Counting by Tens: Specific Counting in Southeast Solomonic Languages

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Southeast Solomonic (SES) languages have retained the Proto-Oceanic decimal system for general counting, and also show evidence of a supplementary specific counting system, based on the number ten. These languages have lexemes that refer, for example, to 'ten pigs' or 'ten coconuts' (numerically specific nouns), as well as lexemes that refer to 'pig' and 'coconut'. This paper describes the linguistic and cultural context of this counting system. It describes the syntactic behavior of numerically specific nouns and the cultural context in which they were used. This specific counting system is not widely used today, and in any individual language there may be only a small number of numerically specific nouns. However, by looking at the languages as a group, with shared cultural and trading practices, the specific counting system and its uses can be better understood. In the specific counting systems of the SES, speakers count edible and nonedible objects of value and exchange by tens to calculate and remember large numbers during times of feasting and exchange.

> In addition to the rice and tobacco and meat there were said to be twenty thousand yams, besides taros provided (Ivens 1930:211).
>
> By about three o'clock all the food stood in front of Atana's house. He and his immediate kinsmen had contributed the 250 pounds of dried fish, the 3000 yam cakes, 11 bowls of yam pudding, and 8 pigs. … Nearly everybody brought along some dried fish and a few yam cakes, and several of the leaders sent a pig and a bowl of pudding as well. On the final count the various heaps contained 300 pounds of fish, nearly 5000 yam cakes, 19 bowls of pudding, and 13 pigs (Hogbin 1964:66).

1. INTRODUCTION.[1] Walter Ivens (1930) and Ian Hogbin (1964), in the extracts above, document the large numbers of yams or yam puddings, pigs, and other food items shared at feasts they witnessed during their fieldwork in the Southeast Solomon Islands in the 1920s and 1930s. A reader of their ethnographic work may wonder how they knew there were 5000 yam cakes or 20,000 yams, and why it was important to the communi-

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ties to calculate exactly how many yam cakes or yams there were. There was no written numeration so, once counted, how did speakers remember these numbers? It seems likely that these large numbers were counted using a specific counting system, in which items associated with feasting and exchange (both food and other inanimate objects) were counted with specific lexemes referring to ten-things (that is, the languages have a lexeme for 'pig' and a lexeme for 'ten pigs'). This paper describes specific counting in the Southeast Solomon Islands and explains the probable social context in which it thrived. Chrisomalis makes the point that "numerals are used by people in real social contexts" (2013:569). It is the social context between language groups, as well as within a language group, that allows us to understand the use of specific counting in the Southeast Solomon Islands. The description and discussion of specific counting systems in the Southeast Solomons contributes to research on this topic in Oceanic languages, especially that by Bender and Beller (2006a,b, 2014), and Beller and Bender (2008) on Polynesian and Micronesian languages.

The paper is organized in the following way. Section 2 defines the term "specific counting" and outlines specific counting systems in Oceanic languages. Section 3 describes specific counting in Southeast Solomonic (SES) languages, providing information about the data for this paper. Section 4 describes the linguistic context of "numerically specific nouns" (the term used in this paper to refer to words denoting ten things), including their similarities and differences from cardinal and ordinal numerals, collectives, and classifiers. Section 5 discusses the potential sources of numerically specific nouns. Section 6 discusses the cultural context of specific counting. Section 7 concludes the paper.

2. SPECIFIC COUNTING SYSTEMS. Specific counting systems are counting systems that count by a specific base (for example, 4, 10, 100) and are used with specific objects such as coconuts, pigs, and fish (Bender and Beller 2006a,b). Such systems are well known in Austronesian languages, as well as in Papuan languages of the region (for example, Churchward 1941; Elbert 1988; Baird 2002; Evans 2009). These counting systems are connected to traditional practices of "food production, feasting and religious ritual" (Clark 1999; see also Bender and Beller 2006a).

Specific counting exists alongside a general counting system; for example, in the Southeast Solomons, the general counting system is the decimal system inherited from Proto-Austronesian. Notably, it is usually the supplementary system, not the general counting system, that is used to achieve high numbers, such as the large numbers of yams and yam cakes recorded by Ivens (1930) and Hogbin (1964).

There is evidence of counting systems associated with specific objects in languages in the wider geographical region (Austronesian and non-Austronesian), but there is only evidence of specific counting by tens in languages that have retained a decimal system. These languages include other Oceanic languages, such as Fijian (Churchward 1941:66) and numerous Polynesian languages (Bender and Beller 2006b), as well as two Papuan languages of the Central Solomonic language family—Savosavo (Wegener 2012) and Lavukaleve (Terrill 2003, 2011). Fijian, Savosavo, and Lavukaleve all have specific counting systems that include at least some of the same referents as those found in SES

languages (like fish, pigs, breadfruit, and canoes), although the lexical forms used in these counting systems are, in general, not shared with SES languages.[2]

We have not found evidence of a specific counting system used to count 'ten things' among Oceanic languages with innovations in their numeral systems, that is, languages that do not have a decimal system. There have been significant innovations in numeral systems since Proto-Austronesian in non-Oceanic Malayo-Polynesian languages (Blust 2008; Schapper and Hammarstrom 2013), and since Proto-Oceanic (POC) within other Oceanic regions, such as Vanuatu and New Caledonia (Lynch 2009). Schapper and Hammarstrom (2013) describe at least ten distinct complex numeral systems in Malayo-Polynesian languages outside of the Oceanic languages, in addition to the two quinary systems outside of Oceanic language family noted by Blust (2008:452). Sa, spoken in Vanuatu, is of interest as it has a quinary system but also a relict decimal system known by older people (Garde 2015:126). The relict decimal system is used in similar contexts to the specific counting systems of SES languages. That is, it is used: (i) to count people present; (ii) to count parcels of food or meals to be distributed; and (iii) for heritage purposes and for their inherent historical value as part of *kastom* ideology (Garde 2015:126). One difference, however, is that the numerals do not refer to specific objects.

Studies by Bender and Beller (2006a,b, 2014) and Beller and Bender (2008), as well as Baird (2002), Briley (1977), Capell (1971), Churchward (1941), Lichtenberk (1983, 2008a), and Unger (2008), show that in both Oceanic and non-Oceanic Austronesian language communities, there are examples of specific counting systems with other counting units (for example, 2, 4), and that typically the same objects (for example, pigs, coconuts) are counted using these systems. However, the factor that is extracted for counting purposes differs. For example, Old Māori had a dual counting system that was restricted to a few objects such as fish, fowl, and certain root crops (Bender and Beller 2006a:384). Lengo (SES) *paregho* 'ten, used only when counting by twos' is evidence of the practise of pair-counting. Mangarevan (Gambier Islands, Polynesia), had four modes of counting, each specific for certain objects: "breadfruit, pandanus leaves, agricultural tools and sugar cane were counted in pairs; ripe breadfruit and octopus were counted in fours; he first breadfruit and first caught octopuses of the season to be given as a tribute to the owner were counted in bunches of eight," and "other things, including humans, were counted singly" (Bender and Beller 2006b:385). Keo, in central Flores (Indonesia), has a special base-four counting system used to count fruit, coconuts, betel nut, and small fish (see Baird 2002:234). In Ambai (Indonesia; Briley 1977:29), there is also "a special system used for counting ocean culture (fish) which is based on the number four." Manam (Papua New Guinea; Lichtenberk 1983:337), which has an "impure" quinary system—a quinary system, but with special terms for 'ten' and 'twenty'— has a general word for 'four' and three special terms that are used when particular kinds of objects are counted. These special terms are used for (i) fish, (ii) coconuts or breadfruit, and (iii) small things such as betelnuts, breadfruit seeds, and canarium nuts. Lichtenberk notes further that "fish, coconuts, and breadfruit are customarily tied into bundles of four," and, also, that it is not obligatory to use the special term but that the general term *wati* is often used instead (1983:340–

2. Savosavo shares the forms and meanings for 'one ten ([megapode] eggs)', *pa kua*, and 'one ten (coconuts)', *pa piqu* (Wegener 2012:75). Megapode eggs are common on the island of Savo, but not Guadalcanal. The term *kua* in SES languages refers to chicken eggs.

41). Arosi (SES; Capell 1971:51–53) also counts some objects in fours. These examples show that specific counting has been documented across a wide geographical area. However, counting by tens is limited to languages that retain a general decimal system, such as the Oceanic languages of the Southeast Solomons.

3. SPECIFIC COUNTING IN SOUTHEAST SOLOMONIC LANGUAGES.[3] The SES family is divided into two subgroups: Bughotu-Gela-Guadalcanal, and Longgu-Malaita-Makira (Lynch, Ross and Crowley 2002:110). Data for this paper come from:

Bughotu (Ivens 1933),
Gela (Crowley 2002; Fox, Miller, and Pawley 2015; Miller 1974),
Ghari ([Vaturanga]; Ivens 1934; Anon 2008),
Lengo (Unger 2008 and field notes),
Malango (Van Andel 2017), and
Tolo (Crowley 1986)

for the Bughotu/Gela/Guadalcanal subgroup; and from:

Arosi (Capell 1971),
Kwaio (Keesing 1975, 1985),
Kwara'ae (Ivens 1931),
Lau (Fox 1974),
Longgu (Hill 2011 and field notes),
Owa (Mellow 2014),
Sa'a (Ivens 1918), and
Toqabaqita (Lichtenberk 2008a, 2008b)

for the Longgu/Malaita/Makira group.

All of these languages show evidence of a specific counting system, although these systems may no longer be widely used. The lexemes referring to "ten-things" of one kind (for example, *vaga* 'ten pigs' in Longgu), are called "numerically specific nouns" by Lichtenberk (2008a) and this terminology is followed here. Numerically specific nouns are not always known by younger speakers (see, for example, Lichtenberk's [2008a] report of Toqabaqita); however, fieldwork on Longgu (Hill) and Lengo (Unger) confirms awareness and use of a specific counting system by at least some members of the language communities. Some numerically specific nouns are widely used by young and old (for example, *ada* 'ten coconuts' for Longgu), while others are limited to specific villages or contexts. For example, *lama* 'ten feasting bowls' is widely used in the Longgu village of Nangali, where men still carve wooden feasting bowls, whereas it is not known in the Longgu village of Babasu, a village that has not maintained the tradition of carving.

The referents of these numerically specific nouns can be divided into two groups—things that are edible and things that are not. The edible group includes pigs, dogs, coconuts, fish, eels, birds, breadfruit, food parcels, crayfish/lobsters/prawns, eggs, possums, and turtles.[4] Of these, the object counted by tens most frequently across the languages is

3. Abbreviations follow the Leipzig glossing rules. Additional abbreviations are: ASSOC, associative; CONJ, conjunction; INAN, inanimate; N.LOC, locative noun.
4. When fish are counted by tens, they are typically a specific variety of fish and not fish in general.

the coconut. Inedible referents include arrows, bamboo filled with food, banana shoots for planting, bowls or baskets (of food), canoes, garden rows, sago-palm fronds, and shell-money. Of these, shell-money occurs most frequently. The objects listed in table 1 largely reflect the list of valuable resources described by Hogbin (1939:61), for Malaita:[5] Wealth in Malaita consists mainly of food—pigs, vegetables (primarily taro and yams), fruit (chiefly bananas), and nuts (especially Canarium almonds, areca nuts, and coconuts). In addition, strings of shell discs and porpoise and dogs' teeth are also highly valued.

TABLE 1. NUMERICALLY SPECIFIC NOUNS AND COLLECTIVES REFERRING TO VALUABLE RESOURCES IN SES LANGUAGES

(a) FOOD

	Pigs	**Coconuts**	**Fish**	**Yams**	**Parcels (pudding/ fish)**	**Bananas**
Ghari		pigu				
Gela		pigu	paga			ghai bala (banana bottoms)
Lengo	paga	pigu†	paga		tongo	
Longgu	vaga	ada / pigu	alo		lama	vugu
Kwaio	umu	ada	anga 'sack of fish, tubers etc.'		lama (taro puddings)	
Lau		ada		finita		
Toqabaqita			sinole	anga qalo (100)		
Sa'a		ada				
Kwara'ae		ada			lama (10 birds)	

(b) NONFOOD

	Shell money	**Garden rows**
Ghari	tangavulu	
Gela	sauhangavulu	
Lengo	sau thangavulu	ghaivolo
Longgu	sau thangavulu	sinale/aivolo
Lau	tafuli'ai/fuliabala	
Toqabaqita	kobi	

† Lengo *pigu* covers 'ten shells—coconut, crab, and sea shells.'

4. LINGUISTIC CONTEXT OF SPECIFIC COUNTING. Numerically specific nouns share some of the syntactic characteristics of both numerals and nouns. Analyses of similar words in other Austronesian and Oceanic languages arrive at the conclusion that they are classifiers or "fused numeral classifiers" (Aikhenvald 2003; Blust 2013). The following sections describe SES numerals (4.1), and numerically specific nouns (4.2). In section 4.2.1 evidence is given of SES numerically specific nouns behaving as nouns, while in sections 4.2.2, and 4.2.3 the syntactic and semantic behavior of numerically specific nouns is compared with collective nouns and classifiers. The result is that Lichtenberk's (2008a) analysis of Toqabaqita numerically specific nouns is shown to apply to other SES languages.

5. Note that bananas are not counted by tens, but by a collective term, e.g., *vugu* 'bunch' in Longgu.

4.1 SES NUMERALS. SES languages have retained the decimal system that has been reconstructed for Proto-Austronesian (Blust 2013:268–74). The numerals 1–10 reconstructed for POc (Lynch, Ross, and Crowley 2002) and the numerals 1–10 in a sample of SES languages are given in table 2.

TABLE 2. NUMERALS 1–10 IN PROTO-OCEANIC AND SELECTED SES LANGUAGES

	Proto-Oceanic	Bughotu	Gela	Lengo	Longgu
1	*ta-sa, *sa-kai, *tai, *kai	sikei	keha	sakai	te'e, te; eta
2	*rua	rua	rua	ruka	rua
3	*tolu	tolu	tolu	tolu	olu
4	*pati, *pat	vati	vati	vati	vai
5	*lima	lima	lima	lima	lima
6	*onom	ono	ono	ono	ono
7	*pitu	vitu	vitu	vitu	viu
8	*walu	alu	alu	alu	walu
9	*siwa	hia	hiwa	thiua	siwa
10	*sa-ŋa-puluq	salage; hangavulu	hangavulu	thangavulu	tangavulu

These data demonstrate the conservative nature of SES languages. There are few lexical innovations in SES numerals, the Guadalcanal variants for 'five'—*chehe* / *tsehe* /*tsege*, for Malango ([Van Andel 2017), Tolo (Crowley 1986), and Ghari (Anon. 2008)], respectively—being the only example of full replacement of a POc etymon in the available data.[6]

However, despite being conservative in terms of source, SES numerals are somewhat complex in terms of behavior. Lichtenberk's statement that the "morphosyntactic category (of Toqabaqita numerals 1–10) is ambiguous" (2008a:292) is apt. The ambiguity of word class for numerals is the result of the different syntactic behavior of cardinals and ordinals.

Cardinal numerals can form the predicate head, as in example (1). For example, Lengo cardinal numerals (with the exception of *sakai* 'one')[7] are usually found as predicate head:

(1) LENGO
E **lima** na thara ba ka ghalii.
3SG five ART feast.row FUT IRR-1PL.INCL make-PL.INAN
'It is five feast rows we will make.'

In Lengo, cardinal numerals can modify nouns, but only in time-telling constructions:

(2) LENGO
i ropo ba i te na **thangavulu** kiloko
LOC tomorrow FUT LOC N.LOC.POSS.3SG ART ten o'clock
'tomorrow at ten o'clock'

6. According to Tryon and Hackman (1983), some Malaitan languages have variants in addition to POc cognates: Kwaio has both *sik^{w}a* and *mule* 'nine,' and Toqabaqita and Sa'a both have *tanag*(*f*/*h*)*ulu* and *a*(*k*)*wala* 'ten'. Ivens (1918) lists the Sa'a noun *awala* as 'a ten, a tally'. Lichtenberk (2008b) has Toqabaqita *akwala* as a 'set of ten,' and Keesing (1975) defines *mule* as 'nine (the common form at Sinalagau, instead of *sik^{w}a*)'.
7. The number *sakai* 'one' is not used as predicate head in Lengo. The construction **e sakai* is not found, as it is with all the other numbers. Instead, *sakai* 'one' is found with the personal article *a,* modifying nouns, e.g., *a sakai na thengetu ni tinoni* 'one hundred people'.

In (2), *thangavulu* 'ten' is the uninflected cardinal form of the numeral. Given, however, that telling time is a relatively new practice for Lengo society, this is viewed as a recent innovation.

Ordinal numerals behave quite differently from their cardinal counterparts. First, they cannot form the predicate head. Instead, ordinals are nominal modifiers within noun phrases. Second, ordinals are derived from cardinal numerals by affixing a third person singular possessive suffix. This behavior reflects the more nominal properties of these numerals. In Lengo, ordinal numerals are formed by applying a form of the third person singular possessor suffix (*-e*)[8] to the cardinal numerals:

(3) LENGO
ruka 'two' → na **ruke** 'second'
tolu 'three' → na **tolue** 'third'

(4) LENGO

na	ruka	thangavulu	**vati-e**	na	nunu
ART	two	ten	four-POSS.3SG	ART	picture

'the twenty-fourth picture'

A third indication of the nominal nature of ordinal numerals in Lengo is that they are preceded by the common article *na* 'ART', as in (3) and (4) above.

Both cardinal and ordinal numerals above ten are formed by compounding. For numbers between 11 and 19, 21 and 29, 31 and 39, etc., the "ones" number comes after the number ten. Multiples of ten are formed by preposing the "decade" and post-posing the "ones". This can be seen in Longgu:

(5) LONGGU
12 tangavulu rua 'ten two'
20 rua tangavulu 'two ten'
22 rua tangavulu rua 'two ten two'

So, while cardinal and ordinal numerals in SES languages differ in terms of morpho-syntactic category membership, they do share a common means of denoting values greater than ten.

4.2 SES NUMERICALLY SPECIFIC NOUNS. In general, SES nouns are—to use Rijkhoff's (2002:45) term—"transnumeral"; that is, they are unmarked for number (singular/plural) and are "neutral with respect to the number of individuals they denote." One must rely on contextual clues—for example, participant markers (subject, object, and/or possessor), demonstratives, or numerals—to determine how many of an entity are involved.

Numerically specific nouns are distinct from other SES nouns in that the number of individuals they denote is fixed at ten. There is no need for—indeed, there are no—other contextual clues to determine that there are ten things denoted; it is lexically determined.

8. With nouns, the 3SG possessor suffix *-e* is normally the result of a morphophonemic process in which the 3SG.POSS suffix *-a* joined to a word ending in /a/ raises the resulting /aa/ to /e/; to most of the numerals, *-e* is added after the final vowel, but to *ruka* 'two', *lima* 'five', and *thiua* 'nine'—three numerals that end in /a/—the suffix *-e* replaces the final vowel /a/. The ordinal *tighi* 'first' has a form not derived from the number *sakai* 'one'.

For example, in Lengo, 1 to 9 garden rows are enumerated in conjunction with the noun *kobe* 'garden.row,' but once there are ten or more rows, one is able to use the noun *ghaivolo* 'ten.garden.rows' to describe them, as in (8).

(6) LENGO
Q: E ngitha **na ghaivolo** ni pana?
3SG how.many ART ten.garden.rows ASSOC pana.yam
'How many ten.garden.rows of pana yams (are in your garden)?'
A: E lima teigha m-e ono **na ghaivolo**.
3SG five NEG CONJ-3SG six ART ten.garden.rows
'There are five, or if not, six ten.garden.rows (i.e., 50–60 rows).'

Of the 14 SES languages with available dictionaries and/or descriptions, 12 mention some sort of numerically specific noun (there are 26 SES languages in total). Their source, however, remains unclear. There does not seem to be solid evidence of numerically specific nouns in POc (or any further up the protolanguage chain). For example, there is no mention of them in the relevant section in Lynch, Ross, and Crowley (§3.2.4 Numerals and Number Marking; 2002:72–74). The latest version of Blust and Trussel's online *Austronesian comparative dictionary* (ACD; Blust and Trussel ongoing) has an entry for 'ten, in counting certain objects,' but it is in the "Noise" section. The entry comprises three items—from Tolai, Nggela (Gela), and Arosi)—two of which are SES languages.[9]

In SES languages, numerically specific nouns belong to a unique word class, different from nouns as well as cardinal and ordinal numerals. While they share with nouns and ordinal numerals the syntactic property of surfacing in noun phrases, they enumerate entities of a fixed quantity (ten); nouns, on the other hand, are "transnumeral," and ordinals do not enumerate but rather indicate rank or order. And while cardinal numerals do enumerate entities, they do not surface in noun phrases. Numerically specific nouns enumerate in noun phrases.

The one way that numerically specific nouns behave in the same way as both cardinal and ordinal numerals is with regard to compounding. That is, multiplication is expressed by the position of a numeral before a numerically specific noun, and addition is expressed by the position of a numeral after a numerically specific noun, as these Longgu, Lengo, and Toqabaqita examples show.

(7) LONGGU
rua lali
two feasting.bowls
'two feasting bowls'

9. See http://www.trussel2.com/ACD/acd-n_t.htm#2071. There is another curious reference in the ACD that just might be added to the list: Blust and Trussel include Nggela (Gela) *kua* 'hen eggs' in the list of reflexes of POc *kua kua 'kind of bird: pheasant-dove?' (http://www.trussel2.com/acd/acd-s_k.htm#10060). This is curious in two regards: (i) none of the other glosses in Blust and Trussel for '(bird/reptile) egg' uses an English plural (see http://www.trussel2.com/ACD/acd-s_q.htm#27772 and http://www.trussel2.com/ACD/acd-s_q.htm#27662); by contrast, 'roe, fish *eggs*' does (emphasis added)); and (ii) Codrington (1885:147) lists Florida (Gela) *na kua* 'ten eggs' in a list of other "collective nouns." By way of comparison, Lengo, the only other language in the Gela branch of the Guadalcanal-Gela family, also has a word *kua* meaning 'ten eggs,' as does neighboring, albeit non-Austronesian, Savosavo 'one ten ([megapode] eggs).'

(8) LONGGU
rua hobi lima lali
two ten.feasting.bowls five feasting.bowls
'twenty-five feasting bowls'

(9) LENGO
ghaivolo ruka
ten.garden.rows two
'twelve garden rows'

(10) LENGO
ruka pigu ruka
two ten.shells two
'twenty-two shells'

(11) TOQABAQITA
teqe kobi-qi malefo ma teqe malefo
one tensome-ASSOC shell.money and one shell.money
'eleven sets of shell-money' (Lichtenberk 2008a:301)

Various historic and current analyses consider words like these to be nouns of some kind: Codrington (1885:147) discusses "nouns used in Fiji and in the Solomon Islands which express a definite number of certain things, generally in tens" under the heading "collective nouns"; Churchward (1941:66) calls Old Fijian words like the ones in SES languages "numeral nouns"; and Lichtenberk uses the term "(numerically-specific) quantifying nouns" for Toqabaqita correlates (2008a:292, 299). All of them tend toward a combined nominal/numeral notion. Other possible analyses are collective noun and classifier. These options will be considered in turn.

4.2.1 Numerically specific nouns as nouns. Numerically specific nouns are found as heads of noun phrases. Unlike cardinal numbers, numerically specific nouns do not form the head of a predicate; and unlike ordinal numbers, they have not undergone affixation to form another noun/numeral. Numerically specific nouns are typically heads of associative noun phrases. For example, in Lengo:

(12) LENGO
sakai **na paga ni igha**
one ART ten.animals ASSOC fish
'one "ten.animals" of fish'[10]

(13) LENGO
Na ghaivolo ni kobe ara tuaghai
ART ten.garden.rows ASSOC row PL long
'The group of ten garden rows is long.'

Sentences like (12) are analyzed as the genitive/associative phrase *ni igha* modifying the head noun *paga*. The associative phrase is necessary to specify what kind of *paga* is in view; in this case it is fish and not, say, pigs.[11] This is much the same as sentences like

10. See also Lichtenberk (2008a:299): "When the entities being counted are expressed, the quantifying nouns that signify sets of ten function as the head of an associative construction, and the entities counted are expressed in the modifier phrase."
11. See table 1.

mane ni Mala 'Malaitan man' and *mane ni Gela* 'Gela man'—it's the kind of man that needs to be differentiated with the modifying phrase. Example (13) shows a less common associative phrase, where the entity referenced by the numerically specific noun is mentioned explicitly. This is not strictly necessary, but seems to add an emphatic sense.

While numerically specific nouns pattern with nouns syntactically, they are a particular kind of noun. Similar to the nouns 'hundred' and 'thousand', they denote a specific amount; and yet the nouns for 'hundred' and 'thousand' need the entity explicated:

(14) LENGO

e	ruka	thangavulu	tolu	na	togha	ni	tinoni
3SG	two	ten	three	ART	thousand	ASSOC	people

'twenty-three thousand people'

Numerically specific nouns do not need the entity explicated; they denote the entity themselves (see examples (6) and (9) above).

4.2.2 Collective noun. Syntactically and semantically, numerically specific nouns are similar to collective nouns. Syntactically, they are nouns; and semantically, they describe groups of things. However, there are enough differences—particularly semantically—that SES numerically specific nouns are not considered collective nouns.

While in many languages collective nouns are not specific as to kind (for example, English 'group' of people or buildings, etc.; or 'bunch' of keys or bananas, etc.), some do refer to just one kind of thing (for example, English 'school' of fish [but not cows]; 'bouquet' of flowers [but not trees]). Significantly, though, while the referent of a collective noun may be fixed, the number of members of a collective is not. As Rijkhoff (2002:53) notes, "*collective nouns* designate a property of several discrete entities that are conceived as a unit. But when, for instance, someone in a family dies, the others are still 'family', and when we take one flower out of a bunch, the remaining flowers are still members of (part of) *a bunch*" (italics in original). Similarly, while in some languages there are collective nouns that are specific as to quantity, such as English 'dozen' (12), 'score' (20), and 'gross' (144), the kind of entity must be specified: for example, 'a dozen *eggs*' or 'four score *years*'. So, in the widely accepted sense, collectives can either be specific as to kind or quantity, but not both.

Numerically specific nouns in SES languages, however, stand out in that they are always specific in both kind *and* quantity. In terms of quantity, numerically specific nouns differ from collective nouns in that if one garden row is removed from *sakai na ghaivolo* 'one ten.garden.rows' (Lengo), the remaining nine are no longer a *ghaivolo*; they are now *e thiua na kobe* 'nine garden.rows.' Recall, though, that numerically specific nouns are found in compound numeral constructions: see (7)–(11). So, while the entities described by numerically specific nouns are discrete—that is, they can be added to and subtracted from—at a certain point (that is, less than 10) the numerically specific noun is no longer applicable for the group of entities. In addition, the kind of thing being referred to need not be mentioned in an associative phrase. Numerically specific nouns describe a collective, but only of a group that consists of ten (or more) members of the set.[12] This limited window of applicability makes "collective noun" an unsuitable word class for SES numerically specific nouns.

It is worth pointing out that SES languages do have conventional collective nouns.[13] For example, Lengo collectives include *iti* 'bunch of bananas, no longer on the tree' (cf. POc *qitiŋ 'bunch of bananas'), *ovo ligho* 'swarm of insects', *savu* 'school of fish', *uguugu* 'group of people; flock of birds', *vungu* 'bunch of fruit, e.g., betelnut, lole (rambutan), coconut (tied together with strips of still-connected husk), no longer on the tree' (cf. POc *puŋu 'bunch, cluster [of grain, fruit, areca nuts, etc.]),' and *vuvungu* 'bunch of fruit, e.g., banana, betel nut, coconut, cut nut, still on the tree'. These are collective nouns in the widely accepted sense, which is to say that they do not denote specific quantities. Remove a *vudi* 'banana' or two from an *iti* 'bunch of bananas' and you still have an *iti* (as long as there are two or more bananas left in the bunch). Numerically specific nouns are different from collective nouns of this nature.

4.2.3 Classifier. Various authors have analyzed numerically specific nouns as classifiers. Lynch, Ross, and Crowley (2002:73) propose numeral classifiers for POc, noting that "a scattering of Oceanic languages ... use a classifier with a numeral, while others have fossilized reflexes of classifiers," though they add that "it is probable that classifiers were not bound forms, but nouns (as in Indonesian languages)." Among the languages they identify in this section are the Cristobal-Malaitan languages (Southeast Solomonic; Cristobalfl is another name for Makira). Referring to Toqabaqita data, Aikhenvald suggests that such words may be "fused numeral classifiers" (2003:113). In an extensive study of specific counting systems in Polynesian and Micronesian languages, Bender and Beller (2006:399) submit that these languages established "specific counting systems with numeral classifiers that define a higher counting unit,"[14] and that, "this indicates that both the principle and its components may have existed in Proto-Oceanic." Finally, the proposed connection between numeral classifiers and numerically specific nouns is hinted at in Blust's comment that "in Oceanic languages numeral classifiers are sometimes based on multiples of ten" (2013:296).[15]

12. In Longgu, *moga* refers to ten sections of yam, or pana in a garden. *Aivolo* refers to ten rows. These terms can only be used if a full ten sections or rows are present. The term *vaga* "ten pigs" can be used if there are ten or more pigs. Speakers said it could be used in response to a question such as "How many pigs did you kill?": *Te vaga sara* "at least ten, ten or more pigs (lit: one ten-pig arrive)".
13. As noted above, there are connections and overlaps between ways of counting (e.g., specific counting systems, classifiers, and collectives). For example, terms that refer to ten-specific things in one language (Longgu *lama* refers to ten feasting bowls) may refer to a collective, nonspecific thing or things in another (Lau *lama* refers to a flock of birds, or herd of pigs or pack of dogs).
14. Bender and Beller (2006b:399) expand on this, saying "a number system can be extended in at least two dimensions: classifiers can be added 'in breadth' in order to differentiate ways of counting for different objects; classifiers can be added at the end of a power series ('in length'), thereby extending the range of counting. A large number of classifiers is the result of the first extension, and high numerals are the result of the second. Combining the two creates a third, and for our purpose the most interesting, variant: if classifiers are incorporated not on the basic, but on a higher level, a new series of counting for the respective objects is instantiated and extended, based on a higher counting unit ('base extension'). This creates a specific counting system and enables an acceleration in counting."
15. Unfortunately, Blust doesn't mention ten-thing words in the ensuing discussion of the Oceanic languages (2013:299), but refers instead to collective nouns.

Since languages of the Malaita-Makira family do have numeral classifiers (Lynch, Ross, and Crowley 2002:73) while those of the Guadalcanal-Gela family do not, we turn to Lichtenberk's (2008a) analysis of the Malaita-Makiran language Toqabaqita to determine whether the "fused numeral classifier" analysis is suitable for SES numerically specific nouns.

In Toqabaqita, numeral classifiers are used with eligible nouns in the context of the cardinal numbers 1–10. However, classifiers do not cooccur with numerically specific nouns, as shown in the complex number construction in (15). Perhaps part of the motivation to analyze these words as classifiers stems from the fact that numerically specific nouns are found in the same position as classifiers in Toqabaqita: that is, (numeral) X (noun). There are three such constructions in (15):

(15) TOQABAQITA
[roo talanga qalo] [lima finite qalo] [kwalu **fa** qalo]
two hundred taro five tensome taro eight CLF taro
'258 taro corms' (Lichtenberk 2008a:293)

Aikhenvald (2003:116) acknowledges the difficulty of exactly this situation when she writes, "classifiers and quantifiers may be hard to distinguish if they occupy the same slot in a noun phrase." In (15), the classifier appears only in the context of the final instance of the enumerated entity *qalo*. The classifier *fa* categorizes the noun *qalo* 'taro' as something "relatively small and, loosely speaking, round" (Lichtenberk 2008a:267), but provides no information as to quantity; the information concerning quantity is provided by the numeral *kwalu* 'eight'. However, the classifier *fa* is not present in the first two phrases of example (15), and the numerals in the first two noun phrases—*roo* 'two' and *lima* 'five'—are multipliers for the numerically specific nouns *talanga* 'hundred' and *finita* 'tensome'.

It is a feature of Oceanic languages that the numbers 'hundred' and 'thousand' can be nouns: for example, Siar (Ross 2002:416), Gela (Miller 1974:205–6), and Lengo (example [14] above). This is also the case in Toqabaqita: "The terms for 'hundred', *talanga*, and 'thousand', *toqoni*, with or without the associative suffix, function as the heads of associative noun phrases. ... Their modifiers are noun phrases that designate the entities counted" (Lichtenberk 2008a:295). The decisive factor in deciding the status of words like *talanga* 'hundred' and *finita* 'tensome' is that they can be heads in associative noun phrases (Lichtenberk [2008a:292, 295, 299]); classifiers and cardinal numerals cannot. Additionally, while the general Toqabaqita words for 'ten' are legitimate contexts for the use of classifiers, numerically specific nouns—which also designate sets of ten—are not. These differences are simple, but fundamental; it means that the position in question—(numeral) X (noun)—is not reserved for classifiers.

In the Guadalcanal-Gela languages, which do not have classifiers, it is easier to make the case that numerically specific nouns are not classifiers. Syntactically, numerically specific nouns pattern like nouns in that they take articles.[16] To repeat example (13), from Lengo:

16. As do terms for 'hundred' and 'thousand' (e.g., Lengo *e ruka thangavulu tolu na togha ni tinoni* (3SG two ten three art thousand assoc person) '23,000 people'.

(16) LENGO

na	**ghaivolo**	**ni**	**kobe**	ara	tuaghai
ART	ten.garden.rows	ASSOC	row	PL	long

'the ten.garden.rows of rows they are long'

The head noun, *ghaivolo* 'ten.garden.rows', is preceded by the article *na*. The second noun phrase, *ni kobe*, is in an associative—not a classified—relationship to the head noun.

While the SES lexemes that refer to sets of ten things share some of the syntactic characteristics of numerals and nouns, they comprise a unique word class distinct from classifiers—that of "numerically specific nouns."

5. POTENTIAL SOURCES OF NUMERICALLY SPECIfiC NOUNS.

There is considerable overlap in the specific objects that are counted by tens in SES languages, reflecting their shared cultural experiences and shared language history. In some cases, the same referents are referred to with the same, or a cognate, form (for example, *ada* refers to 'ten coconuts' in a number of languages). In other cases, the same referents are counted by tens, but the lexemes used to refer to them differ. There are also referents found in just a few languages (for example, eggs, canoes, and garden rows are not widely represented across the languages). Of note are the forms that occur frequently across the languages, but which refer to different objects in different languages (for example, *lama* refers to 'ten feasting bowls' in Longgu; 'ten food parcels' in Kwaio; and 'ten birds' in Kwara'ae).[17] These observations give rise to hypotheses about the relationships between forms and meanings, the source of the terms, and the reasons why some forms and meanings are shared, while other forms are scattered across languages without sharing the meanings. The data presented here are not exhaustive, but based on evidence from some of the forms and meanings we propose several possible sources for these forms.[18] These are: (i) the numeral for 'ten'; (ii) another numeral; and (iii) the name of an object.

(i) The numeral for 'ten': Forms cognate or similar to the numeral ten (for example, *sangavulu, tangavulu*) refer to 'ten strings of shell-money' in a number of languages (Gela, Lau, Lengo, Longgu).

(ii) Another numeral: The form *kobi/ghobi/hobi* refers to a range of referents (for example, 'ten feasting bowls' in Longgu; 'ten wooden bowls' in Lengo; 'ten canoes' in Gela; 'ten strings of shell-money' in Lau). Cognates of *kobi* are found for the numeral 100 in the eastern half of Choiseul and throughout Isabel. Some Isabel languages have *gobi* (for example, Kokota), others have *ghobi* (with velar fricative, for example, Zabana) (Bill Palmer, pers. comm.)

(iii) The name of an object: For example, the word for 'wild pig' in Longgu is *vaga*, and this is also the form that refers to 'ten pigs' in Longgu. A cognate form, *paga*, refers to 'ten pigs' in neighboring Lengo. Similarly, Owa *fika* 'ten garfish' is cognate with Lengo *igha* 'fish (generic)' and Toqabaqita *iqa* 'fish (gen. term)'.

17. Evidence of semantic change in this domain can also be found in Gilbertese (Micronesian), where *(te)ngaun* [ten] is used for the counting system but when coconuts are counted *tengaun* means 100, not ten, because they are tied in bundles of ten (Bingham 1922:17 cited in Bender and Beller 2006b:391).

18. More speculatively (and perhaps based on evidence from language of the wider region), it is possible that some forms have come from classifiers (see section 4).

Shared forms and meanings may be related in one of three possible ways: (i) shared form and meaning across languages; (ii) same forms with different meanings; and (iii) same meanings with different form.

One hypothesis is that words that occur in more than one language, and which have both the same form and meaning, reflect a shared cultural experience. The languages that have the greatest contact with one another are the languages that are likely to share the same forms and meaning. We can summarize the relationship between the culture and the numerically specific nouns by noting that things considered to be valuable resources are the objects that can be counted by tens, and that close interaction between languages (for example, through trade or geography) is reflected in the shared forms and meanings of the numerically specific nouns. This is reflected in table 3, which shows that Longgu (L) shares terms with both Guadalcanal (G) and Malaitan (M) languages. Longgu's geographic position on the island of Guadalcanal and its linguistic proximity to Malaitan languages is linked to its contact with both groups.

TABLE 3. SHARED TERMS FOR SPECIFIC COUNTING

	paga/vaga	**qada/ada**	**pigu**	**kobi/hobi/ ghobi**	**tangavulu/thangavulu/ sangavulu/hangavulu**
pig	Longgu (L) Lengo (G)				
coconut		Longgu (L) Lau (M) Kwaio (M) Kwara'ae (M) Sa'a (M) Toqabaqita (M)	Longgu (L) Lengo (G) Gela (G) Ghari (G)		
fish	Gela (G) Lengo (G)				
shell-money				Toqabaqita (M) Lau (M)	Lengo (G) Ghari(G) Longgu (L) Gela (G)
other				Gela (G) Longgu (L) Lengo (G)	

Section 6 discusses the shared cultural context in which specific counting was used in SES languages, and suggests a relationship between objects that are most valuable in the context of feasting and exchange and numerically specific nouns, supporting the arguments put forward by Bender and Beller (2006a,b) and Beller and Bender (2008) on specific counting systems in Polynesian and Micronesian.

6. CULTURE, COGNITION, AND SPECIFIC COUNTING. Cultural constraints, as well as cognitive constraints, affect the distribution of linguistic features across the world's languages (Evans and Levinson 2009). This is true of number systems and ways of counting as much as any other part of language. As De Vries (2014:331) argues, counting systems and cultural practices go hand in hand and, where language communities adopt cultural and economic practices, they also tend to borrow numeral

systems. In SES languages, specific counting is a shared linguistic practice that reflects shared cultural practices and contact between language groups. Specific counting also tells us something about cognition, and the relationship between culture and cognition (Beller and Bender 2008; Bender and Beller 2014).

Bender and Beller (2006b) suggest that one important reason cultures may have adapted specific counting systems is to facilitate the collection and redistribution of resources at times of significant community events such as feasts or funerals, and so for this reason the counting units refer to valuable and available resources, such as coconuts and fish. This is true of the Southeast Solomons, as seen in table 1.

Moreover, objects that can be counted by tens are objects that are both valuable and are exchanged between language communities and/or are used as part of an exchange event (like a feast). Pigs, for example, are a valuable resource and, as Bennett (1987:11) notes, they were normally consumed only on festival or ritual occasions. Garden rows, counted by tens in a few languages, such as Longgu, are not exchanged but are an important part of the preparation stage of feasting. As one Longgu chief noted, feasting depends on the piggery and the garden (Hill, fieldnotes). In other words, a chief cannot hold a feast unless he has enough pigs and unless enough food is being grown in the garden.

Ethnographic studies (Ivens 1930; Hogbin 1939, 1964) provide detailed information about patterns of exchange and contact between language groups in the Southeast Solomons.[19] This information, along with descriptions of feasting and ritual events, supports the argument that counting specific objects by tens is associated with exchange. Based on the ethnographic data, we hypothesize that, in general, a lexeme is more likely to be found in a language if the object is one that the community gave in exchange for something else, rather than if it were something that they received. For example, of the Malaitan languages, those that traded dolphin teeth for other goods have terms for ten strings of dolphin teeth/porpoise teeth, whereas Longgu, which was known for trading strings of dog teeth but not dolphin teeth, has a term for a string of dog teeth but not for dolphin teeth.

Shell-money is the most significant object of exchange in this region, as it is used in bride-price exchanges and at mortuary feasts (Liep 2015). The term for ten strings of shell-money in some languages is the same, or similar to, the term for the numeral ten, showing a close association between the number ten and the most important object of exchange (see table 1[b]). Shell-money is made by the Langalanga people of Malaita and was traditionally exchanged for food, such as pigs, yams, and coconuts (Goto 1996). The Langalanga people speak Wala (see Lovegren, Mitchell, and Nakagawa 2015) and live on artificial islands off the coast of Malaita where the land is not sufficiently fertile to support the growing of coconuts or areca nuts, or the raising of pigs. Unlike some other communities in the region, especially on Guadalcanal, the Langalanga people needed to exchange objects for everyday food items as well as food for feasting.

Hogbin describes the Langalanga people as the greatest voyagers of the area, saying too that, by contrast, the Guadalcanal people did not consider themselves to be long-distance sailors and did not need to exchange things for food in the way that the Langalanga people did, as their land was more suitable for growing vegetables and coconuts and rais-

19. Note that the non-Austronesian languages in the area, Savosavo (Wegener 2012) and Lavukaleve (Terrill 2003), have the same shared ideas (lexemes for ten of certain objects) and some shared forms, as noted above (footnote 3).

ing pigs. He reports (Hogbin 1964:49) the arrival of Langalanga people in Longgu on Guadalcanal in 1933 as follows:

> When one of their canoes reaches Longgu and has been properly beached, each member of the crew carries his belongings to the house of his partner, who immediately makes him welcome. He may at once present his host with such strings of discs as he has brought, or he may delay till just before departure. … After about a week the party fixes the day for the journey home. The hosts catch the pigs to be in readiness and bring in the vegetables from the gardens. The cargo is stowed, goodbyes are said, and the canoes paddle away. It is difficult to say how many pigs are exported annually, but two or three fleets come across in every twelve-month period, and I have seen one fleet carry as many as twenty.

Hogbin describes the way Longgu people sometimes traveled to San Cristobal (Makira) and exchanged tobacco for porpoise teeth (1964:50), while trade also occurred between the people of the mountains and the coast of Guadalcanal with the hill people exchanging tobacco and dogs' teeth for discs (shell-money), porpoise teeth, and coconuts (as well as lime for betel nut and salt). On Guadalcanal, he says, "the Longgu thus become the distributors of dog's teeth, the Ruavatu of bowls, and the Berande of shields. In the same way the natives of Florida are the middlemen for the clamshell and turtleshell ornaments manufactured on Ysabel Island to the north" (Hogbin 1964:50).[20] Ivens (1930:170) also notes that specific resources are associated with specific groups—porpoise teeth, for example, come from the coastal people of north Malaita and are used as a form of currency throughout the Solomon Islands.

Shell-money is involved in payments of different kinds in many parts of the Solomon Islands. Liep (2015) notes that, for Rossel Island (PNG), feasting and food distribution accompanies the payment and that exchanges are witnessed by those taking part in the feast and a considerable number of witnesses and participants were involved in the occasion (2015:183–84). Bender and Beller (2014) also note the public nature of exchanges. These exchanges and events are thus central to the culture as they are an essential part of marriage, death, and the distribution of wealth at the same time (Liep 2015:184). Exchange and feasting are also central to leadership and power. Hogbin describes the process of becoming a leader in north Malaita as one that requires ambitious young men to "work hard and to **distribute sufficient wealth** as part of the process of gaining respect and approval" (Hogbin 1939:62, bolding in original; see also the description of Rennell and Bellona, by Elbert 1988). Indeed, Hogbin describes an abundance of resources as being of little value unless they are given away (Hogbin 1964:63).

In SES languages, objects that are counted by tens include resources and objects that are involved in every stage of feasting: preparation, distribution, and exchange. It is important to see feasts as events that include a time of preparation; the preparation may involve several stages that may occur over months or even years. For example, Ivens (1930:210) discusses important mortuary feasts for chiefs in Lau as a series of feasts that may take place over 3–4 years because of delays in the provision of pigs and taros. Similarly, Hogbin (1939:49–50) describes three stages of exchange before marriage in north Malaita. The stages occur over several months:

20. The "Ruavatu" and "Berande" are both within the present day Lengo area.

(i) The man's relatives bring the woman to their village and in exchange give the woman's male relatives *tafuli'ae* (shell-money).
(ii) The man's relatives go to the woman's village and publicly hang up 8–10 strings of *tafuli'ae*. The woman's father later shares them between his close relatives.
(iii) A few months later the woman's parents send word that they intend to make a gift of food and pigs on a certain day. The man's parents collect a small amount of food and *tafuli'ae* to approximately the value of the food they expect to receive. The *tafuli'ae* are handed over to the woman's parents. The couple are now regarded as legally married.

Ethnographic information, such as this report by Hogbin, shows the cultural setting in which exchange takes place. In addition, because the exchange takes place over time, there is a need for the participants to remember quantities and to calculate how much food or other objects must be given in return at the next stage. This leads us to consider the relationship between counting and cognition.

Beller and Bender (2008:214) show that specific counting sequences were adopted in nearly every language in Polynesia, but that there were different counting units and different objects of reference, showing that the counting system was adapted in each culture in response to cultural needs, and that, with a few exceptions, the specific counting system accompanied a general decimal counting system. They ask why a specific counting system would develop when there is already an efficient counting system, such as a decimal system. One part of the answer is that there was no written numeration system and at the same time, a language such as Mangarevan (Gambier Islands, Polynesia) was both highly stratified and was "a junction for the long-distance exchange of goods" (Beller and Bender 2008:214; see also Bender and Beller 2014). While not highly stratified, within the Southeast Solomon Islands there has also been one group, the Langalanga people, whose lack of arable land, and whose concomitant role as shell-money makers, provided the impetus for an exchange of goods across language groups in the region.

The Southeast Solomonic data fit neatly with Beller and Bender's analysis of the purpose of specific counting systems, which was to "abbreviate numbers by extracting from the absolute amount the factor inherent in the counting unit" (2008:214). This has the effect of reducing the calculating time and was done deliberately for rational purposes (Bender and Beller 2014; Beller and Bender 2008:215).

A description by Walter G. Ivens (1930:232) of the exchanges that take place between communities when a newly built canoe is taken on a formal visit to other islands, exemplifies this purpose.

> Wherever the canoe calls the conch is formally blown at the landing place and the local people come down carrying presents of shell money or porpoise teeth which are handed to the chief. The gifts made correspond with the status of the donors and are according to their ability (to provide the gift). Every present is remembered and a return will be made when the donors themselves build a canoe and go *atoato* (i.e., travel around to launch the new canoe).

Given the time frames between feasts or trading exchanges, keeping track of what and how much has been exchanged is necessary and, with no written numeration, calculating the numbers by extracting the factor of ten places a lower cognitive load on partici-

pants. According to Codrington's account of counting yams in Sa'a, the extraction of ten was done quite literally: "At Saa [Sa'a] when yams are counted two men count out each five, making ten, and as each ten is made they shout out 'one,' 'two,' and so on. A man sits by, and when 'ten' is called making a hundred, he puts down a little yam for a tally." (Codrington 1969:353). Codrington's reference to tallying highlights that specific counting by tens formed part of a more complex system of counting large numbers.[21]

The study of specific counting systems in SES languages supports the arguments put forward by Bender and Beller (2006a,b), and Beller and Bender (2008) that these counting systems developed from the general counting system and were adapted to the cultural conditions of the areas in which they were used. Their primary use was to calculate large numbers, rather than count them, thus easing the cognitive load in languages that had no written numeration. In the Southeast Solomons, the objects that are counted in this way are more likely to have formed part of the preparation for the ritual or the gift of exchange, than to be objects that are received as part of a ritual. The objects counted by tens were both valuable to the community, but also available to them to share and to give.

7. CONCLUSION. When Hogbin (1939, 1964) and Ivens (1930) reported on the number of yams and pigs at a feast, or recorded bride-wealth in strings of shell-money, the numbers were likely to have been calculated using the specific counting system of the language, rather than the general decimal system. Interactions between language communities in the Southeast Solomons, centering around the exchange of shell-money and other valuable edible and nonedible objects, facilitated the maintenance of the specific counting system in this region. The shared physical environment and shared cultural practices underpinned the choice of objects counted by tens in these languages. This paper has contributed to the discussion and understanding of specific object counting in Oceanic languages by outlining the cultural circumstances in which the numeral system thrived. It has argued that the specific object terms are nouns, but that they form part of numeral expressions and behave like numerals in terms of the operations of multiplication and addition. The examples provided here are representative of the two language subgroups of Southeast Solomonic languages. However, the data are not comprehensive and there is scope for further study of this topic in languages of this region. As some of the discussion in this paper has shown, there are similarities between the specific counting system of the Southeast Solomons and counting systems in the wider region. The data and discussion provided here may provide further impetus for investigation of specific counting systems in other Oceanic languages. Like the SES languages, it may be that understanding the interactions between language groups is the most fruitful way of understanding the use of specific counting systems.

21. It should also be noted that some languages have specific words for 'thousand' (e.g., Longgu *to'a* 'thousand', typically used in an associative construction, such as *te to'a ni niu* 'one thousand coconuts'), and that there are also terms in some languages that refer to both 'thousand' and a specific object (e.g., Sa'a *mola* 'thousand yams' [Codrington 1885:522]). Similarly, Old Fijian appears to have had additional terms for 100s of something (Aikhenvald (2013:113).

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