The Marañón-Huallaga exchange route: 'Stones' and 'grains' as counting devices[1]

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Abstract: In this article we claim that stone classifier-based numeral systems in a number of unrelated Northwestern South American language families/languages such as Kawapanan, Cholón-Hibito, Munichi, and, tentatively, Quingnam emerged due to calquing or loan translation (Weinreich 1963; Epps 2006, 2013). In

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addition, although the donor language remains unknown, we argue for this to be a case of a poorly attested grammaticalization path of numeral classifiers and numerals, namely STONE>CLASSIFIER, as presented in Conklin (1981), for languages such as Gorontalo, Kam-Muang, White Tai and Western Austronesian languages (Conklin 1981: 233, 234; mentioned in Aikhenvald 2000: 446). Moreover, ethnohistorical and historical evidence (Reeve 1994: 125) suggests that pre-Hispanic societies in the Marañón-Huallaga area shared a salt-stone-based trading system, henceforth SBT. This is remarkable, since other adjacent language families, such as Quechua and Chicham, do not show such a pattern for the formation of their own numerals. We claim, tentatively, that these common trade networks may be the sociohistorical motivation for the diffusion of this calquing pattern in the area.

KEYWORDS: Calquing/loan translation; Grammaticalization; Numerals; Areal diffusion; Marañón-Huallaga exchange route.

RESUMO: Neste artigo mostramos evidências da existência de sistemas numéricos baseados em classificadores de pedras em um número de famílias linguísticas/línguas *não relacionadas do* Noroeste da América do Sul, como Kawapana, Cholón-Hibito, Munichi e, provisoriamente, Quingnam, que emergiram devido a calque/tradução de empréstimo (Weinreich 1963; Epps 2006, 2013). Além disso, embora a língua doadora fique desconhecida, argumentamos que se trata de um caso de gramaticalização de classificadores numéricos pouco documentada, *STONE>CLASSIFIER*, como foi apresentado em Conklin (1981), para línguas como o Gorontalo, o Kam-Muang, o White Tai e as línguas austronésias ocidentais (Conklin 1981: 233-234, mencionado em Aikhenvald (2000: 446). Além disso, a uma evidência etno-histórica e histórica (Reeve 1994: 125) do que as sociedades pré-hispânicas da área Maranhão-Huallaga compartilharam um sistema de troca comercial baseado em pedras de sal, isso é digno de nota, visto que famílias linguísticas contíguas, como o Quechua e a Chicham não exibem este padrão de formação dos seus numerais. Desse modo, afirmamos, temporariamente, que estas redes de troca comum podem ter sido a motivação sociohistórica para a difusão deste padrão de calque na área.

PALAVRAS CHAVE: Calque/tradução de empréstimo; Gramaticalização; Numerais; Difusão areal; Rota de troca comercial Maranhão-Huallaga.

1. Introduction

The development of numeral systems in South American languages has been of special interest in the last couple of decades. The languages spoken in the Vaupés[2] area of North-western Amazonia, characterised by pervasive multilingualism and high levels of interethnic contact, are a salient case. These languages show a widespread preference for calquing/loan translation, which can be found in ritual and material culture terms, flora and fauna terms, place names and ethnonyms, as well as numerals (Epps 2006; Epps; Bowern; Hansen; Hill, and Zents 2012). For example, the numeral 'four' in the Vaupés languages is based transparently on the word meaning 'companion'. Although these languages are genealogically unrelated, the meaning of this numeral is related cross-linguistically without the actual form being shared (Epps 2013: 345; q.v. Floyd 2013: 300 for a broader view of the region).

Further south-west, six languages from Northern Peru seem to share a stone classifier-based numeral system (see Figure 1): two Kawapanan languages, Shawi (Hart 1988; Barraza de García 2005; Rojas-Berscia 2013, 2019a) and Shiwilu (Valenzuela; Careajano; Guerra; Inuma, and Lachuma 2013); the Cholón-Hibito languages (Alexander-Bakkerus 2005; Adelaar with Muysken 2004), Muniche (Gibson 1996), a language isolate spoken

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[2] The Vaupés region is located on the border of eastern Colombia and northwest Brazil. The languages spoken in this region belong to four distinct genealogical units: Arawak (Tariana and Baniwa as most salient), East Tukanoan (Tukano, Desano, etc.) Nadahup (Hup, Yuhup, Dâw on the margins), and Kakua-Nukak (Kakua). Newcomers to the region speak Nheengatú, a Tupí-Guaraní vehicle language spread during the Jesuit Missions, as well as Portuguese and Spanish (Epps 2013, 332).

on the margins of the Paranapura river, and tentatively Quingnam. As in other languages of the world (Heine and Kuteva 2002), grammaticalization chains like BRANCH>CLASSIFIER (Senft 1996 for Kilivila, 1993) or CHILD>CLASSIFIER (Heine and Kuteva 2002: 65) can be easily tracked among South American languages; however, these have not been reported in modern grammaticalization studies due to their systematic underrepresentation.
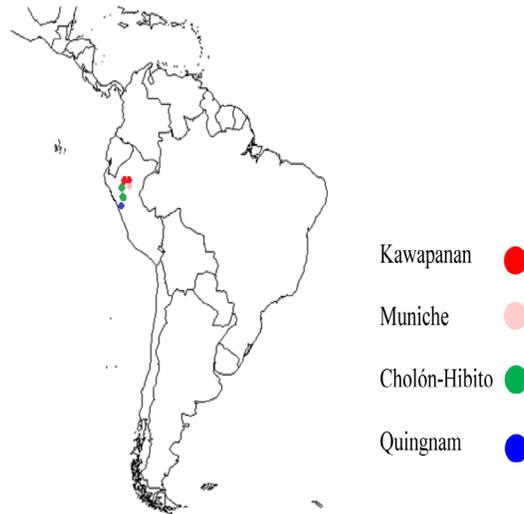
Figure 1: Location of Salt Stone Trade Based languages

This article seeks to fill this gap. These unrelated languages[3] show an apparent calquing pattern in their numeral systems. Nevertheless, a grammaticalization path in the genesis of their classifiers, numeral classifiers and numerals, namely **STONE**>CLASSIFIER/ NUMERAL CLASSIFIER>NUMERAL seems to have occurred in at least one of these languages prior to the spread of the pattern via contact. Conklin (1981), cited in Aikhenvald (2000: 405) already observed that 'fruit' or 'stone' may constitute the semantic bases for generic classifiers, but there has been little cross-linguistic evidence for such a claim. Hence it never attained the status of being sufficiently documented to be included in the *World Lexicon of Grammaticalization* (Heine and Kuteva 2002).

In section 2, we present a survey of the languages in the region, with a special focus on their numeral and classifier systems. Section 3 deals with grammaticalization, as an initial force for the occurrence of this pattern in the region, followed by generalised calquing cross-linguistically. Although most languages show this recurrent pattern, Shawi cyclically lexicalised the 'stone' classifier twice and thus further extends it. Section 4 provides a socio-historical background for the calquing/loan translation pattern at hand. We argue that specific forms in the world languages may have specific histories and may reveal more general historical trajectories. Salt-Stone-Trade society languages show that

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[3] Although, as explained in section 3, these languages were all spoken by SBT societies.

their trade system had an impact on what diffused as the mainstream semantic configuration for numerals.

2. Linguistic survey

Before the Spanish conquest, the north of Peru was a melting pot of languages. This great diversity has almost disappeared due to epidemics, forced migrations, and language shift. Complex dynamics of language change, emergence and contact that once existed remain most of the time unknown, since most of the languages spoken there are unrelated.[4] Fortunately, there are substantial descriptions from the colonial period and early 19th century for some of these languages, which help the socio-historical linguist draw conclusions about the history behind some forms encountered.

Muniche is a linguistic isolate. Today it is spoken by less than five elders in the village of Munichis, 30 minutes away by motorbike from the capital of Alto Amazonas, Yurimaguas, in Peru. The language was described only in the late 1990s by a SIL missionary (Gibson 1996).

Cholón is an extinct language that was spoken in a large area of the Peruvian north-eastern slopes, specifically in the region of the Huallaga river valley and the surrounding mountains, in the modern-day Peruvian political departments of San Martin and Huánuco (Alexander-Bakkerus 2005: 33–34). There are two colonial sources: a grammar written by Pedro de la Mata (1748) and 43 Cholón words recorded by Martínez Compañón (Martínez Compañón 1783: Vol. II, E, IV]). During post-colonial times, Tessmann (1930: 547) collected 31 Cholón words and Alexander-Bakkerus recorded a few words and expressions during her visit in the Huallaga Valley in 1996 (Alexander-Bakkerus 2005: 525–29) Hibito, its sister language, is also extinct and only a few lexical and grammatical paradigms are known (Adelaar with Muysken 2004: 460–475). Based on the lexicon found in Martínez Compañón (1783: Vol. I, 107r, 128r) and the diaries of Sobreviela and Álvarez (Sobreviela, Álvarez de Villanueva, and Gómez 1787: 134) one can include, as Hibito-Cholón territory, the eastern part of the modern-day Peruvian political department of La Libertad (in the above mentioned documents, Pataz, Jucusbamba and Buldibuyo are mentioned as Hibito-Cholón territories) (Eloranta 2012). Hibitos and Cholones inhabited the same area and it is difficult to make a strict geographical delimitation of their territories. Cholón became extinct only during the last years of the 20th century;[5] Hibito probably around the first half of the 20th century, since Tessmann (1930) succeeded in documenting some Hibito lexicon. Torero (1986: 533), among others, argues that Cholón and Hibito are in fact independent languages which only share lexicon due to prolonged language contact. Adelaar with Muysken (2004: 461) demonstrate, however, that there are phonological correspondences in the shared lexicon, supporting a genetic relationship.

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[4] See Muysken & O'Connor (2014: 2) for an overview of the proposals of language relatedness for South America in the last century.

[5] Reportedly, the Peruvian linguist Sofía Latorre has recorded Cholón material with the last speakers, but this material has not been published. Cholón has been studied by Latorre since the 80s (Torero 2002: 163–64). Currently, Latorre is working on a description of some salient grammatical features of the language (Latorre p.c.).

Despite the limitation of the data, it is possible to establish that Hibito has at least one attested numeral classifier, a cognate shared with Cholón.

Shiwilu and Shawi are Kawapanan languages. They are considered Andeo-Amazonian languages, meaning that they share features with both Andean and Amazonian languages (Valenzuela 2015). Just like Cholón and Hibito, these two languages are spoken on the eastern slopes of the Andes of San Martín, Peru. Comparative studies affirm that 60% of their lexicon is cognate (Valenzuela 2012). There are historical sources for both Shawi and Shiwilu. Southern Mayna, once spoken in the northern borders of the Shawi area, is a nowadays extinct Kawapanan language and was apparently the direct ancestor of Modern Shawi. Unfortunately, the only existing record of it is the Our Father prayer (Hervás 1787; Rojas-Berscia 2015). A substantial colonial grammar of XVII century Shiwilu has recently been made available (Alexander-Bakkerus 2016; see also Rojas-Berscia 2017). There are approximately 21,000 speakers of Shawi listed (Instituto Nacional de Estadística e Informática 2009). This number, however, refers mostly to people identified as Shawi and not speakers of the language. The number of speakers nowadays may be no more than 15,000 (Barraza de García 2005). Shawi is still a very vital language if compared to other neighboring Andean or Amazonian languages in Peru, as is evident from the daily use of the language, monolingualism in women and children, and language pride. Shiwilu, in contrast, is spoken by less than ten people. It has been recently recognized as part of the national cultural heritage in Peru ('Lengua Shiwilu es declarada Patrimonio Cultural de la Nación | Ministerio de Cultura' 2016).

Quingnam is another language isolate. It was once spoken along the Pacific coast of Peru, between the Jequetepeque and Chicama rivers to the north, and the Chillón River to the south. Apparently, it was the main language of the Chimor pre-Incaic culture, the locus of which was the city of Chan Chan in the modern region of La Libertad, and was later spoken by the fishermen of the area, after the Incaic conquest of the region (Rabinowitz 1983). Quingnam was one of the first indigenous languages of Peru to disappear after the arrival of the Spaniards. The language only survived in the form of place names (Zevallos Quiñones 1993a, 1993b; Torero 1989) and numerals (Quilter et al. 2010).

The current state of documentation of these languages allows us to analyse and compare different parts of their grammar and lexicon. In the following section, we provide a description of the classifier and numeral systems of these languages.

3. Classifiers in the area

Classifiers can be defined as "a set of free or bound forms categorising the referents of the nouns in terms of their sex, shape, composition, arrangement, and so on" (Aikhenvald 2015: 319). We define the category 'classifier' here as "a type of nominal classification, as in numeral or noun classifiers, rather than as a cover term for any type of nominal classification" (Kilarski 2013: 9). Classifiers are quite common in the Amazon (q.v. Cabral et al. 2014 for a survey of nominal classifiers in three Amazonian languages from Brazil), though not in Andean languages such as Quechua and Aymara. In the languages we examine in this chapter, classifiers are or were pervasive. The last subsection deals with the 'stone' classifier in particular.

3.1. Hibito-Cholón

Cholón has a decimal numeral system (Alexander-Bakkerus 2005: 177), as presented in Table 1, and a system of numeral classifiers.

Table 1: Numerals in Cholón and the word for stone (adapted from Alexander-Bakkerus 2005: 177**)**

a-ta/ -če	one
ip-ta	two
ič-ta	three
minʸip	four
kiok	five
iptʸok	six
kilis	seven
pak	eight
okony	nine
-lek	ten
ta	stone

Cholón's numeral classifiers correspond to the more prototypical types of classifiers. They can be classified according to the eight semantic categories proposed in Allan (1977: 297; 2001: 307; Salas 2012: 108–29), i.e.: (i) material, (ii) function, (iii) shape, (iv) consistency, (v) size, (vi) location, (vii) arrangement and (viii) quanta.

Concerning Hibito, the record of words is very limited: there is a list of 33 lexical items provided by Tessmann (1930: 458–59) and a list of 43 words by Martínez Compañón (1783: Vol. II, E IV). Considering that some of these words contained in these two lists overlap, the amount of words for Hibito is very small. Nonetheless, it is possible to establish that Hibito has at least one attested numeral classifier.

The register of the Hibito numerals (1, 2, 3) drawn up by Tessmann (1930: 458) includes, by chance, relevant information about a Hibito numeral classifier. The numerals recorded by Tessmann are listed in Table 2. Note that another word in his list, the word for 'stone', is strikingly similar to the endings of all the numerals. There seems to be a connection between the final segments in the numerals and those in the word for 'stone' (see Table 2). This makes it probable that the numerals listed by Tessmann (1930: 458) were in fact bi-morphemic and contained a numeral classifier etymologically related to the word for 'stone'.

Table 2: Numerals in Hibito (adapted from Tessmann 1930: 458)

e-tsí	one
op-tšē	two
ú-tsi	three
tšē	stone

If indeed <tšē> is a numeral classifier, it probably had the characteristics of a general numeral classifier. This conclusion can be drawn from the fact that, cross-linguistically, general classifiers are commonly attached to the citation form of numerals, probably because speakers tend not to count in abstract terms but rather conceptualizing numbers as reckoned items or objects. For example, Conklin (1981: 261–262, cited also by Aikhenvald 2000: 405) observes that 'fruit' or 'stone', in many cases, constitutes the semantic base of general classifiers in Tai and Austronesian.

If we inspect the lexical items for body parts recorded by Tessmann (1930: 458) in Table 3, a similar sequence of segments can be found. For illustrative purposes, Tessmann's words are segmented into hypothesised morphemes:

Table 3: Body parts in Hibito (Tessmann 1930: 458)

<moal-tsŭ>	tongue
<mon-tsá>	eye
<o-tšī >	ear
<só-tša>	head

However, there is no indication from Tessmann himself that these lexemes are segmentable. One explanation might be that the lexemes are not. Nevertheless, a similar pattern of register can be observed in the Cholón terms for body parts: <ñache> 'eye' (De la Mata 2007 [1748]: 243), <kimonžéi> 'tongue', <kinjelšé> 'eye', <mutšitšé> 'head' (Tessmann 1930: 547) and [čegonče] 'testicles', [čuče] 'head' and [nyače] 'eye' (from the lists of words recorded by Alexander-Bakkerus in 1996, Alexander-Bakkerus 2005: 525, 528). All of these lexemes appear to share an ending similar to the Cholón numeral classifier for round objects <chê>.

Returning to Cholón, the similarity of Hibito <tšē> 'stone' and Cholón <chê> 'grain' / 'egg' (De la Mata 2007 [1748]: 127) should be noted. These two lexemes may have been functional elements in both languages, and they both may have functioned as numeral classifiers. The Cholón numeral classifier <chê> transcribed as <če> by Alexander-Bakkerus (2005) is used to count "round objects and all kinds of birds, fruits, etc." (De la Mata 2007 [1748]: 109). This suggests these two classifiers can be related not only because of their similar form <tšē>, <chê> but also functionally: they denote round objects, such as 'stone' and 'egg' or 'grain'. In several languages 'fruit' 'stone', 'egg' and 'seed' are typical sources for classifiers for round objects, for example in Micronesian and Western Austronesian languages (various authors cited in Aikhenvald 2000: 446).

3.2. Kawapanan

The Kawapanan languages originally had a five-based numeral system. Although numerals from six to ten have been attested in 18th century Shiwilu (Alexander-Bakkerus 2016), these may have just been a product of forced standardisation by the Jesuit missionary working on the grammar of the language. Currently, Kawapanan languages display a decimal numerical system. This may be due to the strong presence of the *lengua general*, namely Chinchay Quechua, used for evangelization in the region. Another addition is the word for 'million' *michuna*, which was borrowed from the Spanish *millón*:

Table 4: The Kawapanan numeral system

	Shawi (Rojas-Berscia 2013: 53)	Shiwilu (Valenzuela 2013, Alexander-Bakkerus 2016)
one	*a'na(ra)*	*a'la*
two	*katu'*	*katu'*
three	*kara*	*kala*
four	*katawini/katapini*[6]	*inkatu*
five	*a'naterahpu*	*alekteklun*
six	*sawta/suta*[7]	<intimutu[8]>
seven	*kanchise*	<tanituna>
eight	*pusa*	<tanituna kabiasu>
nine	*iskun*	<witin ötegla kabiasu>
ten	*shunka/shunga*	<čunga>

In modern Shawi, classifiers are infrequent. This does not seem to be the case for Shiwilu, in which the classifier system remains quite stable. Classifiers in this language have been studied by Farfán Reto (2011) and Valenzuela (2016). According to the authors, the classifiers in Table 5 are the most frequent classifiers in the language. We also include their parameters as well as tentative independent associated nouns:

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[6] The dash reflects variation. The first form is commonly attested in southern varieties, namely Paranapura and Balsapuerto; the second one, in northern varieties, namely Cahuapanas and Sillay.

[7] Numerals in Shawi from six to ten come from Quechua *suqta* 'six', *qanchis* 'seven', *pusaq* 'eight', *isqun* 'nine', and *chunka* 'ten'.

[8] The numerals from six to nine have Shiwilu etymologies (Alexander-Bakkerus 2016: 44-45). The numeral for ten is of Quechua origin, *čunka* 'ten'.

Table 5: Classifiers in Shiwilu (adapted from Farfán Reto (2011, 67) and Valenzuela (2016, 339))

CL	MEANING (CATEGORY OF THE OBJECTS IT DENOTES)	INDEPENDENT ASSOCIATED NOUN	MAIN PARAMETER	
-pen	'male'	-	ANIMATE	
-lun	'female'	-		
-nan/~-na	'long and rigid objects'	*nala* 'tree (trunk)'	ONE DIMENSIONAL	DIMENSIONALITY
-llin	'long and flexible objects'	*llintek* 'vine, tail'		
-la	'short, less rigid objects'	*lanla* 'stem of a palm tree'		
-tek	'flat objects (to cover/wrap)'	-	TWO DIMENSIONAL	
-mek	'flat and extended objects'	*lalumek* 'leaf'		
-pi	'big spherical objects'	-	THREE DIMENSIONAL	
-llasha[9]/*-la*	'small spherical objects'	*la'pi* 'stone'[10]		
-si	'elongated and hollow objects'	*silu* 'cane'		
-du	'cylindrical objects'	-		
-dek	'water'	*dek* 'water'	CONSTITUTION	
-lu'	'soil'	*lu'pa* 'soil'		
-dan	'tubers'		INHERENT FUNCTION	
-lu'	'meat/flesh'	*lu'lun* 'meat, flesh'		
-dun	'clothing for the body'			

The classifiers in the language cannot stand alone. One of the main characteristics of the language is that "the same set of classifiers appears in various morphosyntactic environments" (Valenzuela 2014). They can appear suffixed to demonstratives (1),

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[9] This form might be a lexicalization of the classifier for small things/stones *-*la* and the diminutive of Quechua origin *-sha*.

[10] Valenzuela (2014, 2016, 374) considers *lada* 'face, eye, seed' to be the independent associated noun.

numerals (2), quantifiers (3), adjectives (4), nouns (5), and even verbs (6). The use with numerals is never obligatory.

(1) *Nanamek kirka'tekkek llinsetchullina'*
    Nana-**me'**   kirka'-te'-ke'   lins-rtul-ina'[11]
    that-CL:leaf   paper-CL:flat-LOC   write-FUT-3AUG
    'They will write on that sheet of paper.' (adapted from Valenzuela 2014)

(2) *Ala'meksa' enka'u!*
    Ala'-**me'**-sa'   enka'-u
    one-CL:leaf=only   give-IMP;1MIN.EXCL.O
    'Give me a leaf!' (adapted from Valenzuela 2014)

(3) *Iñer'meklusa' nupulli*
    Inr'-**me'**-lusa'   nupu-l-i
    all-CL:leaf-PL   fall-N.FUT-3MIN
    'All the leaves fell.' (adapted from Valenzuela 2014)

(4) *Udundansha   ker ña'palli.*
    Udun-**dan**-sha   kr   ni-a'pa-l-i
    little-CL.tub-DIM   manioc   be-PROG-N.FUT-3MIN
    'There is little manioc.'   (adapted from Farfán Reto 2011: 70)

(5) *lupa'llasha*
    lupa'-**lasha**
    soil-CL.SSO
    'a grain of sand' (Farfán Reto 2011: 70)

(6) *Uklumekter'*
    we'lu-**me'**-tr'
    tend-CL:leaf-IMP.2SG
    'Spread the sheet (on the bed)!' (Valenzuela 2014)

    The following are some of the classifiers that can be found in Shawi (Rojas-Berscia 2013: 34).[12]

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[11] Glosses as well as orthography were slightly adapted to our view of the grammar of the language.
[12] There is no thorough description of the classifier system of Shawi yet.

Table 6: Most common classifiers in Shawi (adapted from Rojas-Berscia 2013: 34)

CLASSIFIER	MEANING (CATEGORY OF THE OBJECTS IT DENOTES)
-pi	(animate) big spherical objects
-yapi	human
-nan	long and rigid object
-ra	small spherical objects
-rate[13]	small sharp objects
-raya[14]	very small objects
-yun	pointy things
-yunan	big things
-rin	long and flexible things/braided things
-i'	water

These classifiers occur mostly as numeral classifiers. However, historically, just like their Shiwilu counterparts, classifiers inside an NP were sometimes lexicalised, as in (9); their productive appearance is restricted to numerals most of the times, as in (7)-(8), but they are not obligatory; and they infrequently occur with verbs, as in (10). Apparently, a productive classification system became a purely numeral classification one. Below we present some examples:

(7) *katu'ra na'pira*
    katu'-**ra**   na'pi-ra
    two-CL.SSO   stone-CL.SSO
    'two stones'

(8) *a'napi ni'ni*
    a'na-**pi**   ni'ni'
    one-CL.BSO   dog
    'one dog'

(9) *karayapi piyapisa'*
    kara-yapi   pi**yapi**-sa'
    three-CL.HUMAN   people-PL
    'three people'

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[13] This might be a lexicalization of the stone/small spherical objects classifier *-ra* and the instrumental *–te'* (q.v. Rojas-Berscia 2019b for a survey of Shawi nominalization) in Shawi.

[14] This might be a lexicalization of the stone/small spherical objects classifier *-ra* and the noun of possible Quechua origin *wa'wa* 'children', after jotisation, *-wa>-ja*. In Modern Shawi, the classifier *-rawa* can also be found with the meaning 'small young animate object'.

(10) *Yushari i'ke ti'yeitatun nukuahrin*

yusha-ri i'-ke   tiya-**i**-te-watu-n[15]   nuku-sa-r-in

deer-ERG water-LOC throw-CL.WATER-VM-SEQ-3 watch-PROG-N.FUT-3

'After throwing him (from the cliff), he is watching him.'

For this chapter, we will focus on the use of *-la/-ra* as a classifier/numeral classifier in Kawapanan.

7.3.3. Muniche

No analysis has been reported on the Muniche numeral system, whether in Gibson (1996) or in the brief grammatical description by Michael et al. (2009). The recorded numerals go up to [saçwa] 'five' in Gibson (1996). Table 7 shows the Muniche numerals:

Table 7: Muniche numeral system (Michael et al. 2009: 35)

one	[wɯ́'tsa'a]
two	[útspa]
three	[útsmü]
four	[tsá'fa]
five	[utspatʃə] (Gibson 1996: 76)

With regard to the Muniche classifier system there is no comprehensive study either. Table 8, based on Michael et al. (2009: 35) presents some classifiers found in the available material:

Table 8: Muniche classifiers

CLASSIFIER	MEANING (REFERENTS)
-pa	'to refer to mass nouns'
-sa	'fluids, liquids'
-zhu	'long and rigid objects'
-tü'ma	'braided items'
-stü'u	'palm trees fruits, garlic'
-pü	'long and flexible thing'
-tzhü/-chi	'animate, humans'

Examples of the Muniche *-zhu* classifier for long and rigid objects include:

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[15] This seems to be the case of an antipassivization caused by operator *-te,* the valency modifier. This would cause the original object to be incorporated through a classifier. The same would occur in (6) for Shiwilu.

(11) *chá'-zhu*
stick-CL.RIG
'stick'

(12) *snáp-zhu*
Gynerium-CL.RIG
'*Gynerium*'

(13) *ñá'-zhu*
firewood-CL.RIG
'firewood'

Further work on the classifier system of the language is difficult since it is almost extinct.

7.3.4. Quingnam

With the exception of a short list of numerals (Quilter et al. 2010), there is no documentation of the language. Unlike other northern coastal Peruvian languages, such as Sec or Tallán, for which some lexicon has been documented (Martínez Compañón 1783), or Mochica, for which some reference grammars were written before its extinction (Carrera Daza 1644; Middendorf 1892; Hovdhaugen 2004), we only know of the existence of Quingnam thanks to some "(historical) language news" (Torero 1986). Antonio de la Calancha (1638) and the book of *visitas* of the Archbishop Toribio de Mogrovejo (1593) mention the existence of *quingnam* or *pescadora*, sp. 'fishermen language', respectively. Some research conducted in the region by Zevallos Quiñones on place names and regionalisms (Zevallos Quiñones 1975, 1993a, 1993b) suggests Quingnam is not related to Mochica, nor is there any linguistic evidence to sustain that the two languages were related at a deeper genealogical level.

The situation of a virtually unknown status came to an end, when a 17th century manuscript was discovered in Santa María Magdalena de Cao (Trujillo) in 2010. Although the list is very short, it provided enough information to reconstruct the grammar of numeral formation of Quingnam (Solís Fonseca 2017). Below we present the list:
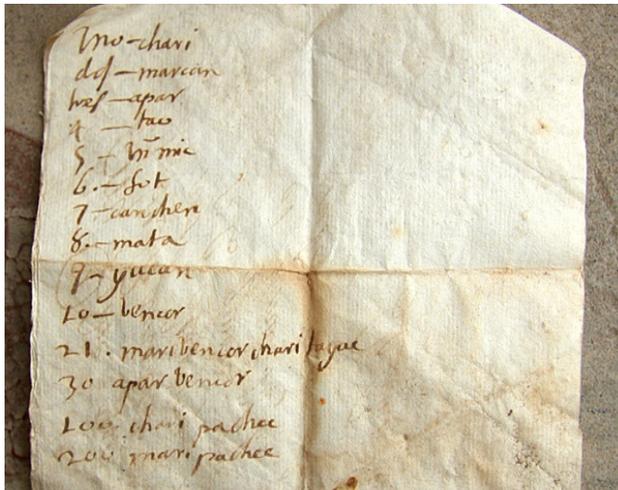
Figure 2: List of possible Quingnam numerals (Quilter et al. 2010)

Table 9: Transcription of the Quingnam numeral system, and comparison with the Mochica numeral system

	Quingnam	Mochica (Carrera Daza 1644: 181–84)
one	*chari*	<onæc>
two	*marian*	*atput*
three	*apar*	*çopæt*
four	*tau*	*nopæt*
five	*himic*	*exllmætzh*
six	*sut*	*tzhaxlltzha*
seven	*canch**en***	*ñite*
eight	*mata*	*langæss*
nine	*yuc**an***	*tap*
ten	*benkor*	*çiæçų*
twenty-one	*mari bencor chari tayac*	*pac pong allo onæc*
thirty	*apar bencor*	*çoc pong*
one hundred	*chari pachac*	*na palæc*
two hundred	*mari pachac*	*pac palæc*

The list not only provided useful lexical and grammatical information on the language, but also more evidence against a possible genealogical relationship with Mochica, given the fact that the numeral systems of both languages are entirely different. Moreover, the information on the list became evidence in favour of a Quechua-Quingnam contact scenario. Some words can be easily related to their Quechua counterparts. Below we present these correspondences:

Table 10: Quingnam-Quechua numeral correspondences (adapted from Solís Fonseca 2017: 11–12)

Quingnam	Quechua	
tau	*tawa*	four
sut	*suqta*	six
canchen	*qanchis*	seven
pachac	*pachak*	one hundred
yac<tayac	*-yuq*	which has…

7.4. Stones and grains as counting devices

Zhang & Norman (1995: 273) analyse the dimensionality of numeration systems and identify three different types. The one-dimensional system (named 1D system by Zhang & Norman 1995) constitutes the simplest way to represent numbers by means of stones: one stone for one, two stones for two, and so on. The stone-counting system only has a single dimension: the quantity of stones. In the same manner, body-counting systems are also one-dimensional: the single dimension is represented by the positions of different body parts (fingers, wrist, elbow, shoulder, toes, ankles, knees, and hips). Zhang & Norman (1995: 273) state that the first numeration systems invented were one-dimensional systems represented by simple physical objects like stones, pebbles, sticks, tallies, etc. Taking this into account, one should not be surprised to find stone-based counting numeration systems in South America.

The literature, however, does not allow us to confirm this. There are rarely 'stone' lexemes grammaticalized as classifying/counting devices in the documented languages of the world. The *World Lexicon of Grammaticalization* does not include any section on STONE > CLASSIFIER/NUMERAL.CLASSIFIER > NUMERAL at all.

According to Kuteva (p.c) this was due to lack of substantive data that could provide enough evidence for the fact that this was indeed a common grammaticalization path in the world's languages.

In any case, the languages we are dealing with display a STONE > CLASSIFIER/NUMERAL. CLASSIFIER > NUMERAL path.[16] Below, we present a comparative list of all the numeral systems in our languages followed by evidence to support this hypothesis:

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[16] Although we surmise that calquing/loan translation may have been a force behind the spread of this specific type of numeral formation in the area, the grammaticalization of 'stone' and stone-classifier into a numeral classifier must have occurred in at least one of the languages involved.

Table 11: Basic numeral systems in SBT languages[17]

	Shawi	Shiwilu	Cholón	Hibito	Muniche[18]
one	*a'-na*	*a'-la*	*a-ta/če*	*e-tsí*	*wü-tsa'a*
two	*ka-tu*	*ka-tu'*	*ip-ta*	*op-tšē*	útspa < *úp-*tsa'a?*
three	*ka-ra*	*ka-la*	*ič-ta*	*ú-tsi*	úts-ma <* út-s-ma/ ú-*tsa'a*-m?*
Stone or grain	*na'pi/raya* PK *la'pi/*laya	*lapi/lada* PK *la'pi/*laya	*ta*	*tše*	*tsá'a* 'grain, corn'
Classifier for stones, eggs or grains, small things	*-ra*	*-la*	*-ta*	*-tše*	*-tsá'a*

Cholón is one of the most transparent cases, since there are examples both of the use of stone and grain as a lexeme, as in (14), (15), (16), and of the use as a classifier, as in (17). Moreover, the whole numeral system shows a lexicalised version of the numeral classifier in the numeral system, as is shown in Table 10.

(14) **Ta**   mi-lluan
     stone   2-become
     'You become a stone.'   (De la Mata 1748: 163)

(15) Yncha   yu   **che**-m   co-uâ?
     what/which   kind   grain/egg-QM   this-TOP
     'What type of grain/egg is this?'   (De la Mata 1748: 127)

(16) Llû   **chê**   sim.
     Wattled.curassow   egg   EMPH
     'It's a wattled curassow egg,'   (De la Mata 1748: 127)

(17) Ana   mec   xipte-**ta**-m?
     how.many all   anona-CL.stone-QM
     'How many anonas?' (De la Mata 1748: 128)

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[17] The addition of other loans in these languages that would support the idea of contact via salt trade was suggested. This is still open for future investigation. An interesting case, nevertheless, is the superficial similarity between the words for salt in some of these languages: Proto-Kawpanan *yamu-,* Munichi *ë'ma* (Gibson 1996: 87) and Cholón *yel* (Alexander-Bakkerus 2005: 283).

[18] Another possibility of analysis was suggested by a reviewer for whom, "the Muniche forms look - at least at first glance - to contain a prefixed form *uts-* rather than the suffixed *-tsa'a* form suggested". This analysis quite possible and should not be discarded. Our analysis, although more elaborate, coherently shows a parallel with Cholón, but it is still tentative. It could also be the case that the only numeral that retained our suggested form is 'one' *wü-tsa'a*. This question remains open.

The same goes for Hibito, as can be inferred from Table 3, as a noun classifier, and Table 11, as a numeral classifier lexicalised to the root of the numeral.

Muniche is the most surprising case. This language, which is said to be an isolate, has a numeral system which resembles that of Cholón-Hibito a great deal. As is shown in Table 11 there is a recurrent segment [tsá] present in the numerals that go from 'one' to 'three'. This form is reminiscent of the Cholón classifier and word for 'stone' <ta> which leads us to tentatively conclude that this is a case of borrowing via contact. Moreover, the bases of Cholón-Hibito numerals from 'one' to 'three' are *a-/e-* '1', *ip-/op-* '2', and *ič-/ú-* '3', all similar as well to Muniche's *wü-* '1', *úp-* '2', and *ú-* '3'. Although no straightforward genealogical relatedness can be inferred just from a numeral system, this could only mean that the speakers of these languages were in contact and used this system for specific purposes, as discussed in section 5.

Kawapanan also shows a form that can be speculatively regarded as being related to these forms, namely the numeral for 'two', present in both Shawi and Shiwilu as *katu/katu'*. *Katu'* could be then tentatively analysed as *ka-* 'multiple' and *-tu* 'stone/grain'. This could be explained by the fact that the Kawapanan languages were in contact with Cholón-Hibito and Muniche speakers in the Paranapura region. Contact with the latter, for example, has been extensively discussed in the literature (q.v. Ochoa-Gilonne 2007).

The two remaining Kawapanan numerals, **a'la* 'one' and **kala* 'three' numerals show a form *'-ra/-la'*, which could be tentatively related to stone, PK**lapi* 'stone', *-la* CL:small things, or grain, PK **laya* 'eye, grain'. The latter could just be a matter of chance. It is difficult to form solid hypotheses with such short forms. Nevertheless, chance seems to have to be excluded, 'stone' being of such a pervasive occurrence in the languages, diachronically and synchronically.

This classifier is found in modern texts suffixed both to NPs, as in Table 12, and to modifiers, as in (19-20). It is historically related to the word for stone in Proto-Kawapanan, **lapi* (Rojas-Berscia & Nikulin 2016), which is still used as a lexeme in both Shiwilu, as *lapi*, and Shawi, as *na'pi*, as shown in (18).

Table 12: Stone/grain classified nouns in Kawapanan

Shawi	Shiwilu (Valenzuela 2013)
ya'pi-ra 'eye' *imi-ra* 'hand' *ka'yu-ra* 'cicada' *tayu-ra* 'star'	*itek-la* 'hand' *kadu-la* 'cicada' *tandu-la* 'star'

Here are some Shawi examples:

(18) Piyapi-ra-wa   **na'pi**   mutu-ke   wani-a-r-in.
     person-DIM-OFF   stone   top-LOC   stand-PROG-N.FUT-3MIN.S
     'The child is standing on top of the stone.'

(19) kara-**ra**   nanpiun
     three-CL.stone   peanut
     'three peanuts'

(20) katu'-**ra**   na'pi-**ra**
    two-CL.stonestone-CL.stone
    'two stones'

One more interesting fact about modern Shawi is the numeral for 'one' in the Southern varieties, namely Paranapura and Balsapuerto. In these varieties, the stone classifier has lexicalised once more to *a'na* 'one', in the new form *a'nara*. Therefore, it is possible to find phrases like:

(21) a'nara-**ra**   nimu
    one-CL.stone   lemon
    'one lemon'

Shawi, the most vital Kawapanan language, and the sole non-extinct/obsolescent language of the list, is the only one that shows a cyclic grammaticalization <<>> lexicalisation path: PK *lapi* stone > GRAMM to (numeral) classifier -*la* > LEX to numeral a'la >>>> [appearance of Shawi] classifier -*ra* and numeral one *a'na* > LEX of classifier to numeral *a'nara.*

As for Quingnam, one of the most salient patterns of its numeral system is the occurrence of an -*an/en* segment in the numerals for 'two', 'seven' and 'nine', see Table 9. This same ending can be found in word lists recorded for other linguistic areas further north along the Pacific coast. As mentioned previously, the northern coast of Peru was home to a wide array of languages. Sec, the language of fishermen in the valley of Sechura, in the modern region of Piura, is one of the best documented after Mochica (Urban 2015). It is noteworthy that some of the lexicon documented for the Sec area also shows the occurrence of this segment. Below we present some examples:

Table 13: Possible Quingnam-Sec words with the stone classifier, -*an/-en* (adapted from Brüning 2017)

mar-**án**	cactus (Lecuanda [1793] 1861: 123)
kur-**án**	squirrel (Brüning)
cej-**an**	fat (Brüning)
fïr-**an**	hard (Brüning)
nap-**án**, náp-**an**	cat's claw (Brüning), a medicinal plant
Cang-**án**	Bird which lives and builds its nests in the holes of the cliffs (Puig-Tarrats 2007: 26)
Char-**án**	Medicinal plant the resin of which is used against tooth ache (Puig-Tarrats 2007: 35).
Chiar-**án**	Legume. Tallanca word (Oviedo). León Zaldívar (1920) registers *charán,* "a long tree, soft to the touch, ash coloured on a dark green background. It bears pods that contain several small beans.[19]"

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[19] Translated from Spanish: "Arbol grande de tronco liso al tacto, de color ceniciento sobre fondo verde oscuro. Su fruto son vainas que encierra varios frejolillos." (León Zaldívar 1920).

Cum-**án**	Bird. In the shamanist rituals it is used, especially the heart, the crop and the tailbone.
cañ-**án**	'small lizard', also <jañape> (León Zaldívar 1920)
ñel-**én**	'Small residue that remains after peeling the rice' (León Zaldívar 1920).

We speculate that, just as Cholón-Hibito -*ta/che*, Kawapanan *-*la* and Muniche -*tsa'a*, -*an* in Quingnam may have been a classifier for stones or grains. Just like in its Amazonian counterparts, the word is used to refer to small animals, as well as to grains, as is the case of *ñel-en* 'rice grain residue'. The -*an* classifier could have grammaticalized into a numeral classifier. This process would eventually have led to the lexicalisation of the classifier and the numerals, hence the occurrence of it in some of the words found in the Quilter et al.'s (2010) list. This is a reason to further investigate on Quingnam-Sec relations. It could be the case that the language of the fishermen or *pescadora* was just a general label for the two linguistic entities we know today as Quingnam and Sec. This language would have been spoken by the fishermen along the northern coast of Peru, as once argued by Rabinowitz (1983).[20]

There are good reasons for considering STONE>CLASSIFIER as a common linguistic outcome in this region. We assume that all these vernaculars were spoken by societies in constant interaction (at least this has been explored for Muniche and Shawi in Ochoa-Gilonne 2007). Therefore, it is highly unlikely that this happened in all these languages independently. We suggest that this is a case of loan translation under intensive language contact, i.e. an outcome of the Marañón-Huallaga Trade Route. In section 5, we explore the socio-historical reasons behind such a commonality in all these languages. Apparently, salt trading was a key factor that led to a similar shaping of the numeral systems of all these languages. All these numeral systems, but not the "languages", would be related by a common pre-historical commercial background.

5. Sociohistorical scenario: the salt mines of Cachiyacu

Our main claim is that the societies under discussion had a similar economy, or at least shared a trading system that would trigger similar linguistic changes in their numeral systems. As far as we know, salt-trading was very important for pre-Hispanic societies in Northern Peru. Even nowadays salt-trading is of great significance among the Shawi. The exchange of salt for goods is quite common and is practiced on a daily basis by the people living along the margins of the Paranapura river (Ochoa Siguas 2016).

Ethnohistorical data show that the Shawi people have been occupying the Paranapura basin and its tributaries between the Marañón and lower Huallaga rivers since at least the year 1644 (Rivas Panduro 2014: 204, 309). It is also clear that the main reason of their settlement in that area is the presence of at least one salt mine in a rocky outcrop on the banks of the Cachiyacu River. Even today, entire families of the Shawi, Shiwilu and Awajún ethnic groups (from the left bank of the Lower Huallaga River and the right bank

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[20] *Pace* Rabinowitz, we coincide with Torero (2002: 222), that this fishermen language was Quingnam, and not a different linguistic entity.

of the Lower Marañón River) go to the salt mine annually during low-water season to stock up on this important resource (Rivas Panduro 2014: 309). These itinerary routes were of great importance after the arrival of the Spaniards. The Jesuit missionaries, who settled in the area and founded the first Catholic *Misiones,* took control of the salt trade route. The salt, mined by Indian labour in the Kawapanan area, was one of the main products they exported to cities such as Moyobamba, Lamas and Quito. The need for salt as a dietary supplement in places where large game was not abundant, such as the newly established missions, as well as the status of salt as a commodity in big cities, was exploited by the Jesuits (Reeve 1994).

With regard to the Cholones and Hibitos, Alexander-Bakkerus (2005: 32–33) observes that missionaries stimulated Cholones and Hibitos to trade. It is also known that Cholones were very good navigators and mastered the waters of the Huallaga River and its tributaries, which were their main trade routes (Alexander-Bakkerus 2005: 34). A relevant river in the trading area is the Cachiyacu (lit. 'salt water', from the Quechua *kachi* 'salt' and *yaku* 'water') river. Half a mile from Yurimaguas, one can find the outlet of this river. Cachiyacu is the general route between Moyobamba and the ports of the Amazon. It is navigable for large canoes, as far as Balsapuerto (Kawapanan area), a five days' journey from Moyobamba. The Cachiyacu also allows for communication with many villages between the Marañón and Huallaga rivers (Hibito-Cholón area) (Herndon and Gibbon 1854, Vol.1:167). In early Republican times, Herndon and Gibbon (1854, Vol. 1:168) report that during their trip in the area they met several canoes going up-river for salt. They also report that during the months of January to June, people of the Marañón and Ucayali used to make a voyage up the Huallaga for their supply of salt (Herndon and Gibbon 1854, Vol. 1:168).

If we consider the modern location of these peoples, we observe that the Muniche occupy the corner area between the banks of the Cachiyacu river and the Huallaga. It is possible that they were the intermediaries between the Kawapanan Shawi/Shiwilu and the Cholón-Hibito. The Muniche may have been the immediate contact of commerce to the North of the Cholón-Hibito and may thus have borrowed their numeral system.[21] As we have seen above, Cholón-Hibito and Muniche share a strikingly similar numeral system. This may be explained by the fact that the societies speaking these languages entertained trade relations.

Intense trade occurred between peoples from the Pacific coast and the Amazon. The arbour of this exchange was the Marañón river, where the Cholón played an important role, as the masters of the trade routes. Contact between Cholón and another coastal language, Mochica, has already been investigated (q.v. Eloranta 2017). Nevertheless, Mochica was not the only language spoken in this region. Quingnam may have also been in contact with Cholón in the Marañón area. The presence of Quingnam speakers in this region was once tentatively proposed by Torero, who claimed that "we may be right to assume as

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[21] It is also possible that the Cholón and the Kawapanan were directly in contact, as can be inferred from Alexander Bakkerus (2005: 32), when she mentions that the Cholón and the Chuncho (another Kawapanan group as claimed by Ochoa-Gilonne (2007)) were the possessors of the *Cerro de la Sal*, lit. 'mountain of salt'. This reification of their status as 'possessors' could be explained by their main roles in the trade of salt in the Marañón-Huallaga area.

Quingnam people from the Santa Valley the groups of raft crossers from the Marañón, for the great skills known of them as transporters of people and goods through large rivers" (Torero 2002: 244).[22] We tentatively propose that Quingnam, or *pescadora*, speakers traded with the Cholón, salt being one of the possible goods that were transported from the Amazon to the Pacific coast. Coincidentally, Rivas Panduro (2003: 96), in one of his excavations in the Cachiyacu area, found a seal with handle which shows no resemblances to any archaeological material reported for the Amazon (see Figure 3). According to the author, the imprint design of the seal resembles those of the friezes of Chan Chan, the cultural capital of the Quingnam-speaking Chimor kingdom. It could well have been the case that this type of decoration, or even the seal itself, was brought to the pre-Hispanic Kawapanan area possibly through the Cholón.
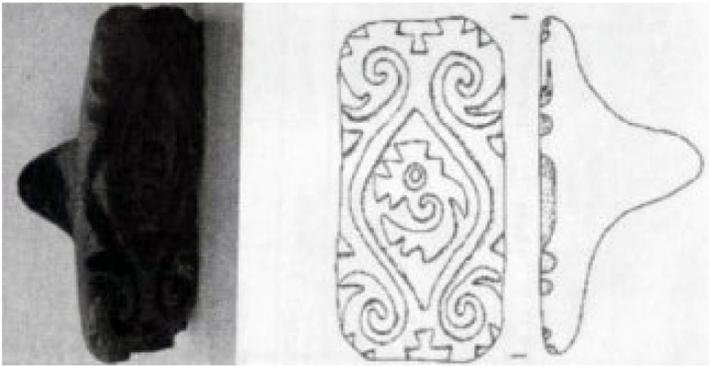
Figure 3: The Chan Chan style ceramic seal (Rivas Panduro 2003: 70)

This chain of commerce, namely the salt-stone Kawapanan>>Muniche>>Cholón-Hibito >>Quingnam trading chain, may have had an impact on the formal configuration of the numeral systems of the languages of the traders through time. Although these are all unrelated languages, their numeral systems are not.

Contact, trade and exchange constitute fundamental factors that could have offered a context for linguistic borrowings, in the form of pervasive loan translations, to occur between the languages spoken on the Eastern Slopes of Northern Peru throughout history.

7.6. Discussion

The consensus is that most languages spoken in the North of Peru cannot be shown to be linguistically related. To date, archaeological, ethnohistorical and anthropological studies have shown that the people who spoke these languages were connected through

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[22] Translated from the Spanish original: "[…]tal vez acertemos si damos por gente quingnam del valle del Santa a los grupos de "balseadores" transpuestos al Marañón, por la extrema pericia que se les reconocía como transportadores de personas y carga a través de ríos caudalosos" (Torero 2002: 244).

trade, intermarriage, wars, and religion. This complex fabric of relations had a linguistic impact.

Cholón-Hibito, Kawapanan and Muniche, and probably Quingnam, speakers were connected through the Cachiyacu salt trading route, which extended all the way from the outcroppings of salt in the Mines of Cachiyacu, to the Huallaga River. Via contact through the Cholón in the Marañón area, it reached the Quingnam fishermen in the Pacific coast. The hypothesis that the word for stone/grain grammaticalized into a numeral classifier in a donor "language" and subsequently diffused as a loan translation (*numeral-stone) into the other languages, is not only sustained by the intra-systemic evidence shown in the previous sections on grammar, but also by the importance of the salt-trading tradition in the North of Peru, which may have shaped the numeral systems of all these languages.

Furthermore, Muniche and Cholón-Hibito numeral systems are formally very similar. We happen to know for sure that Muniche has an Arawak pronominal system (Gibson 1996: 18). These discoveries just show how problematic the proposal of an "isolate" is for the region. Further studies on the general influence of Arawak on several languages of the north of Peru are currently in preparation (Eloranta and Jolkesky in prep.; Rojas-Berscia and Piepers in prep.). These will also show how the comparison of small subsystems in South American languages will shed more light on this paradox of great diversity.

Also, thanks to the numeral configuration pattern found in Cholón, we were able to analyse the Quingnam numerals. Although not as transparent as Cholón or Hibito, some Quingnam numerals seem to have formed from the fossilisation of a classifier for stones/grains, suffix -an/-en, and the numeral root. This tentative classifier can be found in many words of another fishermen language in the north of Peru, Sec (Brüning 2017; León Zaldívar 1920). Perhaps, Sec and Quingnam were two varieties of the same language, eventually split into two by a late arrival of the Mochica language. The fishermen, who were speakers of Quingnam, could have met the Cholón traders in the Marañón. This specific scenario could be the reason why Chan Chan design-like artefacts were found in the Cachiyacu area.

Socio-historical processes play a significant role in the shaping of so-called "languages". This is just a first attempt at applying a formal sub-systematic analysis of these linguistic isolates which have a particular shared history. More processes like this have certainly taken place in South America. Interdisciplinary attempts that embrace the fields of genetics, history, archaeology, anthropology, and linguistics will provide more insight into the dynamics of variation and diversification in the continent.

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List of conventions (following the Leipzig Glossing Rules)

1	first person
2	second person
3	third person
AUG	augmented
BSO	big spherical object
CL	classifier
DIM	diminutive
EMPH	emphatic
ERG	ergative
EXCL	exclusive
FUT	future tense
IMP	imperative
LOC	locative
MIN	minimal
N.FUT	non-future tense
OFF	offspring
PL	plural
PROG	progressive
QM	question marker
RIG	rigid object
S	subject of intransitive
SEQ	sequential
SG	singular
SSO	small spherical object
TOP	topic
VM	valency modifier