Indirect Possessive Hosts in North Ambrym: Evidence for Gender

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Indirect possessive hosts (IPHs) in Oceanic languages are normally described as relational classifiers, whereby the classifier characterizes the real world semantic relation between the referent of the possessor and the possessed. The IPHs in the language of North Ambrym (Oceanic, Vanuatu) do not function as relational classifiers but instead match several of the criteria established for markers of gender. First, the IPHs in North Ambrym act as agreement markers in anaphoric possessive constructions. Second, the IPHs are specified in the lexical entry of the noun, and a noun only occurs with one IPH, unlike a classifier system where a possessed noun can occur with different IPHs. Evidence from different linguistic experiments will be presented that support the analysis of IPHs as gender markers. The experiments test different uses of possessed nouns and show that IPHs in North Ambrym do not change dependent upon interactional contexts, as expected in a fluid classifier system. Instead, each possessed noun is restricted to occur with just one IPH.

1. INDIRECT POSSESSIVE HOSTS IN OCEANIC.[1] Possession is seen as one of the more complex areas of Oceanic languages in which the split between alienability and inalienability is the most fundamental aspect (Lynch, Ross, and Crowley 2002). This semantic distinction results in two different grammatical systems of possessive constructions, namely direct and indirect possession[2] (Lynch, Ross, and Crowley 2002:37). Geraghty (1983:242) first proposed that these two grammatical systems be named direct and indirect possessive constructions, as he noticed that not all semantically inalienable nouns nor semantically alienable nouns patterned together in the same construction type. The patterning of the direct possessive construction with inalienable possessions and the indirect possessive construction with inalienable possessions is a general tendency.

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2. There are several sets of descriptive terminology differentiating between directly possessed nouns and indirectly possessed nouns. Directly possessed nouns are often labeled *bound nouns*, as opposed to indirectly possessed nouns, which are labeled *free nouns* in some Oceanic literature: contrast Lynch, Ross, and Crowley (2002:37) with Crowley (1998:66). Alternatively, directly possessed nouns are called *obligatorily possessed nouns* and indirectly possessed nouns are called *optionally possessed nouns* by Bickel and Nichols (2011).

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The language of North Ambrym, with an estimated 3,000 speakers, exhibits both types of Oceanic possessive construction.[3] Direct possession is where a possessor pronominal suffix is attached to the possessed noun, as shown in example (1) from North Ambrym.

(1) NORTH AMBRYM
meta-**n**[4]
eye-3SG
'his eye'

This type of construction generally occurs with possessed nouns that are deemed to be semantically inalienable, such as kinship terms, body parts, and parts of wholes.

An indirect possessive construction occurs when the possessed noun is generally considered to be an alienable possession not thought to be intrinsically connected to the possessor. Indirect possession is structurally different from direct possession, as instead of the possessor pronominal suffix attaching directly to the possessed noun, it attaches to an indirect possessive host (henceforth IPH) as in (2).

(2) NORTH AMBRYM
a-**n** barrbarr
CL2-3SG pig
'his pig'

1.1 RELATIONAL CLASSIFIERS. Early Oceanic linguists' descriptions of possessive constructions called the indirect possessive hosts "possessive nouns" (Codrington 1885; Ray 1926). These "possessive nouns" were considered to be a kind of noun class system where the indirect possessive hosts acted as categorizing elements. In Mota (Banks Islands, Vanuatu), the indirect host *no* denoted general possessions, *ga* denoted close belongings and edible possessions, *ma* denoted things for drinking, and *mo* denoted things done by the possessor (Codrington 1885:129–30). Similarly, Milner (1972:65) describes Fijian possessive constructions as having four genders—neutral, edible, drinkable, and familiar—though he does point out that some nouns can belong to more than one gender. It is this ability for nouns to occur with different indirect possessive hosts that was singled out by Lynch (1982:246), who stated that the different types of possessive constructions do not mark the gender of the possessed nominal but a semantic relation between the possessor and possessed. Depending on context, nouns can occur with different indirect possessive hosts (Pawley and Sayaba 1990). The most in-depth analysis of the IPHs functioning as relational classifiers in Oceanic is from Lichtenberk (1983:148), who argues that in many Oceanic languages the IPHs function as relational classifiers: "the crucial property of relational classifiers is that their use is determined not by some properties of the entity to which the noun phrase associated refers but by the semantic relation between the referents of those elements."

Lichtenberk (2009a) discusses the notion of fluidity as evidence for a relational classifier system. There are two types of fluidity or overlap that occur in Oceanic posses-

3. All data from North Ambrym come from fieldwork conducted from an ELDP-funded language documentation project from 2009 through 2012.
4. The glosses in this paper follow the Leipzig glossing conventions with the exception of the following abbreviations. CL, classifier/class; CONT, continuative; CST, construct suffix; MED, medial; NREC.PST, nonrecent past; REC.PST, recent past; POT, potential; R, realis.

sive constructions. First, in languages with a relational system, nouns can occur in either a direct or indirect construction. For example, *stori* 'story' in Tamambo can occur in both possessive construction types:

(3) **Fluidity: type 1**
TAMAMBO

a. Direct	b. Indirect	
stori-ku	no-ku	stori
story-1SG	CL1[5]-1SG	story
'my story (about me)'	'my story (that I told)'	(Jauncey 2011:204)

Second, in languages with relational classifier systems, a noun that occurs in the indirect construction has the possibility to occur with different IPHs depending upon the use of the possessed by the possessor. For example, in Paamese, *ani* 'coconut' can occur with four different IPHs, and this is said to be evidence for relational classifiers existing in the language.

(4) **Fluidity: type 2**
PAAMESE

a. ani ā-k
coconut CL2-1SG
'my coconut (of which I intend to eat the flesh)'

b. ani ema-k
coconut CL3-1SG
'my coconut (of which I intend to drink the liquid)'

c. ani esa-k
coconut CL4-1SG
'my coconut (which is growing on my land)'

d. ani ona-k
coconut CL1-1SG
'my coconut (which I intend, perhaps, to sit on)'
(Lynch, Ross, and Crowley 2002:42)

Lichtenberk argues that both types of fluidity are evidence for a relation-based system. By having the first type of fluidity, a language has a relational possessive system that generally encodes the difference between semantic alienability and inalienability based on construction type. The second type of fluidity is evidence that a language has a relational classifier system, as nouns can freely associate with different indirect possessive hosts (within the realms of semantic possibility).

This paper looks at the fluidity within North Ambrym's indirect possessive system. The evidence from the experiments in section 4 reveal that each indirectly possessed noun in North Ambrym is rigidly associated with a particular IPH. The IPHs are, there-

5. The standard Oceanic mnemonic terms for the IPHs are avoided and a consistent numbering system is given. There are five IPHs in North Ambrym: CL1 refers to the general IPH *mwene*/*mwena*, CL2 refers to the consumable or the edible IPH *a*/*ye*, and CL3 for the liquid or drinkable IPH *ma*/*mwe*. CL4 refers to *bo* 'fire', and CL5 to *to* 'basket'. This makes the IPHs semantically comparable for the first three IPHs regardless of language. If a language has more than three IPHs, the semantics covered by the additional IPHs becomes unpredictable, and, thus, the IPHs are incomparable after this. So CL4 for fire items in North Ambrym is not comparable semantically to CL4 in Paamese, which is for plantable items.

fore, specified in the lexical entry of the indirectly possessed noun. This rigid association is the basis for arguing that the IPHs in North Ambrym are in fact markers of gender and not relational classifiers. This paper furthers the argument forwarded by Franjieh and von Prince (2011) that the IPHs are lexically specified for high frequency, indirectly possessed nouns for three of the Ambrymese languages: North Ambrym, Dakaaka, and Dalkalaen. However, this paper focuses on a more in-depth analysis of North Ambyrm's IPHs.

Before looking at the evidence from the experiments, the rest of this section will investigate the syntactic status of the IPHs in North Ambrym, and will show that they do not function as generic nouns, but as a special syntactic category of their own within the grammar. In section 2, I will discuss the typological differences between classifiers and gender systems while comparing North Ambrym's IPHs with these criteria.

1.2 SYNTACTIC STATUS OF THE INDIRECT POSSESSIVE HOST. There are currently two prevailing theories as to the syntactic status of the indirect possessive hosts in Oceanic. Either the indirect possessive host is the head of the construction and functions as a generic noun (Palmer and Brown 2007), or the indirect possessive hosts are a special syntactic category and act like modifiers to the possessed noun head (Lichtenberk 2009b).

Palmer and Brown (2007) argue that, in Kokota (Oceanic, Solomon Islands) and in other Oceanic languages, the head of the possessive phrase is whichever element with which the possessive indexing occurs. Therefore, in direct constructions, the head of an NP marked for possession would be the possessed noun, as this is the element to which the possessive suffixation attaches. In indirect possessive constructions, the possessive suffixation attaches to the indirect possessive host, and, therefore, this should be the head of the phrase. Palmer and Brown (2007) argue that the IPHs in Kokota pass several tests for headhood as set out by Zwicky (1993), including obligatoriness, category determinance, and morphosyntactic locushood.

In Kokota, the indirect possessive hosts are the only obligatory element in the phrase. This is evidenced from examples where the possessed noun is omitted and only the IPH remains.

(5) KOKOTA

a. N-e ŋå-di manei [ɣe-**gu** **kaku**]=ro.
R-3.SBJ eat-3PL.OBJ s/he CL2-1SG banana=DEM
'He ate my bananas.'

b. N-e ŋå-di manei [ɣe-**gu**]=ro.
R-3.SBJ eat-3PL.OBJ s/he CL2-1SG=DEM
'He ate my food.' (Palmer and Brown 2007:205)

Example (5a) shows Kokota's consumable IPH ɣ*e* occurring with a possessor suffix *-gu* and the possessed noun *kaku* 'banana' occurs to the right of the consumable IPH. In (5b) there is no overt possessed noun. As the indirect possessive host is the only obligatory element in the possessive phrase, it functions as a generic noun. The indirect possessive host is the head of the construction and, therefore, acts as the category determinant.

The obligatoriness criterion is not valid for North Ambrym as the indirect possessive hosts are unable to stand alone without a possessed noun head. The possessed noun head can be elided, but the anaphoric particle *ge* 'one' must occur in its place.

(6) NORTH AMBRYM
[Bwehel ge mùrù[6] rrya bya le], Batik bya rrù fne [a-n **ge**].
bird SUB 3DL.REC.PST carry go MED B. go CONT roast CL2-3SG one
'The birds that they carried there, Batik went and roasted his one.'

The anaphoric particle marks the elided head *bwehel* 'bird', which is recoverable from the prior discourse. Furthermore, the anaphoric marker can be used to mark pragmatically recoverable referents. If someone was holding a banana and said *am ge* 'this is your one', then the head noun *vii* 'banana' is pragmatically recoverable. As the IPH is not the only obligatory element, it fails one of Zwicky's (1993) tests for headhood. It also follows that as the IPHs in North Ambrym are not the only obligatory element, they are also not the category determinant either.

In indirect possessive constructions, the IPH is marked and not the possessed noun. Palmer and Brown (2007) argue on this basis that the IPH is the head, as this would keep the marking uniform across direct and indirect possessive constructions. However, there is typological evidence to show that marking can occur on either the head or the dependent element in any phrase. Nichols (1988) does identify several languages that can either be head- or dependent-marked in possessive phrases, such as Turkish, Cochabamba Quechua, Arabic, and Aleut. If there are languages that alternate between head and dependent marking in the possessive phrase, then Palmer and Brown's assumption that IPH must be the head because it is marked with morphology is erroneous, since Kokota, and other Oceanic languages, could have a head/dependent marking split in the possessive phrase, as there is already a typological precedent in other languages.

Further evidence to support that the IPHs in North Ambrym are not the head of the possessive construction comes from Lichtenberk (2009b), who states that in languages that allow multiple possession, the indirect possessive host is not the head. Multiple possession is defined by Lichtenberk (2009b:395) as where "one possessive construction is nested within another one, and where the innermost possessum is identical for the two possessive constructions but stands in different relations to different possessors, at different structural levels."

North Ambrym is a language that allows multiple possession. Example (7) is an example of this phenomenon:

(7) NORTH AMBRYM
ye-ng **ye-n** to
CL2-1SG leg-CST chicken
'my chicken's leg'

Both the referents of *to* 'chicken' and the 1SG possessor suffix possesses the leg, as the chicken may actually belong to someone else but just its leg belongs to the possessor. Both the indirect possessive host and the possessor nominal act like modifiers to the possessed noun head.

In conclusion, there is no evidence to support the analysis that the indirect possessive hosts are generic nouns in North Ambrym. However, the IPHs in North Ambrym are also not to be considered modifier-like classifiers as Lichtenberk proposes. Instead, the

6. The symbol *ù* is an orthographic representation of the phoneme /ʊ/, which is distinct from /u/ and /o/.

evidence shown in the rest of this paper points to the IPHs functioning as gender markers. This gives us three functional types of IPHs in Oceanic languages: (i) languages with IPHs that function like Kokota's and are generic nouns; (ii) languages with IPHs that function like possessive classifiers and act as modifying elements; and (iii) languages with IPHs that function as gender markers, as is the case in North Ambrym.

2. NOUN CLASS AND CLASSIFIER SYSTEMS. Noun classes and classifier systems refer to very different morphosyntactic functions. Grinevald (2000:55) proposes that both types are situated at different points on a lexicogrammatical cline, with gender and noun classes situated at the grammatical end and measure and class terms at the other, with classifiers occupying the space in the middle. Diachronically, gender systems can develop from classifier systems through a process of grammaticalization (Corbett 1991:311).

In order to differentiate between classifier and gender systems, a set of diagnostic criteria needs to be established. These criteria are based on the prior work of Dixon (1982, 1986), Corbett (1991), AiSkhenvald (2000), Grinevald (2000, 2002), and Lichtenberk (2009a). Typologically, there are many different types of nominal classifier systems. Among the most frequent are numeral, noun, and genitive classifier systems. Classifier systems can be distinguished from gender systems based on typological properties. Five different typological criteria can be used as a diagnostic for determining whether or not a language has a gender or classifier system. The majority of these criteria are nondefinitional in that a gender system may exhibit several criteria that classifiers also do. The only definitional criterion is the last—that of participating in an agreement system. If a system exhibits agreement, we can justifiably call it a gender system, even if all other criteria point toward a classifier system. Table 1 summarizes the criteria. The following discussion will take each of these criteria in turn and compare the IPHs found in North Ambrym against them.

TABLE 1. TYPOLOGICAL CRITERIA FOR DISTINGUISHING BETWEEN GENDER AND CLASSIFIERS

Criteria	Gender systems	Classifier systems
1 Size	- small inventory size - all nouns categorized - closed word class	- large inventory size - not all nouns categorized - open word class
2 Realization	- closed morphological system	- free forms
3 Fluidity	- rigid	- fluid
4 Assignment	- semantic - formal	- semantic
5 Agreement	- yes	- no

2.1 CRITERION 1: SIZE. The criterion relating to the size of the classifier or gender system can be split up into three subcriteria. The first is the inventory size of either the gender or the classifier system. Typically, noun class or gender systems have relatively few classes, from two to twenty different classes, whereas languages with classifiers can have up to 100 (Dixon 1982:215, 1986:106). North Ambrym has just five indirect possessive hosts aligning it to a more canonical gender system with a small number of classes.

The second subcriterion for size is the proportion of nouns that participate in the system. In gender systems, all or nearly all nouns are grouped together into the different classes. In classifier systems, however, there are always nouns that are unable to occur in classifier constructions. Not all nouns in North Ambrym are able to occur with an IPH, making the system function similarly to a classifier system in this respect. The indirect possessive hosts occur only in indirect possessive constructions with indirectly possessed nouns. Directly possessed nouns are unable to occur with an indirect possessive host. For example, the directly possessed noun *vera* 'arm of' is only able to occur in direct possessive constructions and be suffixed directly by the set of possessor pronominals (8a). This same noun is unable to occur without the direct possessor marking or with an indirect possessive host (8b).

(8) NORTH AMBRYM

a. vera-ng	b. *mwene / *ye-ng vera
arm-1SG	CL1 / CL2-1SG arm
'my arm'	Intended: 'my arm

The third subcriterion for size concerns word class, either open or closed. Gender systems are closed and new genders are not readily created. Classifier systems tend to be open and often include repeaters. Repeaters constitute a subclass of classifiers in the languages in which they occur and are used to classify the unclassifiable nouns (Aikhenvald 2000:104). Indirect possessive hosts in North Ambrym are a closed class, and new hosts cannot be created by using generic nouns or repeaters and, therefore, the IPHs are more like gender markers. Two out of the three subcriteria for size point to a gender system.

2.2 CRITERION 2: REALIZATION. Gender represents a closed morphological system, and gender markers are generally realized as affixes or clitics that attach to a noun's modifying elements or to the verb, though it can be overtly marked on the noun itself. Classifiers tend to be free forms, are separate constituents, and tend to occur in the same noun phrase as the classified noun. Other elements may attach to the classifier, such as a numeral or possessor pronominal (Dixon 1982:215–16, 1986:106).

The IPHs in North Ambrym are free form roots that can be suffixed by possessor pronominal suffixes. As they are not affixes or clitics themselves, the IPHs realization patterns with a classifier system rather than with gender.

2.3 CRITERION 3: FLUIDITY. This criterion, based on Lichtenberk's (2009a) notion of fluidity, takes into account that in canonical gender systems, each noun is assigned to just one class. In this sense, gender systems are rigid in their membership. Classifiers, however, are more fluid, and a noun can occur with different classifiers, depending on context. Nouns in languages that exhibit gender are lexically assigned to a particular class and are said to have inherent gender, whereas nouns in a classifier language are not lexically assigned and, instead, freely associate with different classifiers, depending upon semantics (see also Dixon 1986:106).

Some languages with gender are said to have common gender nouns. Epicene nouns denoting professions in English can take pronominal agreement depending on the sex of the referent, such that *painter*, for example, can be referred to as *he* or as *she*. These com-

mon gender nouns are the exceptions to the rule of one gender per noun. Classifier systems allow any combination of classifier and noun, though, in reality, there are semantic restrictions on what collocations are allowed. A good example of a relational classifier system in this respect is found in the Lolovoli (Oceanic, Vanuatu) example below, where the noun *wai* 'water' can occur with different IPHs, depending upon context.

(9) LOLOVOLI

a. Na=ni utu na me-mu wai.
1SG=IRR draw.water ACC CL3-2SG water
'I will draw you some water to drink.'

b. Na=ni utu na no-mu wai.
1SG=IRR draw.water ACC CL1-2SG water
'I will draw you some water (to wash with, or use for some other purpose).' (Hyslop 2001:181)

The IPHs in North Ambrym are much less fluid than possessive classifier systems in other Oceanic languages.

As discussed in section 1, there are two types of fluidity found in Oceanic classifier systems. The first type of fluidity, where directly possessed nouns are able to appear in an indirect possessive construction, are ungrammatical in North Ambrym (see example [8] above). All directly possessed nouns in North Ambrym must occur with either a possessor pronominal suffix attached, or juxtaposed with a possessor nominal, as shown in (10a) and (10b), respectively. The construct suffix attaches to either an indirectly possessed, or a directly possessed, noun (10c) and marks the possessor as a common noun, in opposition to a personal noun (10b).[7] A directly possessed noun cannot occur without any possessor marking and can never act as a free noun (10d); furthermore, a directly possessed noun cannot occur in an indirect construction (10e).

(10) NORTH AMBRYM

a. boto-ng
head-1SG
'his head'

b. boto Masing
head Masing
'Masing's head'

c. boto-n barrbarr
head-CST pig
'a/the pig's head'

d. *boto
head
Intended: 'head'

e. *mwene / *ye-ng boto
CL1 / CL2-1SG head
Intended: 'my head'

Directly possessed nouns can occur nested in an indirect construction, known as multiple possession (see also example [7]), though the directly possessed noun must have possessor marking, as shown in (11):

(11) NORTH AMBRYM
[**ye**-ng [**boto**-n barrbarr]]
CL2-1SG head-CST pig
'my pig's head'

7. Franjieh (2015) gives an in-depth analysis of the construct suffix in North Ambrym.

The second type of fluidity, the ability of nouns to occur with different IPHs, is highly restricted in North Ambrym. There are five different IPHs in North Ambrym, and they collocate with possessed nouns denoting different semantic categories as outlined in table 2 at the end of 2.4. Standard Oceanic mnemonic labels are avoided, and the IPHs are given numeric identifiers. It is unsuitable to claim that CL2 is an "edible" classifier or CL3 is "drinkable" if they occur with such a diverse range of entities. The second type of fluidity occurs infrequently, as will be shown in section 4. The IPHs found in other languages of Vanuatu show higher levels of the second type of fluidity than North Ambrym does. The word *po* 'pig' in Araki (Oceanic, Vanuatu) can occur with either the "general" classifier CL1 (12a) or the "edible" classifier CL2 (12b):

(12) ARAKI

a. ha-ku po
CL2-1SG pig
'my piece of pork (to eat)'

b. no-ku po
CL1-1SG pig
'my pig (I am selling, or offering s.o. for a ceremony)' (François 2002:100)

The North Ambrym system is much more rigid and allows only CL2 for *barrbarr* 'pig':

(13) NORTH AMBRYM

a. ye-ng barrbarr
CL2-1SG pig
'my pig (to eat, sell etc.)'

b, *mwene-ng barrbarr
CL1-1SG pig
Intended: 'my pig'

Lolovoli also displays high levels of fluidity in its relational classifier system, where *wai* 'water' can occur with different IPHs depending upon how it is used, as shown in example (9). North Ambrym allows only a rigid collocation between its cognate *we* 'water' and CL3.

(14) NORTH AMBRYM

a. mwe-ng we
CL3-1SG water
'my water (for drinking, washing, etc.)'

b. *mwene-ng we
CL1-1SG water
Intended: 'my water'

Examples (14a,b) illustrate the rigidity of the North Ambrym system and show that the IPHs function like a canonical gender system. There are a few instances where a noun can occur with different IPHs, so the similarity to a gender system is not so clear-cut. However, these examples are quite limited. For example, the noun *ùl* 'coconut' can occur with different IPHs.

(15) NORTH AMBRYM

a. mwene-ng ùl
CL1-1SG coconut
'my copra'

b. ye-ng ùl
CL2-1SG coconut
'my coconut (dry coconut or sprouting coconut)'

c. mwe-ng ùl
CL3-1SG coconut
'my coconut (green coconut)'

The above examples depict the use of different IPHs with the noun *ùl* 'coconut'. First, however, *ùl* is polysemous, in that it can mean either 'coconut' or 'copra'. When the sense to be evoked is 'copra' then only CL1 can occur. Furthermore, *ùl* 'coconut' is a superordinate category label that does not have a real world referent. In reality, a coconut undergoes different growth stages, and each of those growth stages is represented by a different lexical item. Each growth stage occurs with a specific IPH. The following growth stages are found in North Ambrym, with their associated IPHs:

- *var* 'sprouting coconut' CL2
- *yumyum* 'small green coconut' CL3
- *vyùù* 'green coconut' CL3
- *ùl gùrù* 'dry coconut' CL2/CL3

Each of the above growth stages can also be replaced with the superordinate category label *ùl*. However, when this noun is used, a particular growth stage is being thought of in discourse. *Ùl* is being used metonymically and the IPH of the appropriate growth stage will also occur. Note that *ùl gùrù* 'dry coconut' can occur with either CL1 or CL2 (and this will be explained in section 4).

The results from different experiments that test fluidity in North Ambrym will be explored in sections 3 and 4. The results show that North Ambrym has a rigid system and matches the criteria for a gender system, though exceptions do occur (these will be explored in section 4).

2.4 CRITERION 4: ASSIGNMENT. Nouns are assigned to specific genders based on either semantic or formal assignment rules (Corbett 1991). Semantic assignment can be, and often is, based on sex, animacy, or humanness differentiation, though languages with a larger inventory of noun classes, such as those of the Bantu family, can distinguish noun classes based on other criteria (Corbett 1991:31). Formal assignment of nouns to a particular gender is determined by either morphological or phonological assignment rules. Languages can mix these two types of systems, where some nouns are assigned to a class based on semantics, and others based on formal rules.

The IPHs shown in table 2 can be analyzed as having a more or less transparent semantic base, with some opacity. CL2 would normally be termed an "edible classifier" in Oceanic terminology, even though items that are never eaten occur with it, such as poisonous fish, ants, worms, and birds considered taboo to eat. Furthermore, the diverse range of semantic categories that occur with CL2 is another indicator that the IPHs in North Ambrym do not function as a relational classifier system. For example, kin terms such as *sùng* 'maternal uncle' or *ina* 'paternal aunt' occur with CL2. It would, therefore, be odd to consider CL2 as encoding an edible relation between possessor and possessed. Similarly, *im* 'house/building' occurs along with *we* 'water' with CL3, which in other Oceanic languages would be termed the "liquid or drinkable classifier." The diverse semantics of CL2 and CL3 may be diachronically related via metaphorical extensions (see Franjieh 2012 for a more detailed discussion of this). However, synchronically the groups can be considered somewhat arbitrary and opaque, and, therefore, more like a gender system.

TABLE 2. NORTH AMBRYM POSSESSIVE CLASSES AND THEIR SEMANTIC DOMAINS

IPH	Numeric identifier	Semantic domain
mwena/mwene	CL1	items not included in the other classes
a/ye	CL2	animals food tools units of time some trees some kin terms
ma/mwe	CL3	liquids containers of liquids buildings holes mats
bo	CL4	fire firewood
to	CL5	baskets

Two IPHs, CL4 and CL5, have a very limited range of nouns that they can occur with, and resemble inquorate genders (Corbett 1991:172), where even borrowings are not considered acceptable. For example, CL5 only occurs with *arrbol* 'basket' and subtypes of basket that all appear in compound forms with the superordinate *arrbol*. The Bislama borrowing *bak* 'bag' is disallowed here and must occur with the residual IPH CL1. Similarly, CL4 only appears to have four members: *yem* 'firewood', *fyang* 'fire', *barrni* 'firebrand', and *fwerrye* 'a firebrand for sleeping next to'; a fifth noun—*masis* 'matches', a loan from Bislama—is not universally accepted as a member of this class.

Finally, there is strong evidence of morphological assigment rules in North Ambrym's system. Abstract nouns can be derived from verbs by attaching the enclitic *=an* to intransitive verb root (Franjieh 2012:80).

(16) NORTH AMBRYM
Na saarù=ne **saarù=an** hu.
1SG tell.story=TR tell.story.NMLZ IND
'I will tell a story.'

The intransitive verb root *saarù* has been nominalized by the abstract nominalizing enclitic in (17). Derived abstract nouns only ever occur with CL1:

(17) NORTH AMBRYM
a. mwena-n saarù=an
CL1-3SG tell.story=NMLZ
'his/her story'

b. (*a/*ma/*bo/*to-n) saarù=an
(CL2/CL3/CL4/CL5-3SG) tell.story=NMLZ
Intended: 'his/her story'

North Ambrym exhibits morphological gender assignment as nouns derived in this manner only occur with CL1.

2.5 CRITERION 5: AGREEMENT. Gender is realized through a language's grammatical agreement system. A noun's gender may be realized on different elements within the phrase, such as articles, demonstratives, and adjectives (Corbett 1991:105). The presence of an agreement system is a definitional property of gender, which differen-

tiates it from classifiers (Aikhenvald 2000:28). The opposite can be said of classifiers, in that the definitional property of classifiers is that they do not participate in an agreement system, and their presence is, therefore, independent of other constituents within the phrase (Aikhenvald 2000:81).

Evidence of North Ambrym's IPHs functioning as agreement markers comes from anaphoric possessive constructions, where a possessed noun can be elided and replaced with the anaphoric pronoun *ge*, as shown in example (18) and also previously in example (6).

(18) NORTH AMBRYM

a.	ye-ng	ge		b.	mwene-ng	ge
	CL2-1SG	one			CL1-1SG	one
	'my one'				'my one'	

Anaphoric *ge* 'one' is neutral to the choice of its associated IPH and, therefore, can potentially occur with any of them, though the IPH that occurs must agree with the elided possessed noun head. The following two examples illustrate the anaphoric agreement between the indirect possessive hosts and the elided head nouns: first, in example (19), between CL2 and *womul* 'orange'; and second, in (20), between *atata* 'pig-killing club' and CL1.

(19) NORTH AMBRYM

Tesu	rrya	**womul$_x$**	te	rrù	fwingi	me.
3PC.NREC.PST	carry	orange	CONJ	CONT	climb	come

Ge	hu	burr	te	me	kin	bya	**a-n**	**ge$_x$**.
PART	one	already	NREC.PST[3SG]	come	pinch	go	CL2-3SG	one

'They brought the oranges and were climbing. One of them had already pinched his.' (lit., 'his one')

(20) NORTH AMBRYM

Atata$_x$	rrù	tata.	Rrù	tata	barrbarr	nean.
pig.club	CONT	RED.chop	CONT	RED.chop	pig	INSTR.NMLZ

Te	bone	ge	nge	ùm	rrù	rrme	lole	ge	eve
CONJ	if	SUB	TOP	2SG.REC.PST	CONT	want	inside.TR	SUB	POT.COP[IRR]

mwena-m	**ge$_x$**	te	hu,	lo	ge	ùm	rrù	geye	bwe.
CL1-2SG	one	NSP	IND	then	SUB	2SG.REC.PST	CONT	pay	first

'The pig-killing club chops. It is for killing pigs with. And if you want one to be yours, then you pay for it first.'

The anaphoric possessed pronoun *ge* 'one' stands in a long distance relation with its antecedent, from which it inherits the inherent gender value. This gender value then controls agreement with the adjacent IPH.

In order to consider the above examples as agreement, an argument for lexical specification of IPHs within a noun's lexical entry needs to be considered. The form of agreement shown above depends on fluidity. If the indirectly possessed nouns participate in a fluid system, then the IPHs shown above would be able to change, dependent upon different contextual situations. However, if the IPHs are rigidly collocated with a given noun, then nouns have an inherent gender value that is lexically specified. The inherent gender value of a noun controls agreement in indirect possessive constructions, determining the morphological realization of the IPH. Section 2.3 gave evidence that the IPHs show a rigid collocation with the possessed noun. Sections 3 and 4 will take this idea fur-

ther and empirically test indirectly possessed nouns in different contexts to see if the IPHs change under different semantic conditions. The evidence shows that the IPHs are lexically specified and do not change dependent upon context. Inherent gender is, therefore, a feature of indirectly possessed nouns in North Ambrym, and the IPHs are, in fact, gender markers whose realization is controlled by the inherent gender of the possessed noun.

2.6 SUMMARY. North Ambrym's IPHs are analyzed as gender markers, as they fulfill the only definitional criteria for gender, that of agreement. Furthermore, they conform to other nondefinitional criteria such as size, rigidity, and morphological assignment. Table 3 summarizes these findings.

TABLE 3. IPHs IN NORTH AMBRYM AND THEIR CRITERIA FOR GENDER

Criteria	Gender Systems	Classifier Systems
1 Size	- small inventory size - -closed word class	- -not all nouns categorized -
2 Realization	-	- free forms
3 Fluidity	- rigid	-
4 Assignment	- semantic - formal	- -
5 Agreement	- yes	-

3. TESTING FLUIDITY. This section sets out the methodology used to empirically test how fluid the IPHs are in North Ambrym. If the IPHs function as classifiers, they will display a high level of fluidity; but if the IPHs function as a gender system, they will display a lower level of fluidity. A rigid system shows that the IPHs are specified in the lexical entry of the indirectly possessed noun.

The experiments were designed on the premise that as classifiers characterize functional or interactional properties of possessed nouns, then forcing different interactions with the object would result in a different choice of IPH if they are classifiers. If there is no change in IPH, then the indirectly possessed nouns have rigid inherent gender.

In order to evoke different contexts, a mixture of video stimuli and sentence translation techniques was used. These techniques allowed different contextual uses of possessions to be evoked, which the participants translated using the appropriate IPH.

The experiments included ten male participants, nine from Ranvetlam[8] village and one from neighboring Lonoror village.[9] Most participants were either born and grew up in these villages or have spent a considerable portion of their lives there. They were all fluent native speakers of North Ambrym. The participants ranged in age from 16 to 59 years old.[10] The ages of the participants are given in appendix 1.

The following three experiments were designed to test whether North Ambrym has a relational classifier or a gender system.

8. Alternative spelling: Ranverrlam.
9. Lonoror village is just a short walk across the creek from Ranvetlam. Lonoror has just two families living there who are closely related to those living in Ranvetlam.
10. Exact ages are often hard to determine in Vanuatu and many people don't know their true age but can give a rough estimate based on major events in the area.

Experiment 1 took 75 videos depicting interactions between a person and his possessions. Seventy of the videos were filmed and edited on site in Ranvetlam village, while a further five were taken from the website youtube. The 75 videos investigated interactions with 22 items. All the videos were numbered and then randomized to minimize any semantic grouping affects using a random number table (Weller and Romney 1988).

Participants were asked to describe what the actor was doing with his possession. For example, if the actor in the clip was drinking water, the participant would say 'he is drinking his water'. Instructions were given to the participants in Bislama, the national lingua franca. Bislama does not have any indirect possessive hosts and all possession is marked with *blong* 'of'; that is, possessed nouns are not classified semantically or relationally like other Oceanic languages, and *kakae blong mi* 'my food' uses the same possessive marker as *wota blong mi* 'my water'. By using Bislama, the explanation of the experiment would not influence the choice of IPH in any way.

The items chosen were items that were used on a regular basis by the community members. For example, the different coconut growth stages or coconut shells are used in a variety of ways on an almost daily basis. The different interactions were designed to test whether intentional use could affect the choice of IPH. Using the medium of video disambiguated polysemous items, such as *ùl*, which can mean 'coconut' and also its by-product 'copra', and, thus, particular senses could be tested reducing possible interference from other related senses that might affect the choice of IPH if another method were used.

Experiment 2 took 36 sentences in Bislama that gave a context, and then the participants had to translate the particular possessive phrase into North Ambrym, bearing in mind the context. In total, the 36 contexts covered 17 individual items.[11]

This experiment was formulated to elicit similar responses to that of the video experiment. Different items were chosen and put into different contexts, and the participant was asked to translate the sentence from Bislama into North Ambrym, bearing in mind the context. As with the previous experiment, the questions were randomized so that similar items would not appear next to each other in the question list, in order to minimize influence from neighboring contexts.

The underlying concept of this experiment matches the video experiment, in that different contextual uses of an item would be tested. This experiment was designed to be less constrained than the video clip experiment. After an answer was given, participants were asked if another IPH could be used in place of the one proffered, in order to check if other IPHs were considered to be grammatically acceptable. The contextual background between using the item in the manner described continuously, versus a one-off usage of the item, was also varied to see if length of usage motivates a change in IPH, for example, a coconut shell being used as a plate all the time versus a one-off usage of the shell as a plate. (Appendix 2 lists the nouns tested in experiment 1 and 2 along with their associated IPHs.)

Experiment 3 took 131 nouns, which were read out to participants who were asked to give the noun's associated IPH. This experiment was designed not to give any contextual background, so as to discover whether there exists a prototypical IPH associated with a given noun. This paper does not focus on this experiment but will look at the results

11. In total, 36 individual items were tested across experiments 1 and 2.

alongside the video and context experiments to argue if there has been a change in IPH away from a particular noun's associated classifier.

Section 4 will show that possessed nouns are much more restricted in their ability to appear with different IPHs. The IPHs in North Ambrym do not function as relational classifiers but as gender markers, as indirectly possessed nouns are strictly associated with just one IPH.

4. RESULTS AND ANALYSIS. This section will show the strict association between an indirectly possessed noun and its IPH. This strict association entails that the IPHs in North Ambrym constitute a rigid gender system rather than a more fluid classifier system. The results of the three experiments will be looked at simultaneously in different thematic sections.

The results of the experiments have been tabulated according to the participant number, which is consistent throughout the tables and can be cross-checked against the age of the participant as given in appendix 1. The cells of the tables are populated with the unique numeric identifiers assigned to the different IPHs that were given by the participants. The semantics of the IPHs were given in table 2. An X represents where a participant thought that it would be better not to use a possessive construction at all. Finally, when a participant gave alternative answers, these are separated by a "/" and retain the original preference ordering of the participant.

Of the 36 nouns tested for different contexts, there was a meaningful change in IPH with only 3 lexemes. A meaningful change was counted if six or more participants gave a different IPH with the same lexical item when an alternative interactional context was evoked. The three lexical items that had a meaningful change were *ùl* 'coconut' (4.3), *bwela ùl* 'coconut shell' (4.4), and *liye* 'stick, tree' (4.6).

There were many other instances where the participants gave a different lexical item than what was tested for. In these instances, the IPH also differed according to the possessed noun's associated IPH. For instance, when a canoe was used as a reservoir or as a shelter for pigs, both contexts should have resulted in an IPH change from CL1 to CL3, as both the semantic categories of liquids and buildings are classified in this manner.[12] In these contexts, the IPH did change, but along with the indirectly possessed noun. Thus, *bulbul* 'canoe', normally classified by CL1, was changed to *tu bulbul* 'hollow of canoe', itself a direct possessive construction with *tu* 'hollow' as its head and, thus, CL3 could be used with this lexical item as holes and hollows are classified by CL3.

The rest of this section will look at the results of these experiments. Section 4.1 looks at liquids, 4.2 at uses of paper, and 4.3 at results from different contexts concerning coconuts. Section 4.4 interprets the results of contextual uses of *bwela ùl* 'coconut shell', while 4.5 will investigate attempts to evoke CL4 associated with fire, and 4.6 looks at the lexical item *liye*, which has two senses—'stick' and 'tree'. Finally, 4.7 details unexpected uses of different items.

4.1 USES WITH LIQUIDS. This set of contexts was designed to test the rigidity of the North Ambrym system with regard to liquids. Recall example (9) from Lolovoli,

12. Early (1994:214) notes that a change in IPH occurs in Lewo (Oceanic, Vanuatu) in these contexts.

where different IPHs could be used, depending upon the different functional interactions with liquids. These contexts explore just that, but the results reveal a different system from that found in Lolovoli, in that, regardless of context, only CL3 occurs. The lexemes *we* 'water' and *tee* 'saltwater' were given in a context-free environment (contexts 1 and 2) during the word list experiment (experiment 3). Contexts 3–5 were elicited using video stimuli (experiment 1). Context 6 was elicited using the sentence translation task (experiment 2). See table 4.

It is clear from the results in table 4 that, regardless of context, the IPH does not change. If North Ambrym's system was similar to Lolovoli's, then we would expect the IPH to change with context 4 from CL3 to CL1, but this does not happen. Similarly, we would expect CL3 to change to CL2 when saltwater was used for cooking, but this does not happen. What this shows is that North Ambrym's IPHs are much more rigid and similar to a gender system. The two exceptions occurred with participant 4, who is the youngest of the participants (aged 16). This variation may be age related, though more data on younger speakers would be required to fully justify this claim.

4.2 PAPER VIDEOS. This section details different uses of paper and will show that altering these interactional contexts does not result in different IPHs being used by the participants. The contexts in table 5 were all evoked using video stimuli (experiment 1).

Table 5 shows the use of paper in different contexts. Prototypical uses of paper in North Ambrym are for writing on, or for using as cigarette paper. Both of these uses occurred consistently with CL1. Either the lexemes *pepa* 'paper' or *buk* 'book', borrowed from Bislama, or the North Ambrym word *raki* 'leaf' were used to describe this item, though the predominant lexeme was the Bislama *pepa*. What table 4 shows is that this item does not occur with other IPHs when the context has changed. When lighting paper to start a fire (CL4 expected), or eating it[13] (CL2 expected), and even when it was

TABLE 4. USES WITH LIQUIDS

	Participant									
Context	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1 water (no context)	3	3	3	3	3	3	3	3	3	3
2 saltwater (no context)	3	3	3	2/1	3	3	3	3	3	3
3 drinking water	3	3	3	3	3	3	3	3	3	3
4 washing with water	3	3	3	3	3	3	3	3	3	3
5 mouthwash	3	3	3	3	3	3	3	3	3	3
6 cooking with saltwater	3	3	3	1/3	3	3	3	3	3	3

TABLE 5. USES WITH PAPER

	Participant									
Context	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
7 drawing on paper	1	1	1	1	1	1	1	1	1	1
8 cigarette paper	1	1	1	1	1	1	1	1	1	1
9 eating paper	1	1	1	1	1	1	1	1	1	1
10 burning paper	1	1	1	1	1	1	1	1	1	1
11 paper cup	1	1	1	1	1	1	3	1	1	1

13. The paper was not actually eaten: the actor just put it in his mouth and chewed it and pretended to eat it!

used to make a cup (CL3 expected), the IPH never changed. Only once was CL3 used when the paper was turned into a cup, though it occurred in the sentence *man kap ne pepa* 'his cup of paper', where the IPH occurs with the head of the NP *kap* 'cup'. Clearly, use plays no role in the choice of IPH here, as paper consistently occurs with CL1.

As the IPHs do not change according to context, there is a mismatch between the semantics of the verb and the semantics of the IPH. Thus, the following example is perfectly well formed in North Ambrym:

(21) NORTH AMBRYM
Rrù ngne mwena-n pepa.
CONT eat CL1-3SG paper
'He is eating his paper.'

Participant 5 added that the above construction would be ungrammatical if CL2 were used. Interestingly, fire is said to eat and again *ngene* 'eat/burn'[14] was used when the paper was lit, but the IPH did not change to either CL2 or CL4. These observations underline the fact that the IPHs in North Ambrym do not encode interactional semantics and are markers of gender rather than functioning as relational classifiers.

4.3 COCONUTS. Interactions with coconuts were the largest thematic group investigated in experiment 1. *Ùl* 'coconut' is the superordinate term and its related senses will be looked at first in 4.3.1. The different growth stages of the coconut will also be considered, due to interactions with these items being restricted as per the water/flesh content of the particular growth stage. *Yumyum* 'small green coconut' will be looked at in 4.3.2, *vyùù* 'green coconut' in 4.3.3, *ùl gùrù* 'dry coconut' in 4.3.4, and *var* 'sprouting coconut' in 4.3.5.

4.3.1 The different meanings of *ùl*. *Ùl* has many different meanings. First, it means 'coconut'. Second, it can mean 'copra'. Third, it can mean 'moon', and finally, related to this last sense, 'month'. Historically, the senses of 'coconut' and 'moon' are reflexes of different Proto-Oceanic lexemes: *kulu 'ripe coconut' and *pulan 'moon'. Synchronically they are homonyms; however, speakers of North Ambrym appeal to a synchronic polysemous folk etymology. According to North Ambrym mythology, 'moon' was the original sense of the word, but this was extended to mean 'coconut': five brothers discovered a coconut palm that had not been seen on Ambrym before, growing on their mother's grave. When they drank the coconut they looked at the moon, and named the fruit after it. Whether the meanings are treated as homonymous or polysemous has no effect on the results, as the experiments are designed to test variation in the choice of IPHs, depending on the uses of a particular sense. If a lexeme has related senses, different IPHs can be linked to each sense, as in the case of *ùl* meaning 'moon' and 'month'. If we are dealing with a homonymous relationship, then, similarly, different IPHs can be specified for each lexeme, as in the case of *ùl* meaning 'coconut' and 'moon'. All senses, related polysemously or homonymously, are treated together in this section.

14. CVCV roots in North Ambrym undergo vowel elision of the first vowel when preceded by a word ending with an open syllable; hence, the citation form *ngene* 'to eat/burn', but *ngne* in example (21).

Context 12, in table 6, was included in the word list experiment (experiment 3), whereas contexts 13–16 were included in the sentence translation task (experiment 2).

Context 12: no context. When *ùl* was elicited in the word list experiment in a context-free environment, all participants chose CL3, showing that this is the underlying IPH associated with the superordinate category label 'coconut'. If North Ambrym had a relational classifier system, we would expect to see CL1, the IPH that occurs with residual nouns, as there is no particular use of this item expressed. However, CL3 was chosen, which is associated with liquids. This is evidence for a gender system and shows that CL3 is the lexically specified IPH for this item, as it was given by all participants. Note that coconuts do not always have liquid content in all growth stages, but that the growth stage considered prototypical in North Ambrym does. The prototypical growth stage is, thus, *vyùù* 'green coconut', whose sweet water is drunk (cf. 4.3.3).

Contexts 13 and 14: eating and drinking coconuts. As *ùl* `coconut' is a superordinate category label, it could not be covered in the video experiment, as only lexemes representing the different growth stages of the coconut could be tested using that method. Contexts 13 and 14 were instead covered in the sentence translation task (experiment 2). Nine out of ten participants chose CL2 for the context of eating the coconut, with one participant choosing CL3, though also saying CL2 was acceptable. The drinking of coconuts resulted in all ten participants using CL3. This is exactly what is expected in a classifier system, but as *ùl* is a superordinate label, it is similar to examples that are polysemous, whose different senses may have different IPHs lexically specified. When *ùl* is used, the speaker actually has in mind a particular growth stage of the coconut, thus allowing recategorization. This will be looked at further in 4.3.2. Furthermore, during the elicitation of these contexts, two participants also said *vyùù* 'green coconut' when the drinking context was evoked, and this stage is the one that is used for its sweet liquid. Similarly, participant 7 insisted that you had to use *ùl gùrù* 'dry coconut' when the context of eating occurred.

Contexts 15 and 16: Moon and Month. Being polysemous, *ùl* can also mean 'moon' and 'month'. CL1 was given by eight participants when *ùl* referred to 'moon'. The moon is quite an odd item to possess, and this is perhaps why the default IPH, CL1, was predominantly used. It appears that CL1 is one of the strategies used when an item that is not usually possessed must be possessed. Nine participants gave CL2 when *ùl* referred to 'month', including participant 10 who gave CL2 even though he did not know the word for month in North Ambrym, and just gave the following construction where the anaphoric possessed pronoun *ge* 'one' was used in the place of the possessed noun *ùl* 'month':

TABLE 6. USES WITH PAPER

	Participant									
Context	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
12 no context	3	3	3	3	3	3	3	3	3	3
13 eat coconut	2	2	2	3	2	2	2	2	2	2
14 drink coconut	3	3	3	3	3	3	3	3	3	3
15 my moon	1	1	2	3/2/1	1	1	1	1	1	1
16 my son is five months old	2	2/1	2	2/1	2	2	2	2	2	2

(22) NORTH AMBRYM
A-n ge be lim
CL2-3SG one COP five
'His are five.'

One of the participants even said that the Bislama term *manis* can be used with the CL2. This is expected, as units of time are included under CL2's semantic coverage. For example, *rrem* 'yam' also has the related sense 'year', as years are counted in yam seasons. Similarly, *huwo* 'year' is also classified with CL2. Clearly, metaphorical extension has occurred in CL2 from food items (yams and coconuts) to units of time.

The different meanings of *ùl* have reinforced the idea that related senses of a lexeme can have different IPHs associated with them. This was shown in the case of *ùl* occurring with either CL2 or CL3, where the meaning of the construction is derivable from the meaning of the IPH, much in the same way as common gender works. Furthermore, diachronically separate but related nouns are each associated with different IPHs. That is, *ùl* has the meanings of 'moon' or 'month', which are related but separate lexical items. Different IPHs are associated with these different meanings. The use of different IPHs in these situations helps disambiguate the different senses.

The final meaning of *ùl,* 'copra' is one of the main income sources for the large rural population of Vanuatu. Table 7 shows three different contexts of interacting with copra. Contexts 17 and 18 were tested using the video elicitation method (experiment 1), and context 19 was tested using the sentence translation task (experiment 2).

In contexts 17 and 18, the predominant IPH to occur was CL1, which was given first in 18 out of 20 instances. CL1 is the expected IPH, as speakers normally use this IPH for copra. When the context of eating copra was evoked (context 19), CL1 was still given as first choice by eight participants, and four participants only gave CL2 as acceptable after being prompted. Furthermore, two of these participants said that CL2 could only be used if copra was eaten all the time. Recategorization is allowed when a functional use of an item changes, though only when this new functional use happens often or for a long period of time. Ad hoc changes in functional use do not motivate recategorization.

In the next section, the different growth stages of coconuts will be examined, and I will show that each growth stage has an IPH associated with it, which does not change with different uses.

4.3.2 The growth stages of a coconut. Videos depicting different interactions with coconuts were the largest thematic group of contexts from experiment 1. The different growth stages of coconuts were tested in different usage contexts. Each growth stage is explained below, followed by the results of their different uses. The results will show that the

TABLE 7. USES OF *ùl* 'COPRA'

	Participant									
Context	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
17 shelling copra	1	1	2	2/1	1	1	1	1	1	1
18 carry copra	1	1	1	1	1	1	1	1	1	1
19 eating copra	1/2	1/2	2	1	1	1/2	1/2	1/2	1	2

lexical items denoting the different growth stages have different IPHs associated with them, which do not change according to context. This supports an analysis as a gender system.

Growth Stage 1: *yumyum*. The *yumyum* is the first growth stage. It is a small green coconut without a hard shell or flesh. There is water inside, which can sometimes have a bitter taste to it, and when it does it is referred to as *yumyum konkon* 'bitter yumyum'. This coconut is normally drunk. Context 20 was elicited during the word list experiment (experiment 3), and contexts 21–25 were all tested using the video experiment (experiment 1).

Table 8 depicts the results of the video experiment that included different uses with the *yumyum* `small green coconut'. The only IPH used for all contexts was CL3.

Growth Stage 2: *vyùù*. The *vyùù* is a green coconut that has a soft shell with soft watery meat inside. The water content is large and it tastes sweet. This coconut is simply drunk as a refreshing drink and the meat is scooped out afterward and eaten. Context 26 was tested using the wordlist experiment (experiment 3). Contexts 27–32 were all tested using video stimuli (experiment 1).

Table 9 summarizes the different contextual uses of *vyùù*. Similar to the *yumyum* growth stage, the predominant IPH for *vyùù* is CL3. Furthermore, the IPH did not change when more general contexts were tested (contexts 27–32), such as sitting on, kicking, or throwing.

What is interesting is that only when this stage of the coconut was eaten (context 32) did the IPH change to CL2. CL2 occurred in context 32 because speakers no longer used the lexical item *vyùù* as the possessed noun head. Instead, they used a direct possessive construction *kili ùl* 'flesh of the coconut' or *kilite* 'its flesh'. The lexeme *vyùù* has a rigidly associated IPH, and contexts of eating do not force a change in the IPH. Instead, the indirectly possessed noun itself changes, which, in turn, must occur with its pre-assigned

TABLE 8. USES OF *yumyum* 'SMALL GREEN COCONUT'

	Participant									
Context	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
20 no context	3	3	3	3	3	3	3	3	3	3
21 throw and catch	3	3	3	3	3	3	3	3	3	3
22 throw away	3	3	3	3	3	3	3	3	3	3
23 kick	3	3	3	3	3	3	3	3	3	3
24 sit on	3	3	3	3	3	3	3	3	3	3
25 drink	3	3	3	3	3	3	3	3	3	3

TABLE 9. USES OF *vyùù* 'GREEN COCONUT'

	Participant									
Context	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
26 no context	3	3	3	3	3	3	3	3	3	3
27 throw and catch	3	3	3	1/2	3	3	3	3	3	3
28 throw away	3	3	3	3	3	3	3	3	3	3
29 kick	3	3	3	3	3	3	3	3	3	3
30 sit on	3	3	3	5	3	3	3	3	3	3
31 drink	3	3	3	3	3	2/3	3	3	3	3
32 eat	X	2	2	2	2	2	X	2	2	2

IPH, with *kili-* 'flesh of' being in CL2. Participants 2 and 4 both said that it would be ungrammatical if CL2 were to occur with possessed noun head *vyùù*.

Growth Stage 3: *ùl gùrù*. The *ùl gùrù* 'dry coconut' has a brown outer skin and a hard shell with tough coconut meat inside. The water inside is more bitter than in the *vyùù*. This growth stage is normally used for food preparation, where the meat is desiccated and mixed with water, and squeezed to make coconut milk.

Table 10 summarizes the results from eliciting different contextual uses of the *ùl gùrù* 'dry coconut'. The predominant IPH given by the participants, either for the context-free environment (context 33) or the general contexts (contexts 34–37), was CL2. This is different from the *yumyum* or *vyùù* stages of coconut growth. IPHs are associated with particular lexemes because of their prototypical uses. As the *yumyum* or *vyùù* coconuts are mainly used for drinking, they occur with CL3; but since the main use of the dry coconut is for eating, it occurs with CL2. The speakers who gave either CL1 (participants 2 and 4) or CL3 (participant 10) seemed to do so for most of the contexts. This differentiation in IPHs is not related to different uses of the item but has to do with interspeaker variation, as their choices were largely consistent for all contexts.

When the context of eating occurs (context 38), the predominant IPH is CL2, though with some variation among speakers. However, all speakers who gave a different IPH gave CL2 as their second choice.

When the context of drinking occurred (context 39), there was a shift from CL2 to CL3. Four of the participants used CL3 along with the directly possessed noun *hu* 'juice of', which resulted in the following construction:

(23) NORTH AMBRYM

ma-n	[hu	[ùl	gùrù]]
CL3-3SG	juice	coconut	dry

'his dry coconut juice'

However, the other six participants used CL3 directly with the lexical phrase *ùl guru*, showing that the directly possessed noun *hu* does not need to be the head of the phrase for the IPH to be acceptable here. What could be the deciding factor here is the syntactic interpretation of the phrase *ùl gùrù*: speakers can potentially analyze the construction as either a noun phrase [N + ADJ] or as a compound noun. If speakers perceive it as the former, then CL3 would be considered acceptable, since the head noun has CL3 as the lexically specified IPH, as determined by the context-free word list experiment, where all participants chose CL3. But if the construction is perceived as a compound form, because

TABLE 10. USES OF *ùl gùrù* 'DRY COCONUT'

	Participant									
Context	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
33 no context	2	1	2	1	2	2	2	2	2	2
34 throw and catch	2	1	2	3	2	2	2	2	2	3
35 throw away	2	1	2	1	2	2	2	2	2	3
36 kick	2	1	2	2	2	2	2	2	2	3
37 sit on	2	1	2	1/2	2	2	2	X	2	3
38 drink	2	1/2	2	3/2	2	2	3/2	2	2	3/2
39 eat	2/3	3	3	3	3	3	3	3	3	3

it depicts a particular growth stage, then the whole compound could be listed in the lexicon and associated with CL2. This variation in syntactic interpretation may also explain why several participants gave CL3 in context 38.

Growth Stage 4: *var*. The final growth stage, *var* `sprouting coconut', occurs when an *ùl gùrù* ripens and falls to the ground. The water that is inside the coconut is soaked up into the flesh of the coconut creating a spongy mass called the "apple." The coconut begins to sprout, and a new coconut palm begins to develop. This growth stage of the coconut can only be eaten, as there is no water content inside it.

Table 11 shows different uses of the *var* stage of the coconut's development. The predominant IPH is CL2 in all contexts; CL1 occurs only three times and was given by the same participant on all occasions. Again, under a relational classifier analysis, CL1 should occur in contexts other than eating, but this simply does not occur.

4.4 COCONUT SHELLS. The lexical item *bwela ùl* 'coconut shell' exhibited a meaningful change in IPH during the experiments. Table 12 looks at different uses of this item. A change in IPH with this lexical item can happen when the item has changed its functional use. Coconut shells are used in three main ways in North Ambrym society: first, as cups for drinking or water vessels (context 46 and 47); second, and less frequently, as plates for eating *tùtùgmyaa*, which is a meal made from breadfruit (context 48); and third, as firewood (context 49). A further two contexts were also evoked, both of which are not actual cultural practices: using a coconut shell to dig with (context 50), and using a shell as a plant pot (context 51). Contexts 46 and 49 were elicited using the video experiment (experiment 1), while contexts 47, 58, 50, and 51 were elicited using the sentence translation task (experiment 2).

In context 46, eight of the participants gave CL3, showing that the functional meaning of *bwela ùl* as a 'cup' is associated with CL3. Furthermore, context 47 adds further evi-

TABLE 11. USES OF *var* 'SPROUTING COCONUT'

	Participant									
Context	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
40 no context	2	2	2	2	2	2	2	2	2	2
41 throw and catch	2	2	2	2	2	2	2	2	2	2
42 throw away	2	2	2	1/2	2	2	2	2	2	2
43 kick	2	2	2	1	2	2	2	2	2	2
44 sit on	2	2	2	1/2	2	2	2	2	2	2
45 eat	2	2	2	2	2	2	2	2	2	2

TABLE 12. USES WITH COCONUT SHELLS

	Participant									
Context	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
46 shell cup	3	1	3	3	3/2	3	3	3	3	1
47 collect water in shell	1/3/2	1/3	3	3/1	3	3	3	2/3	3	1/3
48 shell bowl	2	1	3	3/2	X/2	2	2	2	2	1
49 shell as firewood	1	1	3	1	2	2	1/X	1	X	1
50 shell as spade	1	1/X	3	3/2	1	3/1	2	2/1	X/1	1
51 shell as flower pot	1	1	3	3	X	3	3/1	1/2	3	1

dence that recategorization is motivated by change in functional use. When a shell is used as a cup all the time, it is considered to be a cup and no longer a shell; participants 2 and 10 both stated that CL1 was good if you simply pick up a shell and use it as a cup just once, but CL3 would be better if the shell was always used as a cup. Additionally, participant 8 also stated that if you had just eaten the coconut flesh from the shell and then used it as a cup you would use CL2, but if you used the shell as a cup all the time, then you should use CL3.

When using the shell as a food bowl, there was a meaningful change away from CL3 to CL2, as the majority of participants now stated that CL2 would be better. Again the choice of IPH is rooted in notions of extended use. That is, if the shell is used as a bowl all the time, then it would be better to use CL2. Participants 4 and 5 both stated that CL2 is the better choice when the shell is used all the time as a bowl. Recategorization is more likely to occur when an item is used in a particular manner over a long period of time, rather than for occasional or ad hoc uses.

When using the shell as firewood (context 49), not one participant said that CL4 could be used. This is an interesting result in comparison with the previous contexts, where the IPH changed according to functional use; here, however, the IPH did not change. CL4, along with CL5, are highly restricted IPHs and only have a few members. These IPHs resemble inquorate genders, as they have only a few members and do not allow new category members.

Context 50 failed to evoke CL2, which was expected, as tools are categorized in this way. However, there was a preference of CL1, especially if the shell was used as a spade all the time (participants 6 and 9 preferred CL1 if the shell is used as a spade continuously). However, participants 4 and 8 both said that CL2 is better if the shell is used all the time as a spade. As there was a preference for CL1, this is still considered a meaningful change away from CL3, when used as a cup, and CL2, when used as a bowl.

Context 51 yielded ambiguous results, as an equal number of CL1s and CL3s appeared. Coconut shells are not prototypical possessions in themselves. When they are cleaned and the outer fibers removed to create a smooth vessel, they can be considered a useful possession: they are no longer thought of as a simple shell but can be recategorized as CL2 or CL3, depending on whether they are used as a bowl or a cup.

In summary, the evidence points to a change in IPH when a coconut shell is continually used as a bowl or a cup. As coconut shells themselves are not considered prototypical possessions, there is a large degree of individual speaker variation when other contextual uses are evoked: *bwela ùl* has three related senses, 'coconut shell', 'cup', and 'bowl'. The latter two senses occur with CL3 and CL2, respectively.

4.5 FIRE VIDEOS. Relatively few lexical items have been assigned to CL4, as explained previously. Participants agree that *yem* 'firewood', *fyang* 'fire', *barrni* 'firebrand', and *fwerrye* 'firebrand for sleeping with' occur with CL4. This IPH category appears to be highly restricted in that only these four items occur, with the possible exception of *masis* 'matches', which some speakers also accept. Contexts 52–56 were elicited using video stimuli (experiment 1) and context 57 was elicited using the sentence translation task (experiment 2). The results are in table 13.

In a relational classifier system, it would be expected that CL4 would be used for items that are burnt. Context 52 shows a near constant use of CL4, yet this was due to a change in the lexical item being used by the speakers: rather than using *liye* 'stick', they used the lexeme *yem* 'firewood', which is expected to cooccur with this IPH. CL1 occurred just once, and not in conjunction with *yem* but with *liye*, showing that these lexemes occur with a lexically specified IPH and that context does not motivate a change in IPH. Several participants stated that a stick is no longer a stick when put on the fire but should instead be considered firewood. This reconceptualization explains why both the indirectly possessed noun and the IPH changes. Using coconut shells (context 54) and husks (context 55) as fuel for fire occurs often in North Ambrym society, yet the IPH did not change to CL4 as would be expected in a fluid classifier system. In context 56, *im* 'house', when set on fire, was not reclassified with CL4, but stayed with its default CL3. Similarly, burning bamboo (context 57) did not evoke CL4 at all.[15]

4.6 STICKS AND TREES. The noun *liye* has two senses: 'tree' and 'stick'. Different methods were used to test the IPHs associated with these senses. Context 58 was elicited using the word list experiment (experiment 3). Contexts 59–61 were elicited using video stimuli (experiment 1). See table 14.

When eliciting the associated IPH of the noun *liye* in a context-free environment, the majority of participants gave CL2. As it is unclear which sense is being evoked here, there is a mixture of IPHs, though CL2 was chosen by seven participants. The senses could be disambiguated using video, and the sense 'stick' could be evoked in context 59. Here seven participants gave CL1 instead of CL2.

The sense 'tree' could not be tested using video stimuli, as participants recognized the type of tree and would name the tree, as found during context 60 where participants named the tree as *li bta* 'breadfruit tree'. In this context, all participants gave CL1 for the

TABLE 13. USES WITH FIRE

	Participant									
Video	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
52 adding stick to fire	4	4/1	4	4	4	4	4	4	4	4
53 burning paper	1	1	1	1	1	1	1	1	1	1
54 burning coconut shell	1	1	3	1	2	2	1/X	1	X	1
55 burning coconut husk	1	1	3	3	1/2	1	1	1	X	1
56 house on fire	3	3	3	3	3	3	3	3	3	3
57 burning bamboo as firewood	1	1	2	1	1	1	3	1	1	1

TABLE 14. INTERACTIONS WITH *liye* 'STICK, TREE'

	Participant									
Context	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
58 stick/tree (no context)	2	1	2	2	2	1	1	2	2	2
59 stick (no context)	1	1	2	1	2	1	1	1	1/X	2
60 hit tree with stick	1	1	1	1	1	1	1	1	1	1
61 throw stick at chicken	1	1	X	2/1	1	1	X	1	X	2

15. Bamboo does not burn and is considered a bad fuel. Bamboo is normally used as a vessel in which to roast grated root vegetables on the fire.

sense ‘stick’. Finally, in context 61, where the stick was thrown at a chicken, there was less agreement as to which IPH to use, and a few people said that as it’s just a stick and was just picked up, then it is not considered a possession and should not appear in an indirect possessive construction.

This again shows the aforementioned strategy that nonprototypical possessions tend to go with CL1 if they must be possessed, and that there is still a higher amount of inter-speaker variation in the choice of IPH. There are two conceivable reasons for the variation between speakers. First, as *liye* is polysemous, a different IPH could be used, depending upon what sense (‘stick’ or ‘tree’) was chosen by the participants: CL1 is preferred for ‘stick’, CL2 for ‘tree’. Second, though CL2 is preferred for ‘tree’, this is dependent again upon the type of tree being thought of. Prototypical trees are cultivated fruit-bearing trees, and, thus, belong to CL2; however, noncultivated and nonfruit-bearing trees are more likely to occur with CL1. Thus, there are multiple layers of reasons for this variation. When *liye* is given in a context-free wordlist, it is not certain which sense, ‘stick’ or ‘tree’, is being considered, and if the latter, what type of tree it refers to, and, consequently, which IPH should be chosen.

4.7 UNEXPECTED USAGE VIDEOS. Finally, a set of videos depicting aberrant or nontypical uses of items were also shown to see if nonstandard ways of interacting with objects would result in different IPHs. The results (in table 15) show that these uses do not impact the choice of IPH. Contexts 62–66 were elicited using video stimuli (experiment 1) and context 67 was elicited using the wordlist task (experiment 3).

Table 15 shows different unexpected uses of different items. Context 62 shows the eating of paper, whose occurrence with CL1 was discussed previously in 4.2. Context 63 depicts the drinking of raw eggs. In North Ambrym, eggs are eaten only , though this video depicted a man cracking eggs into a glass and then drinking the raw eggs without chewing them.[16] Only three participants used CL3 for liquid possessions, whereas seven gave CL2. This is not a meaningful change in choice of IPH, as would be expected if the system were relational. The results show that a majority of participants adhere to a rigid system.

Context 64, depicting a man eating a light bulb, always occurred with CL1 and never changed to CL2, and, thus, reflects the rigidity of the system. Context 65, showing a man eating nails, predominantly occurred with CL1, with only two people saying CL2.

TABLE 15. UNEXPECTED USES

	Participant									
Video	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
62 eating paper	1	1	1	1	1	1	1	1	1	1
63 drinking eggs	3	2	2	3	2	2	2	2	3	2
64 eating a light bulb	1	1	1	1	1	1	1	1	1	1
65 eating nails†	1	1	2	1	2	1	1	1	1	1
66 eating leaves	X	1	X	1	2	1	1	1	2	1
67 leaves (no context)	1	1	2	2	1	2	1	2	2	2

† As in hammer and nails.

16. All clips in this section, except for the eating of paper, were sourced from www.youtube.com.

Finally, context 66, depicting a boy and his father eating a big pile of leaves, failed to evoke consistent use of CL2.

Context 66 can also be compared to the results of *raki* 'leaf' elicited during the context-free wordlist experiment (context 67). The results of the wordlist experiment showed that *raki* 'leaf' occurred with CL1 four times and CL2 six times. For context 66, CL1 occurred six times, CL2 twice, and leaves were thought to be nonpossessable twice. So in total there is an increased use of the CL1 for the context of eating, which is not what should be expected if the IPHs are relational classifiers. Comparing how participants altered the use of their IPH under the context of eating, only participant 5 changed to CL2, whereas four participants changed from CL2 to CL1. The confusion over choice in IPH and high interspeaker variation is a sign that *raki* is not thought of as a prototypical possession, which, therefore, results in a mixture of IPHs.

4.8 SUMMARY. The previous sections have shown that context does not play a major or meaningful role in determining the choice of IPH. The overall evidence points to nouns being rigidly associated with a particular IPH. The association between a noun and its IPH is determined in the lexicon. When different IPHs occur, it was due to one of four reasons:

1. different senses of a noun being used
2. different lexemes being chosen by speakers
3. individual speaker variation
4. nonprotoypical possessions

These experiments have shown that North Ambrym does not have a fluid classifier system. North Ambrym is best analyzed as having a more rigid gender system. Many of the items that were used in different ways did not result in different IPHs being chosen. The IPHs have a homogeneous status in North Ambrym, as a change in IPH only occurs because of the reasons given above, and, thus, the choice of IPH is unaffected by context. The attempts to see if continued use of an item in a particular fashion could force a change in IPH gave mixed results. The discussion and choices by the participants on this topic showed that, if the whole community started using the item in that way, then recategorization occurs and a different IPH can be linked to that lexical item. Again, the results from asking these questions resulted in only a few participants showing evidence of fluidity and being able to change their IPH. The results still point to a rigid gender system.

5. CONCLUSION. This paper has presented evidence to argue for the analysis of the IPHs in North Ambrym as markers of gender rather than as relational classifiers. First, the syntactic status of the IPHs was considered in 1.2, which argued that they do not function as generic nouns, but as a special syntactic category of their own.

Section 2 compared typological criteria for distinguishing between a classifier system and a gender system. The main definitional criterion is that of agreement, and the IPHs in North Ambrym fulfill this criterion as they function as agreement markers in long-distance possessive anaphora. The rest of the criteria were also weighted toward gender systems.

Section 4 gave the results of the different experiments that tested the fluidity of the IPHs. It was shown that for the majority of the nouns tested, only one IPH could ever

occur. This is a good indicator that there is one IPH per indirectly possessed noun, which fits the ideal of a rigid gender system. The IPHs in North Ambrym should be considered as markers of inherent gender and, as such, are specified in the lexical entry of each indirectly possessed noun.

There were exceptions, with the lexemes for 'coconut', 'coconut shell', and 'stick/tree' all showing variation in which IPH was given. However, since the majority of nouns did not show variation, this does not impact the overall assessment of the IPHs as gender markers. The main reasons for this variation are that nouns can either be polysemous and each sense can have its own lexically specified IPH, or that the noun referent is not considered a prototypical possession, which forces speakers to choose an appropriate IPH on the fly, resulting in variation between speakers.

By using experiments such as the ones outlined in this paper, a comprehensive comparison of indirect possessive hosts could be obtained throughout the Oceanic languages. This could reveal how many languages have IPHs that are classifier-like, how many are gender-like, and how many fall in between. A cut-off point needs to be based on how many nouns in each individual language's lexicon exhibit fluidity between the choice of IPH, and the reasons for the fluidity.

APPENDIX 1. PARTICIPANTS AND THEIR AGES

Participant	Age	Participant	Age
1	55	6	26
2	59	7	26
3	38	8	51
4	16	9	27
5	34	10	19

APPENDIX 2. INDIRECTLY POSSESSED NOUNS AND THEIR LEXICALLY SPECIFIED IPHS

The results from experiments 1 and 2 have been collated and tabularized below to show the lexically determined IPH for the different indirectly possessed nouns that were tested. The table does not include CL5, as none of the items or contexts tested resulted in CL5 being used. For example, *bak* 'bag' was always used with CL1, so this borrowing from Bislama, even though functioning the same as *arrbol* 'basket', does not occur with CL5. *Bwela rrmo* 'a coconut eaten by a rat' (lit., 'the shell of the rat') was considered nonpossesssable, and the majority of participants said that no IPH could occur with this item, though some participants said CL1 would be acceptable. This item has been left out of the list below. Finally, *rra* 'blood', which was also tested, was always given as a directly possessed noun when a video depicted Masai warriors drinking the blood of a cow, such that the following construction occurred:

(24) NORTH AMBRYM

rra-n	a-n	buluk
blood-CST	CL2-3SG	cow

'the blood of his cow'

This item has also been left out of the list below, as it does not occur as the head in an indirect possessive construction.

IPH	Indirectly possessed noun	Gloss
CL1	awa	‘rope, vine’
mwene/mwena	bak	‘bag’
	barrnye	‘grass’
	berr	‘wooden post’
	bulbul	‘canoe’
	bwelaangi ùl	‘coconut husk’
	laet	‘light bulb’
	li blabo	‘bamboo’
	liye	‘stick’
	nil	‘nail’
	ùl	‘moon’
	pepa	‘paper’
	ra rrbak	‘tobacco’
	ùl	‘copra’
CL2	bwela ùl	‘coconut shell bowl’
ye/a	raki	‘leaf’
	ra byang	‘banyan leaf’
	tan	‘ground’
	tùlù to	‘chicken egg’
	ùl	‘month’
	ùl gùrù	‘dry coconut’
	var	‘sprouting coconut’
	womul	‘citrus fruit’
	wo byang	‘banyan fruit’
	wuwu	‘breadfruit recipe’
CL3	bwela ùl	‘coconut shell cup’
mwe/ma	im	‘house, building’
	suu	‘sugarcane’
	tee	‘sea, saltwater’
	ùl	‘coconut’
	we	‘water’
	yumyum	‘small green coconut’
	vyùù	‘green coconut’
CL4	fyang	‘fire’
bo	yem	‘firewood’

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