciüti</i> > 'Capo'
3. Forehead	*- <i>noʔu</i>	- <i>naʔu</i>	- <i>noʔu</i>	< <i>nu-naü</i> > 'La frente'	-
4. Skull <sup>5</sup>	* <i>ʔu'ti-re</i>	<i>ʔu'ti-re</i>	<i>ʔfi-re</i>	< <i>chuti-rà</i> > 'Calavera'	-
5. Face	*- <i>miro</i>	- <i>mira</i>	- <i>miro</i>	< <i>nu-miro</i> > 'Cara'	< <i>nu-miru</i> > 'Gote'
6. Nose	*- <i>siri</i>	- <i>siri</i>	- <i>siri</i>	< <i>nu-siri</i> > 'Nariz'	< <i>nu-siri</i> > 'Naso'
7. Mouth	*- <i>haka</i>	- <i>haka</i>	- <i>haka</i>	< <i>nu-hacà</i> > 'Boca'	< <i>nu-jàca</i> > 'Bocca'
8. Lip, lower	*- <i>ʔeja</i>	- <i>ʔeja</i>	- <i>ʔeja</i>	< <i>nu-cheya</i> > 'Labio de abajo'	< <i>nu-ccèja</i> > 'Labbro di sotto'
9. Lip, upper	*- <i>sumu</i>	- <i>hija-sumu</i> 'bigote'	- <i>hi- sumu</i> 'bigote'	< <i>nu-sumu</i> > 'Labio de arriba'	< <i>nu-sümu</i> > 'Labbro (di sopra)'
10. Jaw1	*- <i>pani</i>	- <i>pani</i>	- <i>pani</i>	< <i>nu-pani</i> > 'Quixadas'	-
11. Jaw2	*- <i>mama</i>	- <i>mama</i>	- <i>mama</i> 'barba'	< <i>nu-mama</i> > 'La barba'	-
12. Tongue	*- <i>nene</i>	- <i>nene</i>	- <i>nene</i>	< <i>nu-nenè</i> > 'Lengua'	< <i>nu-nène</i> > 'Lingua'
13. Eye <sup>26</sup>	*- <i>uki-ʔa</i>	- <i>ükiʔa</i>	- <i>uçʔa</i>	< <i>nu-uqui</i> > 'Ojos'	< <i>n-uchi</i> > 'Occhi'
14. Eyelashes	*- <i>moisi</i>	- <i>matsi</i>	- <i>motsi-pa</i>	< <i>mozicò</i> > 'Pestaña'	-
15. Tooth	*- <i>oʔe</i>	- <i>aʔe</i>	- <i>oʔe</i>	< <i>nu-oe</i> > 'Diente'	< <i>nu-òì</i> > 'Dente'
16. Hair <sup>27</sup>	*- <i>hijo-ʔo</i>	- <i>hija-ʔa</i>	- <i>hijo-ʔo</i>	< <i>nu-hiyòð</i> > 'Pelo del cuerpo'	-
17. Ear	*- <i>ʔoka</i>	- <i>ʔoka</i>	- <i>ʔoka</i>	< <i>nu-choca</i> > 'Oreja'	< <i>nu-cióca</i> > 'Orecchio'
18. Ear hole	*- <i>kijno</i>	- <i>kijna</i>	- <i>çijno</i>	< <i>nu-quiña</i> > 'Oído'	-

<sup>25</sup> 'Skull' is formed from the root for 'head' plus the Absolute suffix \*-*re*. In Terena a cognate form *tutije* is found, \**r* being lost in some intervocalic contexts in this language (see Carvalho forthcoming).

<sup>26</sup> The suffix in PM \**uki-ʔa* 'eye' is the classifier -*ʔa* for oval-shaped objects (see Olza Zubiri et al. 2002: 226 and references therein).

<sup>27</sup> \**-ʔo* is a classifier meaning 'body'. See Ignaciano -*hija-mama* 'beard' (cf. -*mama* 'chin, jaw'), -*hija-ʔa* 'body hair' (Olza Zubiri et al. 2002: 219).

19. Elbow	*- 'isutsu	- 'isutsu	<çuçu> 'El codo'	-
20. Arm	*- 'powo-ki	- 'powaki	<nu-poboqui> 'Brazo'	<nu-bouré> 'Braccio'
21. Hand <sup>28</sup>	*- 'woʔu	- 'waʔu	<nu-baupê> 'Mano'	<nu-bôu> 'Mano'
22. Finger	*- 'wou-ki	- 'wau-ki	<nu-bouqui> 'Dedo de la mano'	-
23. Fingernail	*- 'hipono	- 'hipona	<nu-hipoñô> 'Uña'	<nu-jipogno> 'Unghia'
24. Neck	*- 'pikenu	- 'pikenu	<nu-piquienù> 'Pescuezo'	-
25. Throat	*- 'ereno	- 'erena	<n-eerenô> 'Garganta'	-
26. Spine	*- 'mitsu-ki	- 'mitsuci	<nu-mizuqui> 'El espinazo'	-
27. Rib	*- 'hirumone-	- 'hirumane	<nu-hirumonepà> 'Costilla'	-
28. Back, lower	*- 'keku	- 'keku	<nu-quietu> 'Espalda'	-
29. Chest	*- 'tupo	- 'tupa	<nu-tupo> 'Pecho'	<nu-ùpo> 'Petto'
30. Breast	*- 'fene	- 'fene	<nu-chene> 'Pecho de muger'	-
31. Heart	*- 'samure	- 'samure	<nu-omiri> 'Corazón'	<nu-samuré> 'Cuore'
32. Liver	*- 'upono	- 'upana	<tauponô> 'Hígado'	-
33. Leg <sup>29</sup>	*- 'paiké	- 'paiké	<to-paequie> 'Pierna de animal'	-
34. Thigh	*- 'paʔe	- 'paʔe	<nu-pae> 'Muslo'	<nu-pàe> 'Gamba'

<sup>28</sup> PM \*ou > u in Trinitario (see also 'liver'). The forms in Trinitario and Old Mojeño (Marbán) arguably have a classifier *-pe* for flat or blade-shaped objects (Olza Zubiri *et al.* 2002: 275-277), suggesting the meaning of PM \*-woʔu-*pe* was 'palm of the hand'. See also 'finger' for the use of the base \*-woʔu- with a different classifier, \*-ki 'stick-like' (Olza Zubiri *et al.* 2002: 288-302). The same classifier appears in \*-powo-ki 'arm' and possibly in \*-mitsu-ki 'spine', as well.

<sup>29</sup> It is semantically and formally plausible to suppose that 'leg' and 'thigh' are etymologically related, even if, synchronically, and specifically in the case of Trinitario, the relation between the two forms is slightly opaque. Note that synchronic alternations ? ~ Æ are attested in Mojeño in certain morphological contexts, in particular where morphemes such as classifiers or incorporated root *-paʔi*, *-paʔi* and *-huʔe* are followed by suffixes (Olza Zubiri *et al.* 2002: 267-270). Note that \*ai > e in Trinitario, and Pre-Trinitario \*-pe-*cie* > -pue-*cie* by a process that inserts a glide between a labial stop and *e* or *i*. This process has parallels elsewhere in the Arawak family (in Yanesha', for instance) and is synchronically active in the language (Gill 1957: 6; Rose 2011: 473, fn. 9). Trinitario *-cie* < \*-ke is a classifier for cylindrical (trunk-like) objects.

35. Shin	*- 'isano-	- 'isana-ki	- 'isano	<nu-çanaqu> 'Mi pierna'	-
36. Foot <sup>30</sup>	*- 'iwope	- 'iwape	- 'ijpe	<n-ibopé> 'Pie'	<n-ibopé> 'Pie'
37. Knee	*- 'puju	- 'puju	- 'pujusti	<nu-puju> 'Rodilla'	-
38. Waist	*- 'jiope	- 'jiape	- 'jiope	-	-
39. Belly	*- 'juri-pe	- 'juripe	- 'juri	<nu-ñuri> 'Barriga'	-
40. Skin	*- 'umomo	- 'umama	- 'umomo	<lo-umomò> 'Pie'	-
41. Flesh	*- 'efé	- 'efé	- 'efé	<n-eeche> 'Carne'	<n-eece> 'Carne'
42. Bone	*- 'opera	- 'opera	- 'opera	<nu-ope> 'Huessos', <nu-ope-ra> 'Huessos de comida'	-
43. Blood	*'iti, *- 'iti-ne	'iti, - 'iti-ne	'iti, - 'it-ne	<iti, n-iti-ne> 'Sangre'	-
44. Urine	*- 'sene, *- 'se ne-ti	- 'sene, se 'neti	- 'sene, 'sne-ti	<nu-sene>, <sene-ti> 'Orines'	-
45. Tears	*- 'isera	- 'isera	- 'isera-(a)mo	<zerare> 'Lagrimas'	-
46. Horn	*- 'hi?u	ta- 'hi?u	- 'hi?u	<ta-hiu> 'Las astas del animal'	-
47. Tail	*- 'ihiki	ta- 'ihiki	- 'ihçi	<ta-hiqui> 'Cola de animal'	-
48. Animal	*'sorare	'sarare	'sorare	<sorare> 'Animal comestible'	<soràre> 'Animale'

<sup>30</sup> The change of *w* to *h* in Trinitario, preceding *p*, is a regular process (see Gill 1957: 15). Note that the *terminus a quo* for PM \*-iwope is arguably \*-iwo-pe 'sole of the foot', as shown by external comparanda such as Paumaka-ibu 'foot'. The morpheme -pe is a classifier for flat or plank-like objects (Olza Zubiri et al. 2002: 275-277).

<sup>31</sup> The meaning in Trinitario and in Ignacio is a 'mount' ('animal de montar' (Gill 1993: 3)). Note that Old Mojeño preserves the etymological meaning of 'pet', as shown by a comparison with cognates elsewhere in the Arawak family (see e.g. Payne 1991: 392).

<sup>32</sup> The Old Mojeño form from the Iraisos material in Gijij (1780) is strikingly conservative and defies any obvious explanation. A word-initial coronal fricative can be reconstructed for Proto-Arawak and, perhaps, for some other intermediate protolanguages, and even so only on the basis of comparative evidence from groups that are much more distantly related to Mojeño, such as the 'Purus Arawak' languages and the Campa subgroup (see e.g. Payne 1991: 404 for a representative cognate set but a questionable Proto-Arawak reconstruction). Extant Mojeño varieties, as well as Baure, show forms with a glottal fricative instead. The Iraisos form may reflect a phonetic 'hardening' process of *h* preceding *i*, a process with well-known parallels elsewhere, as in Japanese.

49. Pet <sup>31</sup>	*_pero	-pera	-pero	<nu-pero> 'Animal, ó ave casera, manza'	-
50. Fish <sup>32</sup>	*himo	'hima	'himo	<himo> 'Pegé'	<simo> 'Pesce'
51. Eel	*i'tire-pi	i'tire	'?tire-pi	-	-
52. Lizard	*ka'hiure / *koshiure	ka'hiure	'khiure	<cahiurè> 'Lagarto grande del rio'	-
53. Snake	*ki'fjore	ki'fjore	'ççiore	<quichore> 'Culebra, vibora'	-
54. Cayman	*me'romero	me'ramera	me'romero	<meromero> 'Caiman, ó cocodrilo'	<mèromèro> 'Caimano'
55. Bird	*'kojure	'kajure	'kojre	<çayure> 'Paxaro'	<caüre> 'Uccello'
56. Toucan	*'ha'nore / *'ho'nore	ha'nare	'hnore	-	-
57. Bat	*wite	'wite	'wite	<bite> 'Morcielago'	-
58. Jaguar	*i'fjini	i'fjini	'?fjini	<ichini> 'Tigre'	<icini> 'Tigre'
59. Tapir	*'samo	'sama	'samo	<samo> 'Anta'	<samo> 'Dantia'
60. Deer	*'ko'howo	ka'hawa	'khowo	<cohobo> 'Ciervo'	<cojobo> 'Cervo'
61. Anteater	*a'tikure	a'tikure	'?tikre	<aticurè> 'Oso hormiguero'	<aticurè> 'Orsetto'
62. Peccary	*'si'moru	si'maru	'smoru	<simoru> 'Puerco'	<simòru> 'Porco'
63. Monkey	*'ijo	'ija	'ijo	<iyo> 'Mono pardo'	<io> 'Scimia'
64. Monkey (spp.)	*a'pere	a'pere	'pere	<yperè> 'Mono'	-
65. Fox	*'fjije	'fjije	'fjije	<chuyè> 'Un genero de zorrillo'	<ciije> 'Volpe'
66. Coati	*ka'pehi / *ko'pehi	ka'pehi	'kpehi	-	-
67. Ant	*ka'fjiru / *ko'fjiru	ka'fjiru	'k'fjiru	<cachiru> 'Una especie de hormigas'	<caciru> 'Formica'

68. Termite	*'pusi	'pusi	'pusi	<pusi> 'Homiguero del monte, sus hormigas'	-
69. Louse	*-'ijne	i 'je-ti	- 'jne	<yñere, nijñe> 'Piojo'	-
70. Mosquito	*a 'niɽu	a 'niɽu	?niɽu	<añiu> 'Mosquito, zancudo'	-
71. Wasp	*'hane	'hane	'hane	<hane> 'Abispa'	-
72. Chigoe flea	*si 'ture	si 'ture	'sture	<siturè> 'Nigua'	-
73. Spider	*sa 'matu	sa 'matu	-	<samatu> 'Araña'	-
74. North, northern wind	*ko 'hoɽo	ka 'haɽa	'khoɽo	<cohoó> 'Norte, viéto'	-
75. South, Southern wind	*'wono	'wana	'wono	<boono> 'Viento sur'	-
76. Sky	*a 'numo	a 'numa	a 'numo	<anumó> 'Cielo'	<anumó> 'Cielo'
77. Rainbow	*'oɽe	'aɽe	'oɽe	<oe> 'El arco iris'	-
78. Star <sup>33</sup>	*ha 'rairiki	ha 'rairiki	'hre:çi	<harayriqui> 'Estrella'	<jaráirichi> 'Stella'
79. Sun	*'saffe	'saffe	'saffe	<saaché> 'Sol'	<sácece> 'Sole'
80. Moon	*'kohe	'kahe	'kohe	<cohè> 'Luna'	<cóje> 'Luna'
81. Water	*'une, *-'une-ra	'une, - 'unerama	'une, - 'unera	<une> 'Agua'	<une> 'Acqua'
82. Lake	*'kokiure	'kakiure	'koçiure	<caquiurè> 'Lago'	<cachuire> 'Lago'
83. River	*ka 'hokure / *ko 'hokure	ka 'hakure	'khokre	<cahacurè> 'Rio'	<cajiacuré> 'Fiume'
84. Fire	*'juku, *-'juku-ne	'juku, - 'jukune	'juku, - 'jukne	<yucu, nu-iucu-nè> 'Fuego'	<jücu> 'Fuoco'

<sup>33</sup> Note \*ai > e and loss of the second \*r in Trinitario.

<sup>34</sup> Though no reflex of this etymon occurs in the available Ignaciano material, its reconstruction at the PM level is also supported by external evidence, see Terena kévo 'to rain' (first author's field data).

85. Night	*'joti	'jati	'joti	<yati> 'Noche'	<jatti> 'Notte'
86. Rain <sup>34</sup>	*'kwo	-	- 'çiwō	<ti-quiḃō> 'Lluvia'	<ti-chibo> 'Poggia'
87. Cloud	*'uko-hi	'ukahi	'ukohi	<ucō> 'Nube'	<ucóji> 'Nuvola'
88. Fog	*'i joru	i 'jaru	'ʔjoru	<yoru> 'Nebolina'	-
89. Smoke	*'ki 'hore	ki 'hare	çhore	<quihorē> 'Humo'	-
90. Stone	*'mari	'mari	'mari	<mari> 'Piedra'	-
91. Mud, white <sup>35</sup>	*'patso	'patsa	- 'patsa-fo	<pazo> 'Barro blanco'	-
92. Sand1	*'na 'riri-	na 'riri-	-	<ñaririqui> 'Arena'	<gnagnirichi> 'Arena'
93. Sand2 <sup>36</sup>	*'ta 'wo-paru	ta 'waparū	ta 'woparu	<tabò> 'La rama del arbol. Brazo del río, o camino'	-
94. Earth <sup>37</sup>	*'a 'pokeʔe	a 'pakeʔe	'ʔpoçʔe	<epoquiè> 'Suelo'	-
95. Soil	*'mote-hi	'matehi	'motehi	<motehi> 'Barro'	<moiej> 'Terra'
96. Path <sup>38</sup>	*'o 'fene	a 'fene	'ʔfene	<achenè> 'Camino'	<accène> 'Strada'
97. Ashes	*'si 'mapa	tsi 'mapa	'ismapa	<cima> 'Çeniza'	-
98. Name	*- 'iha-re	- 'ihare	- 'ihare	<niharè> 'Nombre de hombre'	-
99. Hard	*- 'mu 'raka	- 'mu 'raka	'mraka	<muraca> 'Dura cosa'	-
100. Big	*-i 'fope	-i 'fape	- 'ʔfope	<achope> 'Grande'	-
101. Painful	*- 'koti	- 'kati	- 'koti	<ti-cati> 'Doler'	-
102. Acid/sour	*- 'kotsi	- 'katsi	- 'kotsi	<ti-cazi> 'Agrida cosa'	<ti-câsi> 'Agro'
103. Bitter	*- 'sukore	- 'sukare	- 'sukore	<ti-sucorè> 'Amarga cosa'	-

<sup>35</sup> Trinitario form means 'to paint'. Note that Marbán (1702) records a verb derived from this noun with the meaning 'to paint using the <pazo> mud'.

<sup>36</sup> These two forms for 'sand' pose a problem for semantic reconstruction that will not be addressed here.

<sup>37</sup> The correspondence Ignacio a : Old Mojeño <e> in the first syllable is unexpected. External evidence, such as Paumaka *apuke* 'earth', supports the reconstruction of \*a (PM \*a regularly corresponds to Paumaka a).

<sup>38</sup> External evidence supports the reconstruction of the initial vowel as \*o, as in Terena -*o/éne* 'his/her path, trail, road' (first author's field data).

<sup>39</sup> Trinitario form means 'to be cold'.

104. Sweet	*- <i>itiwe</i>	- <i>itwe</i>	< <i>ti-tibe</i> > ‘Dulce’	< <i>ti-tibe</i> > ‘Dolce’
105. Good	*- <i>uri</i>	- <i>uri</i>	< <i>nu-uri</i> > ‘Bueno ser’	-
106. Cold <sup>39</sup>	*- <i>tumama</i>	- <i>tumama</i>	- <i>tumama?oko</i>	-
107. Wet	*- <i>pata</i>	- <i>pata</i>	< <i>patahi</i> > ‘Estar mojada la ropa’	-
108. Wet2	*- <i>nono</i>	- <i>nana</i>	- <i>nono</i>	-
109. Red	*- <i>isi</i>	- <i>itisi</i>	< <i>t-izi</i> > ‘Bermejón’	< <i>t-isi</i> > ‘Rosso’
110. Black <sup>40</sup>	*- <i>kiso</i>	- <i>kisa</i>	< <i>nu-quisod</i> > ‘Ser negro de cuerpo’	< <i>ti-chiso</i> > ‘Nero’
111. White	*- <i>hopu</i>	- <i>hapu</i>	- <i>hopu</i>	< <i>ti-hapu</i> > ‘Blanco’
112. Yellow <sup>41</sup>	*- <i>joko</i>	- <i>jaka</i>	- <i>jokko</i>	< <i>ti-yococó</i> > ‘Amarillo’
113. Be, stay	*- <i>owo</i>	- <i>awa-?a-ka</i>	- <i>ow-?o-</i>	< <i>nu-obo</i> > ‘Estar, habitar’
114. Go	*- <i>jono</i>	- <i>jana</i>	- <i>jono</i>	< <i>nu-yana</i> > ‘Irse’
115. Come <sup>42</sup>	*- <i>uteko</i>	- <i>iteka</i>	- <i>uteko</i>	< <i>nu-uitaicó</i> > ‘Venir’
116. Run, flee <sup>43</sup>	*- <i>hunopo</i>	- <i>huna</i>	- <i>hunopo</i>	< <i>nu-hunopo</i> > ‘Correr’
117. Fall	*- <i>wenopo</i>	- <i>wenapa</i>	- <i>wenopo</i>	< <i>nu-benopó</i> > ‘Caerse’
118. Eat	*- <i>niko</i>	- <i>nika</i>	- <i>niko</i>	< <i>nu-nicó</i> > ‘Comer’
119. Drink	*- <i>ero-</i>	- <i>era</i>	- <i>ero</i>	< <i>n-eeró</i> > ‘Beber’
120. Stand up	*- <i>efepuko</i>	- <i>efepuka</i>	- <i>efpuko</i>	< <i>n-echepucó</i> > ‘Levantarse’

<sup>40</sup> The expected Trinitario reflex for PM \**k* is *ç*, not *s*, in the context of a following *i*. The reflex *s* may result from dialect borrowing or from sporadic assimilation to the consonant of the following syllable.

<sup>41</sup> The OM and Trinitario forms show the effects of reduplication (see Rose 2014 for details).

<sup>42</sup> The unexpected correspondence between *u* in Trinitario and OM matching Ignaciano *i* suggests that the Ignaciano form is not cognate. Note that, in addition to *-uteko* ‘come’, Trinitario also has *-itekpo* ‘arrive’, the latter furnishing a more plausible cognate of Ignaciano *-iteka* and both likely part of another etymology reflecting PM \**iteko*. The precise etymological relation between the two etyma \**iteko* and \**uteko* is left for future investigation.

<sup>43</sup> The suffix *-po* seems to have been lexicalized in Trinitario *-hunopo* ‘to run’ and is arguably also present in the PM etymon for ‘Fall’, \**-weno-po*. This suffix may be a cognate of the directional suffix *-po* of Terena.

121. Dance	*- 'irimoi-ko	- 'irimai-ka	- 'imwi-ko	<n-iyrimoiç> 'Danzar'	-
122. Sing	*- 'hiro	- 'hira	- 'hiro	<nu-hir-ò> 'Cantar'	-
123. Laugh	*- 'ekowo	- 'ekawa	- 'ekowo	-	-
124. Wash	*- 'sipo	- 'sipa-ka	- 'sip-ko	<nu-sipociu> 'Lavar'	-
125. Bathe (oneself)	*- 'kowa	- 'kawa	- 'kowa	<nu-cobò> 'Bañarse'	-
126. Look for	*- 'tanu-ko	- 'tanu-ka	- 'tan-ko	<nu-tanicò> 'Buscar'	-
127. Resemble	*- 'wosi	- 'wasi	- 'wosi	<nu-bosi> 'Semejante, ò que se me parece'	-
128. Resemble2	*- 'kuti	- 'kuti	- 'kuti	<nu-cuti> 'Ser semejante'	-
129. Know	*- 'itit-ko	- 'ituka	- 'itko	<n-itucò> 'Saber hazer algo'	-
130. See	*- 'imo?o	- 'ima?a	- 'im-?o	<n-imoó> 'Ver algo'	-
131. Hear	*- 'samo	- 'sama	- 'samo	<nu-samo> 'Oír'	-
132. Fear	*- 'piko	- 'pika	- 'piko	<nu-pico> 'Temer á outro'	-
133. Give	*- 'ihoroko	- 'iharaka	- 'ihro-ko	<n-ihorocò> 'Dar'	-
134. Take	*- 'omo	- 'ama	- 'omo	<nu-omo> 'Llevar, traer'	-
135. Steal	*- 'ome-fo	- 'ameffa	- 'ome-fo	<nu-omecho> 'Hurta, hacer algo a escondidas'	-
136. Say	*- 'ko?e	- 'ka?e	- 'ko?e	<nu-coé> 'Dezir, determinar'	-
137. Grind/crush	*- 'juwako	- 'juwaka	- 'juwako	<nu-yubacò> 'Moler'	-
138. Roast <sup>44</sup>	*- 'suru-ko	- 'suru-ka	- 'su:-ko	<nu-suruquió> 'Tostar granos'	-
139. Weed out	*- 'iso?o	- 'isa?a	- 'iso?o	<n-iso> 'Carpir'	-

<sup>44</sup>The OM form <nu-suruquió> (M) 'tostar granos' contains the classifier -*ki* for grains or seed-like objects. Note that while in Ignacio and Trinitario the thematic suffix is a reflex of \*-*ko*, in the OM form a reflex of \*-*o* appears instead. This agrees with regularities described for the modern varieties as well (see e.g. Olza Zubiri *et al.* 2002: 291) and likely reflects the state of affairs in PM. A future study focused on PM morphology will deal in detail with these and related matters.



140. Bend, bent	*-epiju	- epiju	- epju-ko	<epiñu> 'El torno o Vuelta del río'	-
141. Die	*-epeno	- epena	- epeno	<n-eepeño> 'Morir'	-
142. Kill	*-kopa-ko	- kapa-	- kopa-ko	<nu-coparaicô> 'Matar'	-
143. Burn	*-ihui-	-ihu	-iju-ko	<t-ihure> 'Queimar el fuego'	-
144. Sleep	*-imoko	- imaka	- imko	<n-imocô> 'Dormir'	-
145. Urinate	*-ho?o	- ha?a	- ho?o	<nu-hoo> 'Orinar'	-
146. House (Poss.)	*-peno	- pena	- peno	<nu-peno> 'Casa'	-
147. House (Abs.)	*peti	peti	peti	<peti> 'Casa'	<peti> 'Casa'
148. Nest	*moko-hi	makahi	moko-hi	<ta-moco> 'Nido'	-
149. Property, belongings	*-je?e	- je?e	- je?e	<nu-yeë> 'Mio es'	-
150. Bow	*-etsiporoku	- etsiparaku	- etspo:ku	<n-eziporocû> 'Ballesta'	<eziporocû> 'Arco'
151. Arrow	*-takiriki	- takiriki	- taçriçi	<taquiriqui> 'Flecha'	<tajirichi> 'Freccia'
152. Thread	*i tsepi	i tsepi	?tsepi	<n-ezepirâ> 'Hilo delgado'	-
153. Mask	*mi rora	mi rora	mi rora	-	-
154. Village	*o wosa-re	a wasare, - awasa	?wasare, - owasa	<obosaré> 'poblado'	-
155. Axe	*jo woti	ja wa-ti, - jafsa	jwo-ti, - jowo	<yobo-ti, nu-yobo> 'Hacha'	-
156. Pitcher, jug	*jupi	jupi	jupi	<yupi, nu-yupi> 'Jarro'	<jupi> 'Brocca'
157. Canoe	*po kure	pa kure	- pokre, pkure	<pacuré> 'Barca'	<pacure> 'Canoa'
158. Paddle	*naurope	naurope	'no.pe	<nu-naurope> 'Remo'	-
159. Tree	*ju kuki	ju kuki	jkuçi	<yucuqui> 'Arbol'	<jucúchi> 'Albero'
160. Forest	*si meno	si mena	'smeno	<simone> 'Monte de arboles'	<siméno> 'Bosco'
161. Garden	*-esane	- esane	- esane, ?santi	<esane-ti, n-esane> 'Chacra'	<esânati> 'Campo seminato'

162. Tobacco	*'saware	sa 'ware	saware	<sabarè> 'Tabacco'	<sabarè> 'Tabacco'
163. Pepper	*'i'feti	i 'feti	'ʔfeti	<acheti> 'Agi'	<accèti> 'Peperone'
164. Maize	*'si'poni	si 'pani	'sponi	<seponi> 'Maiz'	<seponi> 'Granturco'
165. Potato	*'ko'ere	ka 'ere	'kæere	<coere> 'Bataa'	<coère> 'Batàta'
166. Peanut	*'ku'rikere	ku 'rikere	'kriçre	<curiquiere> 'Mani'	<curichiere> 'Mani'
167. Yuca <sup>45</sup>	*'kahu	'kahu	'kappa, -kahi pa-ra	<cuhu> 'Yuca'	<cujù> 'Juca'
168. Sugarcane <sup>46</sup>	*'ʔ'kuteno	a 'kutena	'ʔkuteno	<ecuteno> 'Caña dulce'	<ecùteno> 'Cannamele'
169. Person <sup>47</sup>	*'a'ʔane	a 'ʔane	'ʔʔane	<achané> 'Gente'	<nù-accitànebò> 'Anima'
170. Woman	*'e'seno	e 'sena	'ʔsena	<eseno> 'Muger'	<esèno> 'Donna'
171. Wife	*'nu'jeno	-jena	-jeno	<nu-yeno> 'Mi esposa'	<nu-jèno> 'Moglie'
172. Mother	*'eno	-ena	-eno	<peeno> 'Tu madre'	-
173. Man <sup>48</sup>	*'a'hiro / *'o'hiro	a 'haira	'ʔhiro	<ehoiro> 'Varón'	-
174. Husband	*'ima	-ima	-ima	<n-iyima> 'Marido'	<n-ima> 'Marito'
175. Father	*'ija, 'ija-re	-ija, 'ija-re	-ija, 'ija-re	<pi-iyà> 'Tu padre'	-
176. Young man	*'a'moperu / *'o'moperu	a 'moperu	'ʔmoperu	<amoperi> 'Muchacho'	-
177. Boy	*'a'mujo	a 'muja	'ʔmojo	<amoya> 'Niño o niña'	<amojo> 'Bambino'
178. Sibling, older1	*'porape	'parape	'porape	<nu-porape> 'Mi hermano'	-
179. Sibling, older 2	*'effowi	-'effawi	-'effowi	<n-echobi> 'Hombre de edad y mayor, que outro'	-

<sup>45</sup> As pointed out by Jolkovsky (2016: 21, fn. 46), the Trinitario form includes the classifier *-pa* for grains and powder-like objects, found in Ignacio in the word for 'manioc flour', *kahur-pa*.

<sup>46</sup> Quality of the initial vowel is unclear. Note that sugarcane was present in the Mojos region before the arrival of the European invaders (see Denevan 1966: 32).

<sup>47</sup> On the Old Mojeño form from Iraisos, see Ignacio - 'afanewa' 'soul' (Ott & Ott 1983: 476).

<sup>48</sup> There is a sporadic development \*i > ai in Ignacio for this etymology. We reconstruct \*i based on external evidence such as Baure *hiir* 'man'.

180. Sibling, younger	*- 'ati	- 'ati	- 'ati	<ati> 'Hermano menor'	-
181. Son/Daughter	* 'fifa	'fifa	'fifa	<nu-chicha> 'Hijo o hija'	<nu-ciccia> 'Figlio', 'Figlia'
182. Nephew/Niece	*- 'fehi	- 'fehi	- 'fehi	<nu-chehi> 'Mi sobrino'	-
183. Boyfriend	*a 'rajeno	a 'rajena	'rajeno	<nu-arayeno> 'Mi mujer de segundo matrimonio'	-
184. Girlfriend <sup>49</sup>	*a 'raima	a 'raima	'rema	<nu-araima> 'Mi marido de segundo matrimonio'	-
185. Grandmother	*- 'otse	- 'atse	- 'otse	<nu-oze> 'Aguela'	-
186. Grandfather	*- 'offuko	- 'afuka	- 'offko	<nu-achuco> 'Aguelo'	-
187. Grandson	*- 'amori	- 'amari	-amri	<nu-amori> 'Nieta'	-
188. Son-in-law	*fi 'na-re	- 'fina, fi 'na-re	- 'fina, 'fina-re	<china-re, nu-china> 'Mi yerno'	-
189. Daughter-in-law	*fi 'neno-ko	- 'finena, fi 'nena-ka	- 'fino, 'fino-ko	<chineno-ré, nu-chineno> 'Nuera'	-
190. Mother-in-law	*- 'imose	- imase	- 'imse	<n-imosé> 'Suegra'	-
191. Father-in-law	*- 'imafuko	- 'imafuka	- 'imfuko	<n-imachuco> 'Suegro'	-

Receipt: 20/4/2017

Revised version 1: 2/8/2017

Revised version 2: 14/10/2017

Accepted: 17/10/2017

<sup>49</sup> On the formal side, note sporadic \*ai > e in Trinitario 'rema. At Pre-Proto-Mojeño level this etymon is arguably analyzable as \*ara-ima (see also \*ara-jeno), \*ara- being a root meaning 'new, recent', often used in compounds (see Ott & Ott 1983: 78). The etymological meaning is preserved in the OM cognates. The glosses 'Girlfriend' and 'Boyfriend' are tentative as most semantic aspects of the PM etyma are. The translations of the Trinitario and Ignaciano forms are 'novia' and 'novio', respectively (see Ott & Ott 1983: 594; Gill 1993: 28).