Beyond roots and affixes: Äiwoo deverbal nominals and the typology of bound lexical morphemes

Åshild Næss, University of Oslo

Abstract

This paper discusses the analysis of a particular class of morphemes in the Oceanic language Äiwoo, and argues that the difficulties in accounting for them in traditional terms such as nominalisation, compounding, relative clauses, or classifiers, is due to their status as bound lexical morphemes, also known as bound roots, an under-discussed category in linguistic literature. It proposes some parameters of variation within bound lexical morphemes as a class and shows that the Äiwoo facts can be best accounted for by reference to these parameters, both in terms of language-internal description and crosslinguistic comparability. It argues that understanding crosslinguistic morphological structure in terms of a dichotomy between "roots" and "affixes" underplays the existing variation in linguistic structure, and that a more detailed examination is necessary of forms which do not fit clearly into this dichotomy; the discussion of the Äiwoo data aims to provide a starting-point for such an examination.

1. Introduction[1]

It is by now a well-established truth that individual languages should be described on their own terms, and that established analytical terminology may not be adequate in the analysis of a previously undescribed language. At the same time, linguistic theory in general aims to develop an analytical apparatus which can account in an adequate way for all phenomena of natural language, and certain basic distinctions tend to be treated as universal at least in the sense of being the starting-point for definitions of more language-specific categories (cf. Haspelmath's (2010) distinction between descriptive categories and comparative concepts, and the discussion of these in *Linguistic Typology* 20:2 (2016)).

One such well-established analytical distinction is that between roots and affixes, which is at the basis of most approaches to morphological structure. There is plenty of discussion in the literature on the problems of drawing a precise boundary between the two (for a summary of the main points of debate see e.g. Croft 2000, Mugdan 2015), illustrating that the simple terminological distinction abstracts away from a great deal of crosslinguistic variation. Indeed, much of the general discussion centres on European languages, the structure of which forms the basis for most basic linguistic terminology to begin with; the challenges are compounded when one takes a broader crosslinguistic perspective.

When a morpheme does not fall neatly into the 'root' or 'affix' categories, there are two possible approaches. The most frequently encountered is to classify it as more or less 'root-like' or 'affix-like' according to some set of criteria; this entails setting up definitions of canonical 'roots' and 'affixes' and systematically mapping how morphemes may deviate from these (e.g. Mugdan 2015: 258[2]).

Such an approach nevertheless assumes that the root-affix distinction is primary, and implicitly or explicitly characterises all other possibilities as deviations. This is problematic from a crosslinguistic perspective because it skews our picture of what the distribution is actually like: it risks overlooking significant defining properties of the "in-between" categories, which are viewed in terms of their similarity or difference to an idealised canonical instance rather than in terms of their own distributional and functional characteristics.

In this paper I will argue for a different approach to the analysis of morphemes which cannot clearly be categorised according to the root-affix distinction; an approach which does not assume that the categories of root and affix are in any way primary, or that reference to these categories is necessary in order to analyse forms which do not clearly fit into them. Rather than assuming that a morpheme has to be categorised as either root-like or affix-like, describing the characteristic properties of problematic forms in a bottom-up fashion and establishing the possible parameters of variation is likely to yield both more accurate analyses of individual languages and a more

---

[2] Mugdan uses the term 'prototype', but refers to his prototypes as "ideals that are never attained in practice", whereas a more common use of 'prototype' is to refer to the most central and representative member of a category, which would typically be frequently encountered. A better term seems to be 'canonical instance', as defined e.g. in Corbett (2005).

crosslinguistically robust approach to word structure in general. This is essentially the multivariate approach argued for e.g. by Bickel (2010, 2011), who notes that "The current dissatisfaction with universalist metalanguages comes from the observation that their categories often hide substantial cross-linguistic diversity ... The basic problem therefore is how we can reconcile the need for universally applicable categories with the challenge of particular systems" (Bickel 2011: 3). I am not attempting here to provide a multivariate analysis of the concepts 'root' and 'affix' themselves, but of a certain set of morphemes which do not fit neatly into this distinction. On the basis of this discussion I will, however, critically examine the root-affix distinction itself, and argue that the category of 'root', in particular, rests on assumptions which need to be examined critically and in light of a broader crosslinguistic understanding of which types of lexical and grammatical meanings are expressed by which types of morphemes, before it can be defined in a coherent way.

The paper centers on the analysis of a particular class of forms in a particular language, the Oceanic language Äiwoo of Solomon Islands. The challenge presented by this class of forms, which I call "generic bound nouns", is that it is particularly difficult to analyse in terms of established morphosyntactic categories such as nominalising prefixes, compounds, classifiers, or heads of relative clauses; it seems to share properties of all of these, while not falling clearly into any of them. I will argue that the behaviour of this class of forms can be most accurately accounted for, both in terms of providing a satisfactory analysis of the system itself and in terms of comparing its properties to forms found in other languages, by putting aside the binary distinction between roots and affixes and viewing the category 'bound lexical morpheme' as a complex and multi-faceted class in its own right.

The paper focuses mainly on how the generic bound nouns in Äiwoo can inform a general typological perspective on the properties of bound nouns, and on bound lexical morphemes more generally, and on how this perspective in turn can be brought to bear on bound nouns as a broader class in Äiwoo, i.e. including not only the generic bound nouns but also other types of bound nominal forms. It is less concerned with the relationship between categories of bound nouns in Äiwoo and in other Oceanic languages, except insofar as the latter may help to elucidate the properties of the Äiwoo forms.

The paper is structured as follows: Section 2 describes the distributional properties of the relevant set of bound nominal forms in Äiwoo. Section 3 discusses a number of possible analyses of these forms in terms of established concepts such as nominalising affixes, compounds, relative clauses, and classifiers, and argues that the generic bound nouns show properties in common with all of these categories, while deviating from them in certain respects. Section 4 argues that these problems of categorisation stem from the status of the Äiwoo forms as bound lexical morphemes, and provides an analysis of the overall concept of 'bound noun' by examining the properties of different types of forms which have been analysed as bound nominal roots across languages. Section 5 employs these properties in an analysis of different types of bound nouns in Äiwoo, and argues that, with some refinement, they provide a better account of the distributional patterns of the forms discussed in sections 2–3 than an analysis in terms of concepts such as nominalisation, compounding, etc., which fundamentally build on the root-affix distinction. It further argues that this approach can provide an analytical tool for understanding the properties of different types of bound morphemes more generally, and that this in turn constitutes a better approach to understanding crosslinguistic variation than a simple distinction into 'roots' and 'affixes'. Section 6 offers some conclusions on the need to better understand the properties of bound lexical morphemes both for descriptive and theoretical adequacy, and on the relevance of "in-between" categories in forming an adequate picture of the nature of linguistic structures across languages.

2. Generic bound nouns (GBNs) in Äiwoo

2.1 Introduction

The Äiwoo language is spoken in the Main Reef Islands in Solomon Islands' Temotu Province, as well as in a number of settlements on nearby Santa Cruz Island. Although previously assumed to be of mixed origins – Austronesian with a Papuan substrate – current consensus is that Äiwoo and its closest relatives on Santa Cruz belong to the Oceanic subgroup of Austronesian, with no demonstrable Papuan admixture, and that they make up the Temotu subgroup of Oceanic together with the languages of nearby

Utupua and Vanikoro (Ross and Næss 2007). For earlier analyses of the morphemes discussed in this paper, see Wurm (1981) and Næss (2006).

Äiwoo has next to no productive inflectional morphology on nouns. A subclass of nouns, mostly kinship and body-part terms, take obligatory possessive marking in the form of suffixes; these will be discussed further in 5.1. Other nouns are optionally marked as possessive through the addition of possessive classifiers which distinguish six possessive classes. There is no case marking, no articles, and no inflectional plural, though a small set of human-referring nouns can be pluralised by addition of the bound noun *pe-* 'human collective', cf. 2.2 below.

While the majority of Äiwoo nouns are independent lexical roots, there are several types of bound nominal forms, some of which are highly frequent and feature prominently in word-formation processes in the language. Below (2.2–2.6) I will describe the properties of one particular class of bound noun, which I call generic bound nouns (GBNs), the distributional properties of which make it difficult to analyse in terms of established categories (section 3), and suggest that these difficulties can be overcome if we approach the category 'bound noun' as a complex category in its own right rather than simply as a type of deviant root.

2.2. Generic bound nouns

In the literature on Oceanic languages, the term 'bound noun' is most frequently applied to nouns which cannot occur without possessive marking (cf. 5.1 below). A broader range of bound noun types is described e.g. by Early (ms.) for Lewo or Bril (2013) for Nêlêmwa, showing that there can be considerable variation in the combinatorial properties of nouns in Oceanic languages.

Äiwoo similarly has several classes of bound nouns. This paper is primarily concerned with the properties of one of these classes, which is the topic of this and the following sections, though section 5 considers the relationship of this class to the wider set of bound nouns in Äiwoo.

The forms that are the main focus of this paper are listed in Table 1. I will refer to them as 'generic bound nouns (GBNs)' because of the general nature of their meaning – 'thing', 'person', 'place', etc. It should be noted that this label is intended as a mere mnemonic aiming to differentiate this class of forms from the other types of

bound noun discussed in section 5; no claims are made with regards to genericity of reference of the forms into which the bound nouns enter.

While some of the bound nouns to be discussed in section 5 have clear sources in independent lexical nouns, this is not the case for the generic bound nouns. Where an independent noun with approximately the same meaning exists, this is listed in Table 1 under "corresponding independent noun"; but while certain formal similarities exist between some of the GBNs and their corresponding independent nouns, it is difficult to make convincing arguments for a diachronic link. For example, linking the bound noun *si-* 'woman, female' to the independent noun *singedâ* on the basis of the initial *si-* ignores the fact that *sigiläi* 'man' and *sime* 'person' also start in *si-*; and while the syllable *gi-*, which is the bound noun for 'male', is also found in the independent form *sigiläi* [ˌsiŋgˈlæɪ], it is unclear why it would be the unstressed syllable that would be retained in a reduced form; note that due to rules that devoice or elide high vowels in unstressed position, the syllable *-gi-* effectively disappears in pronunciation. There may well be a historical relationship between some of the bound and independent forms, but it is likely to be more complex than a simple reduction of the independent form, and I will not attempt to account for it here.

It should also be pointed out that at least two of the independent nouns are significantly rarer in usage than their bound counterparts; *jelâ* 'something' occurs mainly in combination with the quantifier *dä* 'some' to give the complex form *däjelâ* 'something', while *numa* 'place' only has three clear attestations in my corpus of several hours of spoken-language material[3]. In other words, at least some of the GBNs are clearly the preferred means of expression of their particular semantic content, as opposed to an independent noun with a similar meaning.

Table 1 Generic bound nouns in Äiwoo

Bound noun	Meaning	Corresponding independent noun

---

[3] Examples are given in the practical orthography currently used in work on the Äiwoo language. Most graphemes have predictable values. <ä> represents a front open vowel [æ] while <â> stands for a low back, rounded or unrounded vowel [ɑ, ɒ]. <j> represents the affricate [ʤ].
In many (though not all) cases, *ä* undergoes assimilation and becomes *â* when the following syllable has a back vowel; thus many words and morphemes have alternant forms in *ä* and *â*, e.g. *ngä, ngâ* 'locative preposition'. The forms in *ä* are considered to be basic as they occur when there is no following vowel.

de-	thing	*jelâ*
gi-	man, male	*sigiläi*
me-	person	*sime*
mi-	general, 'the one that …'	
nye-/nyi-	place	*numa*
nye-/nyi-	way, manner[4]	
si-	woman, female	*singedâ*
pe-	people, human collective	

The forms in Table 1 are classed together not primarily because of their general semantics, but due to their similar distribution, that is, they appear in the same range of constructions, to be described in more detail below. However, there are differences in how frequently the different GBNs occur in different constructions; these can largely be explained with appeal to semantics, in that some of the GBNs have more general meanings and so tend to appear in a wider range of constructions than others. While this is not directly relevant for the main line of argumentation in this paper, for the sake of completeness the most important distributional differences will be briefly outlined below.

 mi- stands out from the rest of the set both as the most semantically general form, 'the one that is X', and in its function: while the other GBNs form expressions that **name** entities, forms in *mi-* are used to **identify** entities by picking them out from a larger set[5]:

(1)   a.   *Lâto*   **mi**-*lu-pu-mä*   *ngâ*   *dä*   *nuumä lâ*

              then   one-3AUG-go-DIR:1 LOC   some   village DIST

              ku-lu-po-ute=kâ   *ngä*

---

[4] The facts regarding the bound noun forms in *nye-/nyi-* are complex. It is fairly clear that there are two forms with distinct meanings 'place where one does X' and 'way that one does X'. In addition, however, *nye-* is found on forms modifying another noun (cf *mi-*), and with verbs of speech, cognition and sensation (e.g. 'what he says', 'what she knows'). The precise relation between these different functions and meanings require further investigation, and I will restrict the current discussion to forms with unambiguous 'place' and 'manner' meanings.

[5] Abbreviations used in glosses follow the Leipzig Glossing Rules where these apply. Additional abbreviations: AUG augmented number, CONJ conjunction, CS change of state, CV circumstantial voice, DEP dependent, DIR directional suffix, GA generic agent, MIN minimal number, UA unit-augmented number, UTEN utensils possessive class.

IPFV-3AUG-go-back=DIST LOC

nye-tä-i=lâ.

place-POSS:LOC.3MIN-3AUG=DIST

'Then the ones who have come from other villages go back to their homes.'

b.　　*Mo　　ilâ=kâ　　　dee　**mi**-ngângo,　ba　　kopee=gu.*

　　　　CONJ that=DIST　　this　one-strong　　NEG　ripe=NEG

　　　　'But these are hard ones, not ripe.'

Presumably for this reason, *mi-* is also the overwhelmingly most common form found in expressions used as modifiers to another noun. It is possible for bound noun expressions to be used to modify a noun, as in *nyibä mi-laki* (basket one-small) 'the small basket'; in the vast majority of cases, this involves the bound noun *mi-*. It is not the case, however, that *mi-* is the only form found in such constructions; both *de-* 'thing' and *nye-* 'manner' are attested in forms used as nominal modifiers.

(2)　　a.　　*pelivano　　　sime　**de**-ki-luwa-kä-ji*

　　　　　　children.3MIN person thing-IPFV-take.O-DIR:3-1+2MIN

　　　　　　'the children we adopted'

　　　b.　　*namugile　　　**nye**-ki-pi-kä-i*

　　　　　　piece　　　　　way-IPFV-bring.O-DIR:3-3AUG

　　　　　　'the piece that they brought'

Äiwoo lacks indefinite pronouns, and meanings equivalent to 'nothing', 'no one', etc. are typically rendered by using a form with a GBN as an argument for the negative existential verb *bââ* 'not be, not exist', as seen in (3).

(3)　　a.　　*Bââ　**de**-na-wagu-wâ-no.*

　　　　　　not.be　thing-IRR-say.O-DIR:2-1MIN

　　　　　　'There is nothing I can say.'

b.   *Bââ*   **me**-*kää.*

         not.be   person-know.O

         'No one knows.'

This is particularly common for *me*- 'person', for which about one-third of attestations occur in this context.

     Pe- stands out from the rest of the set in that it occurs much more frequently in combination with a noun than with a verb or clause. Forms like *pesingedâ* 'women', *pedowâlili* 'children' (cf. *singedâ* 'woman', *dowâlili* 'child') are common, and in such contexts *pe*- appears to function as a kind of plural for human-referring nouns; there are only a handful of attestations in my material of *pe*- with what appears to be a verbal form. *pe*- also frequently combines with prepositional phrases, as in *pe-ngâ nuumä* (people-LOC village) 'people from the village'. This distribution means that *pe*- is somewhat marginal with respect to the main discussion of this paper, although it is relevant to the discussion of how the GBNs relate to other kinds of nominal morphemes in Äiwoo in section 5.

2.3. Possessives and demonstratives

The GBNs can combine with demonstratives and possessive classifiers. Äiwoo has two adnominal demonstratives, *enge* 'proximal' and *eângâ* 'distal', and six possessive classifiers (listed here in their 3MIN form): *no* 'general', *na* 'food', *numä* 'drink', *da* 'betel nut and betel-chewing equipment', *nogo* 'tools and utensils', and *tä* 'houses and land'. (On possessive class systems in Oceanic languages, see e.g. Lichtenberk 1983, Palmer and Brown 2007). Examples of GBNs with demonstratives are given in (4), and examples with possessive classifiers in (5).

(4)   a.   **de**-*enge*   b.   **ny**-*ângâ*

           thing-DEM:PROX   place-DEM:DIST

           'this thing'   'that place'

(5)   a.   **de**-*na*   b.   **nye**-*tä*

           thing-POSS:FOOD.3MIN   place-POSS:LOC.3MIN

'his/her thing to eat'   'his/her place, property'

The construction with demonstratives may be said to be fully productive insofar as any of the bound nouns may combine, as far as I know, with either of the two demonstratives *enge* 'this' and *(e)ângâ* 'that'. However, several of the GBNs take special forms of the demonstratives not found elsewhere: *nenge/nângâ* with *mi-* and *gi-* (*mi-nenge* 'this one', *gi-nângâ* 'that man'), *wenge/wângâ* with *si-* (*si-wângâ* 'this woman'), possibly *lenge/lângâ* with *me-* (*melângâ* 'that person', though only a single example of this is attested, and it is possible that is rather involves a form *melâ* 'man, mate' which is otherwise only attested in interjections). Not all bound nouns take these forms, cf. e.g. *ny-ângâ* 'that place'.

The possessive class system is semantically based, indicating the nature of the possessive relationship which in turn depends on the nature of the possessed item; it is thus not surprising that there are semantic restrictions on which GBN can combine with which possessive classifier. For example, *nye-* 'place' occurs almost exclusively with the possessive classifier for places, *tä*, which is used for what in English would be called real estate – houses, gardening land, and other types of land property. Thus *nyetä* 'his/her place', with the 'land' possessive, is a possible form, while e.g. **nyena* with the 'food' possessive is not[6]. *mi-*, which is the most semantically general of the bound nouns, appears to be able to combine with any possessive classifier, while *de-* 'thing' is attested with all except the land property classifier.

Other idiosyncratic restrictions on this construction do not appear to be semantically motivated, but may arise through lexical blocking. *gino* is the lexicalised term for '(his/her) son', and may plausibly be analysed as *gi-no*, with the bound noun for males combining with the general possessive marker. However, there is no corresponding form **sino* meaning 'daughter', possibly because there is another lexicalised term for 'daughter', namely *sipe*.

In general, kinship terms are a further complication which will not be addressed in detail here. A large number of kinship terms are composed of the bound nouns *gi-* and *si-* plus another element, but the nature of this element is not clear as it does not occur outside of these constructions; some examples are *gite* 'man's brother', *site*

---

[6] I have sporadic examples of *nyeno*, with the general possessive.

'woman's sister', *gibo* 'nephew, grandson', *sibo* 'niece, granddaughter', *giängä* 'uncle, mother's brother'.

2.4. Bare verbs

The pattern where a GBN occurs in combination with a bare verb, with no inflectional morphology and no arguments other than that represented by the GBN, is mostly found with stative verbs, e.g. *laki* 'be small', *mâpo* 'be dry', *lägä* 'be empty', etc. Most attested exceptions involve *me-* 'person', which as noted above has a somewhat different distribution from the others due to its frequent use in constructions with the negative existential verb.

(6) a. **de**-*laki*   *enge*

          thing-small   DEM:PROX

          'this small thing'

     b. **nye**-*laki*

          place-small

          'a small place'

     c. **nye**-*maapi*

          place-overgrown

          'overgrown place, bush'

Stative verbs typically occur with little or no inflectional morphology, so there may not be grounds for considering this pattern to be a specific construction where a GBN combines with a bare verb, as opposed to simply what typically happens when a GBN combines with a stative verb. Nevertheless, as these are the simplest forms in which a GBN combines with a verb, we will start from these before moving on to examine more complex forms.

A small set of verbs are particularly frequent in this construction, e.g. *doo* 'be like that' (*dedoo* 'something like that', *nyedoo* 'in that way'), *nyigi* 'be one, be the same' (*denyigi* 'the same thing', *nyenyigi* 'the same place', *nyenyigi* 'in the same way').

At least some of the forms in this category are fairly clearly lexicalised, for example *gi-laki* 'man-small = boy', *si-laki* 'woman-small = girl', *nye-polââ* 'place-clear = world' (also 'clearing, open space in the bush'), *nye-lägä* 'place-dry = dry land'. Where a semantically similar independent noun exists, it is clear that the meaning of the form with a GBN may be different from that of the independent noun modified by the same verb; for example, *sigiläi laki* would mean 'small man, small male', whereas *gilaki* specifically means 'boy, male child', pointing to a lexicalised meaning which is not purely compositional. At the same time, there is evidence that speakers have access to the internal structure of these forms; for example, an attempt to elicit an example sentence with the form *nyepolââ* in the sense 'clearing, open space' initially produced examples with *polââ* 'be clear, be light' used as a verb.

2.5. Aspect/mood and person marking

Äiwoo has a set of three aspect/mood prefixes, *i-* 'realis perfective', *ki-/ku-* 'realis imperfective' and *nä-/nâ-* 'irrealis'. These are generally obligatory on dynamic (as opposed to stative) verbs, though *i-* can sometimes be omitted; it is not clear at present whether the reasons for this are semantic or phonological in nature. GBNs frequently combine with verbs marked with *ki-/ku-* and *nä-/nâ-*, though I have no clear attestations of forms with *i-*.

Person marking in Äiwoo is complex in the sense that the language has a symmetrical voice-type system (see Næss 2015 for details)[7] in which different types of verb take different person marking – intransitive verbs and verbs in the actor-voice form ("A-verbs") take actor prefixes, while verbs in the undergoer-voice form ("O-verbs") take actor suffixes. Occasionally, an undergoer argument can also be marked by a suffix; this happens only with O-verbs[8], and the undergoer suffix always follows an actor suffix, as in (9c) below.

In addition to the referential person prefixes, there is a prefix *li-/lu-*, homophonous with the 3rd person augmented prefix but differing in distribution in that

---

[7] Given the nature of symmetrical-voice systems in general, and in particular the fact that in Äiwoo, the argument selected as prominent by the form of the verb does not appear to show any further morphosyntactic privileges such as e.g. being the syntactic pivot (Næss 2015), this paper avoids the use of terms such as 'subject' and 'object' and uses 'actor' and 'undergoer' to refer to the arguments of two-participant clauses throughout.

[8] And verbs with the circumstantial voice clitic, which pattern formally like O-verbs.

it can also appear on O-verbs, indicating a generic or nonreferential actor; this prefix is common in forms with GBNs.

Examples of forms with a GBN and person and/or aspect-mood marking are given in (7):

(7) a. ***de**-ku-luwo* b. ***de**-ki-li-ngä*
         thing-IPFV-jump   thing-IPFV-GA-eat.O
         'bird, terrestrial animal'   'food'

    c. ***nye**-ku-wo-lâ-de=ngä* d. ***de**-vi-mu*
         way-IPFV-go-out-1+2MIN=CV   thing-plant.O-2MIN
         'the way we go about it'   'the things you plant'

Both *dekuluwo* 'bird, animal (lit. thing that jumps)' and *dekilingä* 'food (lit. thing that one eats)' take the imperfective prefix *ki-/ku-*. The reason why the generic-agent prefix appears in (7b) but not in (7a) is the difference in argument structure: in (7a) the GBN *de-* 'thing' is the actor argument of *luwo* 'jump', while it is the undergoer argument of *ngä* 'eat' in (7b); cf. the literal English translations 'thing that jumps' vs. 'thing that one eats'.

(7a) and (7b) are both clearly lexicalised expressions, though there is evidence that they function as synchronically analysable forms. When *dekilingä* 'food' is marked as possessed, there are two possibilities: the form as a whole can take a possessive classifier, which is what one would expect if *dekilingä* is treated as an unanalysable chunk (8a); but the generic-agent prefix *li-* can also be replaced with a referential actor suffix, forming e.g. 'thing that I eat' instead of 'thing that one eats' (8b).

(8) a. ***de**-ki-li-ngä*   *nugu*
         thing-IPFV-GA-eat.O   POSS:FOOD.1MIN
         'my food'

    b. ***de**-ki-ngâ-no*
         thing-IPFV-eat.O-1MIN

'my food'

(7c–d) show forms with a similar structure that are not lexicalised, but constructed on the fly, and showing referential person markers; for example, (7d) comes from a discussion on gardening taking place in the addressee's garden, where the speaker is asking about the different types of food planted there.

2.6. Additional arguments and other elements

It was noted in 2.5 that differences in argument structure are indicated in the complex form; no particular marking is found if the GBN represents the actor argument of the verb, whereas some form of actor marking – typically the generic-agent prefix *li-/lu-* – appears if the GBN represents the undergoer argument. However, it is not a requirement for the use of a GBN that the verb should subcategorise for the argument that the GBN represents. The clitic =C*ä*[9], which is analysed as a circumstantial voice marker for reasons not directly relevant to the current discussion (see Næss 2015 for details), introduces a non-subcategorised argument into the clause core:

(9) a. *nuwopa* *ku-mo-i-le=nä*

   house   IPFV-live-3AUG-UA=CV

   'the house they live in'

 b. *numobâ* *i-veie* *ku-wokâu=nä*

   hole   PFV-dig.O IPFV-bathe=CV

   'the hole he had dug to bathe in'

 c. *Ki-lâwâle-wâ-nee-mu=wä.*

   IPFV-help.O-DIR:2-1MIN-2MIN=CV

   'I will help you with it.'

---

[9]The consonant varies depending on which the element the marker cliticises to, largely according to its person/number properties: *k* following a form with no person/number features, *n* following a 3MIN form, the unit-augmented suffix *–le*, and the negative clitic =*gu*; *ŋ* following a 1MIN or 1+2nd person form, *l* following a 3AUG form, and Ø or *w* following a 1AUG or 2nd person form, the aspect clitics =*to* and =*jo,* and the prohibitive clitic =*eo.* The same pattern is found with the future clitic =C*aa* and the deictic clitics =C*e* 'proximal' and =C*â* 'distal', cf. e.g. (1a, 11b, 18a, c).

The clitic also appears when a verb appears with a GBN representing an argument for which it does not subcategorise (cf. also 7c):

(10) a. ***nye**-ku-mo=nä*
          place-IPFV-live=CV
          'the place where s/he lives'

      b. ***de**-ki-li-ngongo=nä*
          thing-IPFV-GA-listen.A=CV
          'radio (lit. thing that one listens to)'

In 2.4 we saw examples where the verb had an argument in addition to that represented by the GBN, which was represented by person marking on the verb, cf. also (10b). But GBN constructions can also have additional arguments which are represented by noun phrases, as seen in (11):

(11) a. ***me**-wasele*   *nye-polââ*   *enge*
          person-make.A   place-clear   DEM.PROX
          'the one who made this world'

      b. ***nye**-ki-vaabe*   *ipebo-i-le=nä*
          place-IPFV-beat.A   maternal.grandmother-3AUG-UA=CV
          nänyi=kâ
          coconut.fibre=DIST
          'the place where their grandmother was beating coconut fibre'

The GBN expression can also include prepositional phrases:

(12) ***de**-wâte-wâ*   *ngâgu-mu*
      thing-happen-DIR:2   to.1MIN-2MIN
      'the thing that happened to you'

Moreover, it is possible for the verb in a GBN expression to be modified by an adverb:

(13)   ***de**-wâ-pu-ee=kâ*   *lâ*   *umu=kâ*

      thing-CAUS-go-up=DIST   DIST   behind=DIST

      'the things he pulled up last'

The analysis of (13) poses interesting problems. The deictic clitic *=kâ* occurs at the right edge of phrases, suggesting that *umu* 'behind, last' and the bound noun expression here occur in different constituents. At the same time, *umu* modifies the verb inside the GBN construction, not the GBN construction as a whole – *umu* does not occur as a modifier of nouns, and so this structure cannot be understood as meaning 'the last [things that he pulled up]'. That is, the bound noun must be understood as having scope over the entire clause [wâpueekâ lâ umukâ]. This structure resembles what Bresnan (1997) calls "mixed categories", i.e. phrases which are "a syntactic hybrid of two different category types"; *dewâpueekâ* is a nominal expression, but takes a modifier normally restricted to appearing with verbs. Bresnan analyses such constructions as "head-sharing" structures where the head, typically a nominalised verb, is shared between a nominal and a verbal constituent of the clause (see also Foley 2014 for a discussion of head-sharing phenomena in Austronesian). Such an analysis seems problematic for the Äiwoo GBN construction, since *de-* 'thing' is the nominal head of the construction as a whole, while the adverb *umu* modifies *wâpuee* 'pull up', which is the head of the VP of which *de-* is an argument. In this respect the GBNs pattern more like relative clauses than like lexical nominalisations, cf. 3.3 below.

3 Analysing the generic bound noun constructions

As is clear from the description in section 2 above, the constructions with generic bound nouns (henceforth GBN constructions) in Äiwoo are nominal forms which are primarily formed by adding the GBNs to some form of verbal expression (though note the demonstrative- and possessive-based forms in 2.3, as well as the use of *pe-* with nouns and prepositional phrases). How do these deverbal nominals relate to constructions that form nouns from verbs in other languages? In this section I will examine a number of possible analyses of the Äiwoo GBN constructions, and show that, while they have properties in common with both nominalisation constructions, compounds, relative clauses and classifiers, they do not appear to fit neatly into any of these categories.

3.1 The nominalisation analysis

Næss (2006) analyses the GBN constructions in Äiwoo as nominalisations, which implies an analysis of the GBNs as derivational prefixes deriving nouns from verbs. The types of meaning expressed by these prefixes are common in participant nominalisation constructions in the world's languages; Comrie and Thompson (2007) list agentive, instrumental, manner, locative and objective nominalisations, which all correspond closely to the functions of the Äiwoo GBNs (as well as reason nominalisations which do not have a direct counterpart in the Äiwoo system). Morphemes with similar properties have been analysed as nominalising prefixes in other Oceanic languages; for example, for Nêlêmwa, Bril (2002: 73–82) analyses a set of bound forms with meanings such as 'place', 'manner' and 'agent' as derivational prefixes.

Unlike canonical participant nominalisation constructions, however, the precise function of the Äiwoo GBNs, in terms of their argument role in the construction, is in many cases determined not by the semantics of the bound noun itself, but by the verb or larger construction that it combines with. In (7a), *de-* 'thing' is the agent, the thing that jumps; while in (7b) it is the patient, the thing that gets eaten. *de-* in itself cannot be analysed either as an agent nominaliser or a patient nominaliser, but simply as a form meaning 'thing', the precise role of which depends on the construction it enters into.

The fairly general meanings of the GBNs – 'thing', 'person', 'place' etc. – might be seen as supporting a derivational analysis. For example, Olsen (2014: 27) states that "An affix adds a general meaning component to the base". On the other hand, Lieber and Štekauer (2009: 4), on the subject of distinguishing bound roots from affixes, state that "roots in some sense have more semantic substance than affixes", and it is tempting to consider meanings like 'thing', 'place', etc. as having a degree of semantic substance beyond, perhaps, what would be expected for a derivational affix. Providing objective criteria for what counts as a "general meaning" or "semantic substance" seems difficult, and thus the practical applicability of such semantic measures is limited.

An argument against a nominalisation analysis is that participant nominalisations are claimed, as a general property, to have fewer verbal features than action nominalisations (e.g. Baker and Vinokurova 2009), and this clearly does not hold for the Äiwoo GBN constructions. While the latter can occur with fully inflected verbs with

additional arguments and modifiers, as demonstrated in 2.6, action nominalisations in Äiwoo are much more restricted. They are formed with the circumfix *nye*-V-*na*, as in (14ab):

(14) a. ***Nye-li-ebi-na***   *ile.*
          NMLZ-GA-bake.A-NMLZ   this
          'This is how you bake (lit. this is baking).'

      b. ***nyi*-*wâ-nubo*-*na***   *nogo-i*   *sii*
          NMLZ-CAUS-die-NMLZ   POSS:UTEN-3AUG fish
          'their killing fish'

The formal similarity between the prefixed part of the action nominalisation circumfix and the bound noun *nye-/nyi-* 'manner' is striking. However, there are clear formal differences between the action nominalisation construction and the GBN construction. Firstly, the former includes a suffix -*na* which does not appear in the GBN constructions; it is assumed that the action nominalisation circumfix reflects Proto Oceanic *ni/<in>-V-an (Lynch, Ross and Crowley 2002: 61), cf. the parallel construction with *në*-V-*ngö* in Äiwoo's close relative Natügu (van den Berg and Boerger 2011). Secondly, the action nominalisation construction does not occur with aspect-mood prefixes or person markers, with the exception of the generic-agent prefix *li-/lu-* (14a), while a nongeneric actor is indicated by means of a possessive marker following the nominalised form (14b). Thirdly, while the GBN functions as an argument of the verb, and the verb takes the circumstantial voice marker if the argument is not subcategorised for, this is not the case for the action nominalisation construction. In (14b), the two arguments of *wânubo* 'kill' are represented by *nogoi* 'their' and *sii* 'fish' respectively, and no circumstantial voice marker appears on the verb; compare (15):

(15) ***nye*-*ku-wâ-nubo-lâ-i*=*lä***   *sii*
      way-IPFV-CAUS-die-out-3AUG=CV   fish
      'ways that they kill fish'

Here, too, the undergoer argument of *wânubo* 'kill' is represented by a noun following the GBN+verb, but the actor is represented by the person suffix *–i* 'they' rather than a possessive classifier; and the circumstantial voice marker appears because the 'manner' argument is not subcategorised for by the verb. *wânubo* on its own is an A-verb; the voice marker turns it into an O-verb, as seen by the appearance of the actor suffix, and casts *nye-* as the most prominent argument of the construction. No such argument-structure changes occur in the action nominalisation construction.

That is, in the great majority of cases the action nominalisation construction and GBN constructions with *nye-/nyi-* 'manner' are clearly formally and functionally distinct. There are examples where the distinction appears to be less clear-cut, and these need further investigation; but for the present purposes it suffices to note that canonical action nominalisations are clearly distinct from GBN constructions. Comparing the two, as noted above, the GBN constructions shows verbal features to an extent that the action nominalisation construction does not, including the appearance of aspect/mood-prefixes, person markers, and circumstantial voice markers; and this is unexpected from a typological perspective if the GBNs are to be analysed as participant nominalisations.

In general, the use of the GBNs with inflected verbs could be seen as an argument against a derivational analysis, given that derivation is generally assumed to apply before inflection and derivational affixes to occur closer to the root than inflectional affixes (Bybee 1985). Clausal nominalisation, where an entire clause is nominalised, is well attested and may involve inflection being retained on the verb, but such constructions are generally action rather than participant nominalisations (Comrie and Thompson 2007:376–377, Moyse-Faurie 2016). The bound noun constructions, then, pattern like participant nominalisations in certain respects, but also show properties that are atypical for such constructions.

The nominal nature of the GBNs could be taken as an indication that they are derivational prefixes that have grammaticalised from original independent nouns; the literature abounds with examples of original lexemes grammaticalising into what are synchronically considered derivational affixes. Apart from the fact that no diachronic data is available to identify a possible origin of the Äiwoo GBNs in independent noun lexemes, the bound nouns seem to differ from such examples in that they retain a broad noun-like distribution, whereas grammaticalised derivational affixes are typically quite

restricted in their distribution. As described in 2.3, the GBNs do not function simply to form nominal constructions from verbal ones, as one would expect from a canonical nominalising affix, but also combine with demonstratives and possessive markers; that is, they pattern in most respects like independent nouns, except for the fact that they do not occur on their own.

3.2 The compounding analysis

If the GBNs are to be considered noun roots rather than derivational affixes, a possible alternative analysis of forms like those described in 2.4, and possibly 2.5, is that they are noun-verb compounds.

It is in fact common for compounds in Äiwoo to involve nominal forms that are formally distinct from those found in independent usage. A large proportion of nouns in Äiwoo show an initial syllable *n*V-, which reflects the Proto Oceanic article *na (Lynch, Ross and Crowley 2002: 71). Typically (though not without exceptions), this accreted article is dropped when a noun appears as the first element of a compound:

(16)   a.   *nupo* 'net' + *nebi* 'bamboo' > *po-nebi* 'type of fishing net attached to
                                        bamboo sticks'
       b.   *nyengi* 'wind' + *bwää* 'open ocean' > *ngi-bwää* 'season of westerly
                                        winds'

Although the reduced forms of nouns most commonly occur in noun-noun compounds, noun-verb compounds are also possible, most commonly with stative verbs (cf. 2.4): *pobulou* 'long type of fishing net' (*eobulou* 'be long'), *pomobo* 'small type of fishing net which can be handled by one person alone' (*mobo* 'be short'). There are obvious parallels between these forms and e.g. *gilaki* 'boy' or *nyepolââ* 'world' described in 2.4 as being formed with bound nouns.

In some cases, there are further changes to the form of a noun occurring in a compound beyond the loss of the initial syllable; some examples are *nyibä* 'basket' > *be*, *nubââ* 'shark' > *bo*, *nyibälo* 'breadfruit' > *bulo*. This could be interpreted as indicating that a process of grammaticalisation is in progress, through which the nouns in question are developing into something like noun class markers or class terms (Grinevald 2000,

cf. Næss 2006). Note, however, that the reduced noun must still be understood as the head of these compounds, both on semantic grounds – e.g. *bo-opa* 'shark-be.white = great white shark' – and based on the fact that the compound forms are nouns even when the second element is not; cf. the discussion of classifiers in 3.4 below.

In these cases, however, there is a clear relationship between the forms found in compounds and the independent noun; as noted in 2.2 above, this is to a much lesser extent the case for the GBNs. Thus if compounds are taken to involve forms which also have an independent use, or at least a related independent equivalent (e.g. Olsen 2014: 33–34), analysing the GBN constructions as compounds is problematic.

There are differences, too, with respect to productivity and lexicalisation. The compounds are largely lexicalised terms for specific subclasses of the referent of the head noun. They may be able to extend productively to name new classes of objects, but they are not used creatively to denote individual entities; for example, if one wanted to say 'a small basket' it would be necessary to use the independent noun and say *nyibä laki* rather than *belaki. Note that this is not a restriction against the compound forms of nouns being used with verbs, as the examples given above shows; rather, it is an indication that the compounds are used to assign items to a class. By contrast, the GBNs are frequently used to refer to individual items in specific situations, as in (17):

(17) *Mo   kele   **de**-laki   enge   ki-la-wâ-ngo-le.*
      but   here   thing-small   DEM:PROX   IPFV-give-DIR:2-1AUG-UA
      'But this small thing here we will give you.'

Moreover, a compound analysis seems difficult to extend to the complex constructions described in 2.6, where the bound nouns combine with a clause including arguments and modifiers rather than with a verbal lexeme. It is not unheard of for compounds to involve inflected verbs (see e.g. examples from Hebrew in Bauer 2009: 347), and indeed the reduced forms of independent nouns, which we have assumed enter into compounds, also occur – although more rarely – with inflected verbs, e.g. *po-ki-langi* (net-IPFV-scoop) 'small square fishing net', *bo-ki-lolou* (shark-IPFV-rummage) 'thresher shark'. But a construction involving a bound noun modified by a clause, with

additional arguments and modifiers, appears to be more adequately described as a phrase.

3.3. The relative clause analysis

The closest parallel to the constructions exemplified in section 2.6 seems to be what is known as free or headless relative clauses, i.e. constructions like English *I found [what he had hidden in his sock drawer]*, where the relative clause *what he had hidden in his sock drawer* arguably lacks a domain nominal (i.e. a noun which is modified by the relative clause), with *what* functioning as a kind of relative pronoun (Andrews 2007: 213–214). The parallel is far from perfect, however, in the sense that the Äiwoo GBN constructions clearly do have domain nominals; it is just that these are bound forms rather than independent words.

How do the GBN constructions compare to relative clauses with independent noun heads? Äiwoo does not have a formal relativisation marker, or any kind of marker of syntactic subordination that occurs in relative clauses. The basic definition of a relative clause in Äiwoo is a purely functional one, i.e. a clause which serves to modify a noun:

(18) a. *Ba   i-pââsi-kä   [sime ki-li-mei]=gu=nâ.*
          NEG   PFV-notice.O-DIR:3 person IPFV-3AUG-sleep=NEG=DIST
          'The people who were sleeping didn't notice him.'

      b. *Go   [dowâlili   nâ-wowâi-i-le]*
          because   child   IRR-send.O-3AUG-UA
          lâ   ku-luwa-kä-i-le   go   sime.
          DEIC IPFV-take.O-DIR:3-3AUG-UA   from   person
          'Because the children who should have helped them (lit. that they should have sent [on errands]) they had adopted from [other] people.'

      c. *I-kapolâ-kä=to   ngâ   [nuumä   ku-wââ-kä*
          PFV-arrive-DIR:3=CS   LOC   village   IPFV-warn-DIR:3
          isä=nä]=nâ.

mother.3MIN=CV=DIST

'He arrived at the village his mother had warned him about.'

From this perspective, there is no difference between the relative clauses in (18) and the GBN constructions in (11–13), except that the heads of the GBN constructions are bound rather than free forms. The GBN constructions appear similar to what Citko (2004) refers to as "light-headed relatives" – that is, relative clauses which do have heads, but where the heads are elements that are "lighter" than full nominals, e.g. demonstratives or indefinite pronouns. The heads of the Äiwoo GBN constructions are of a somewhat different nature, but could still reasonably be considered lighter than independent nouns, in that they do not occur as independent words.

Epps (2012), on the other hand, argues that the distinction between headed and headless relatives, even allowing for an intermediate category of "light-headed" relatives, must be understood as a cline rather than a set of two or three clearly distinct categories. She shows that in the Nadahup language Hup, spoken in Brazil and Colombia, there are a range of different relative constructions where the domain nominal shows varying degrees of independence: it can be a full noun phrase, a bound noun, a classifying noun, a plural marker, or it can be absent altogether.

The GBN expressions in Äiwoo have significant properties in common with the Hup relatives with a classifying noun as head. The classifying nouns in Hup are bound forms which mostly derive from terms for plant parts (e.g. 'fruit', 'stick', 'seed'), but which have developed a classifying function in which nouns are classified according to their shape; for example, the 'fruit' noun functions as a classifier for round things, the 'stick' noun functions as a classifier for long, thin things, and has developed a further meaning of 'thing in general', etc. What makes the Hup classifying nouns similar to the Äiwoo GBNs is that they can occur in combination both with verb roots and with relative clauses:

(19)   Hup (Epps 2007: 117, 2012: 201)

    a.   *hɨʔ=teg*

        write=stick/long.thing

        'pencil'

b.　　*[ʔin cák-ap]=teg*

1PL climb-DEP=thing

'ladder (lit. 'thing we climb up')

c.　　*nup bóda=tat-ʔĕʔ,　　[núp d'ɔh-yǽt-æp]=tat*

this ball=fruit-PERF　this rot-lie-DEP=fruit

'This was a ball, [this rotting round thing lying here]

Moreover, the Hup forms commonly combine with demonstratives, enhancing the parallel with Äiwoo (Epps 2008: 241).

When the classifying nouns combine with a verb root, Epps analyses them as having a derivational function, producing an agent/instrument nominalisation 'thing that does V', 'thing for doing V'; compare the Äiwoo examples in section 2.4–5. Drawing the parallel to Hup, then, it might be feasible to analyse the constructions in 2.4–5 as nominalisations, while the ones in 2.6 are relative clauses, even though they involve the same morphemes.

There is, however, a significant difference between Hup and Äiwoo: Hup relative clauses are clearly marked as subordinate, with the suffix glossed as 'DEP' in the examples; as can be seen from (19a), the action/instrument nominalisations lack this morpheme, supporting the analysis of the two constructions as clearly distinct.

In Äiwoo, on the other hand, as described above, there is no such formal marker of subordination or relativisation. To the extent that there is a difference between nominalisation constructions and relative constructions involving GBNs, it is purely one of the complexity of the construction: the forms which consist of a GBN plus a verb root have more properties in common with participant nominalisations, whereas the forms involving whole clauses have more in common with relative clauses. There are thus no clear formal criteria for distinguishing nominalisations from relative clauses within the set of GBN constructions in Äiwoo.

Does this mean that all the GBN constructions should be analysed as relative clauses? This would include clearly lexicalised forms like *gilaki* 'boy' or *nyepolââ* 'world', as there are no formal grounds for distinguishing these from more complex forms like e.g. *nyekivaabe ipeboilenä nänyikâ* 'the place where their grandmother was beating coconut fibre' (11b). It also raises more general questions regarding the

distinction between words and phrases: A noun modified by a relative clause is a phrase, a unit normally understood to be headed by an independent word, whereas the heads of the Äiwoo GBN constructions are bound morphemes.

3.4. The classifier analysis

The parallels between Äiwoo GBNs and Hup classifying nouns noted in 3.3 above raises the question of whether the GBNs might be analysed as classifiers. It is not unusual for noun classifiers to also have nominalising functions, in the sense of being used to derive nominal expressions either from other nouns or from verbal forms, as illustrated e.g. by the Hup examples in (19). Grinevald and Seifart (2004: 255) point out that class prefixes in Niger-Congo languages can have "absolute" uses where they do not classify a noun, but appear to carry nominal meaning themselves, typically "general meanings such as 'person', 'thing', 'place', or 'manner'" (Grinevald and Seifart 2004: 255). They describe a parallel function of classifiers in the Witotoan language Miraña, where classifiers can combine with nouns or verbs to form new lexical items:

(20)   Tswana (Grinevald and Seifart 2004: 255)

    a.   *mo-ngwe*   /   *se-ngwe*

        CLF1-one   CLF7-one

        'someone'   'something'

    b.   *o-pe*   /   *se-pe*

        CLF1-not any   CLF7-not any

        'no one'   'nothing'

    c.   b-*a*   *motse* /   *ts-a*   *motse*

        CLF2-GEN   village   CLF8-GEN   village

        'villagers'   'things concerning the village'

(21)   Miraña (Grinevald and Seifart 2004: 267)

    a.   *ájßɛ-hpájko*   b.   *kúːhúgwa-hpájko*

        pain-CLF(LIQUID)   fire-CLF(LIQUID)

        'liquor'   'gasoline'

25

c.   *kaːnú-ko*   d.   *kaːnú-i*

to.pound.NMLZ-CLF(SHAFT)   to.pound.NMLZ-CLF(STICK)

'mortar'   'pestle'

Note, however, that in the Miranã examples based on verbs, the classifier itself does not have a nominalising function, but is added to a nominalised form of the verb; as such they differ from the Äiwoo GBN constructions.

For additional examples of classifiers used in a nominalising function, see Aikhenvald (2000: 221–222). Aikhenvald moreover notes that classifiers can be used to form relative clauses in a number of Amazonian languages. Again, though, in the example given, from the Eastern Tucanoan language Tuyuca, the verb that the classifier attaches to is nominalised; in other words the classifier alone does not produce a nominal from a verbal expression (Aikhenvald 2000: 93).

The distribution of the Äiwoo GBNs clearly shows parallels to the types of classifiers discussed above. However, they lack what I would consider the defining property of classifiers, namely a classifying function, in the sense of combining with other nouns to classify them, as opposed to strictly deriving nouns from non-nominal expressions. There is evidence that it is possible for the GBNs to combine with a lexical noun, but nearly all available examples involve *pe-* 'group of people' (*pe-singedâ* 'women'), which for precisely this reason was noted as deviant in 2.2 above. Further examples of the type *mi-singedâ* 'the one who is a woman, the female one' are difficult to conclusively establish as noun-noun constructions, as the noun *singedâ* 'woman, female' here seems to function as a predicate 'be female, be a woman'; predicative use of nouns is extremely common in Äiwoo. Cf. also examples like *mi-ki-sigiläi* one-IPFV-man 'the man, the male one', which includes an aspect prefix, and so clearly supports the analysis of *sigiläi* as a nominal predicate in this construction.

If the GBNs do not in any context function to classify nouns (again, with the possible exception of *pe-*), then categorising them as classifiers seems like an obvious misnomer. They share many of the secondary characteristics of established classifiers; note for example the clear parallels between the Tswana examples in (20) and the GBN constructions with stative verbs described for Äiwoo in 2.4. Recall that *nyigi* 'one', for example, is one of the stative verbs frequently occurring in this construction, yielding

meaning similar to those of the Tswana forms in (20a). The Tswana construction, however, involves "a word typically used as a modifier" where the classifier "is interpreted as referring to a particular noun" (Grinevald and Seifart 2004: 255). In a similar vein, van Linden and Rose (2017) suggest the ability to be the head of a complex form as one of the properties distinguishing classifiers from bound nouns in the Amazonian languages Harakmbut and Mojeño Trinitario; while bound nouns occur as heads, classifiers do not. In comparison with these languages, Äiwoo GBNs do not pattern like classifiers; they are always heads of their constructions, do not have a primary modifying function, and only rarely combine with nouns at all. It is clearly possible, then, for a classifier to also have nominalising functions; but for a form with no classifying function to be analysed as a classifier seems problematic.

4 The problem of bound lexical morphemes

4.1 Bound lexical morphemes as a general category

To summarise the discussion in the previous section, we have seen that the Äiwoo GBN constructions have properties in common with nominalising constructions, compounds, relative clauses, and classifier constructions, but deviate in certain respects from canonical instances of all of these. The GBN constructions are like participant nominalisations in that they form nominal expressions by means of a small set of bound morphemes with relatively general semantics and a fixed position in the complex form. Unlike canonical nominalisation constructions, however, they can include a great deal of inflection and other material such as argument NPs and modifiers. They show parallels to the Äiwoo N-N and N-V compounds, which also involve forms not found in isolation; but unlike these, the GBNs do not have corresponding and clearly related independent forms, and the compounds do not show the degree of internal complexity that is possible for GBN constructions. The GBN constructions resemble relative clauses in that they involve a nominal head modified by a verbal expression, where the latter can be highly complex and involve inflections, arguments, and modifiers; but unlike canonical relative clauses, their heads are bound elements. And they share many distributional properties with classifiers, but not their most central function, namely that of classifying another noun.

This analytical problem stems from the status of the GBNs as bound lexical morphemes. As noted in the introduction, the precise nature of the distinction between roots and affixes has been subject to considerable discussion in the literature. A range of criteria have been proposed as relevant to this distinction, including free vs bound status, obligatory presence in a word, lexical vs grammatical meaning, and remaining constant vs varying throughout a paradigm (Croft 2000, Lieber and Mugdan 2000, Mugdan 2015). Attempting to summarise the relevant characteristics, Croft (2000) states that "A root is generally defined as the part of an independent word from which all its various morphological forms are derived, and an affix is defined as a morpheme that cannot occur except in combination with a root".

By this definition, the Äiwoo GBNs cannot be clearly categorised as either roots or affixes. They don't form the basis for a coherent set of "morphological forms" formed by adding inflectional or derivational morphology, but neither is it clear that they only occur in combination with a root, given their occurrence with possessive classifiers and demonstratives. As we have seen above, other criteria such as lexical vs grammatical meaning do not provide a clear-cut picture either.

Crucially, the distinction between nominalisation, compounding, and relative clauses builds on the distinction between roots and affixes: a nominalisation construction is one that derives a noun by means of an affix, while a compound is formed from, minimally, roots, and a relative clause is formed by a clause modifying a nominal word, i.e. a (possibly inflected) root or stem. Bound lexical morphemes do not fit easily into this classification simply because they have properties similar both to those of canonical roots and canonical affixes, being semantically lexical but morphologically bound.

Such forms are commonly referred to in the literature as 'bound roots'; however, as I will argue that they are better understood as a class in their own right than as a type of "deviant" root, I will use the term 'bound lexical morpheme'.

If an analysis of the Äiwoo GBNs is to be based on their status as bound lexical morphemes, however, we need to consider exactly what this means. What are the characteristics that define bound lexical morphemes as opposed to other types of morphemes? While bound lexical morphemes are by no means ignored in the literature, few attempts have been made at examining them as a class and studying their

characteristic properties. On the contrary, or perhaps as a result of this lack of systematic attention, the term 'bound root' is used for a range of entities with rather different characteristics. This is obviously problematic, both because it leaves the precise range of the term unclear, but also because the term appears to serve as a convenient "wastebasket" for anything that does not fit neatly into the root-affix distinction. This is unfortunate because it propagates an impression that anything that falls outside of this distinction is marginal and unusual, while I suspect that the opposite is the case if we look at the range of structural variation found in the world's languages.

Bound lexical morphemes can be of a variety of lexical classes, and examining all possible types is beyond the scope of this paper. I will focus here on bound nouns, and suggest some parameters for classifying these from a crosslinguistic perspective; subsequently, I will examine in more detail at how the Äiwoo GBN constructions place themselves within this picture, and how other types of bound nouns in the language can be analysed on the basis of the types suggested.

4.2. A preliminary typology of bound nouns

In this section, I will give a brief overview of types of bound nouns described in the literature. This overview is not the result of any kind of systematic survey, but simply includes instances that I have come across in the literature of the term 'bound root' – which is the more commonly used term for what I am calling bound lexical morphemes – being used with reference to a form with nominal characteristics. While comparing categories based on the terms used for them by different analysts of different languages is of course methodologically problematic (see e.g. Stassen 2011), the category 'bound lexical morpheme' is better suited to such comparison than most in that it is defined largely in terms of formal and language-independent properties, i.e. the property of being morphologically bound while at the same time having properties typically ascribed to roots, such as lexical reference. I should emphasise, however, that the goal of this discussion is not to propose a definitive typological survey of bound nouns, but simply to identify some parameters of variation which can provide a starting-point for a more systematic study in future; my focus here is on placing the Äiwoo data within a broader crosslinguistic context.

Even from such a limited examination, however, it is clear that the term 'bound noun (root)' is being applied to forms with very different morphosyntactic properties. I will attempt to identify the key formal properties of different types of bound nouns and to classify them accordingly.

A. OBLIGATORILY INFLECTED NOUNS

The term 'bound root' is applied to nominal forms which do not occur without inflectional morphology e.g. by Whaley (1997: 114), who uses the example of Greek nouns which do not occur without a case suffix. Another example is the so-called directly possessed nouns in Oceanic languages, which require affixal possessive marking (Lynch, Ross and Crowley 2002: 37), as well as inalienably possessed nouns in various other languages (see e.g. Epps 2008: 234ff for Hup).

B. OBLIGATORILY MODIFIED NOUNS

The Äiwoo GBNs are bound in the sense of functioning as heads of their constructions, but requiring a modifier. In Äiwoo, there are no apparent restrictions with respect to the type of modifier these nouns can take – possessives, demonstratives, verbs or clauses, even prepositional phrases or other nouns – but they cannot occur without a modifying element. Noun modifiers in Äiwoo are consistently postnominal[10], which accounts for the prefix-like properties of the GBNs – they occur in the head position of the complex construction, which happens to be the initial position.

As modifiers of nouns can be of a range of different types, there is obvious scope for variation here in the types of modifiers permitted – a bound noun might take the full range of modifiers available to nouns in a given language, or only a subset of them. If the modifier is required to be another noun, there are clear parallels between this and the obligatorily compounding type to be discussed below.

C. OBLIGATORILY COMPOUNDING NOUNS

Another use of the term 'bound root' is to refer to morphemes which only occur in complex forms, but which may differ from affixes in being able to occur in different positions within the complex form. Typically, these complex forms are analysed as compounds, and so this class might be termed obligatorily compounding nouns.

---

[10] With the exception of a very small set of prenominal modifiers, including the adjectives *nyibengä* 'huge' and *nuwola* 'old' and the deictics *kele* 'here, this' and *kâlâ* 'there, this'.

Examples of such forms include certain morphemes found in Neoclassical compounds in English (e.g. *graph* as in *photo-graph* vs *graph-ology*), as well as so-called root compounds in Mandarin Chinese (Pirani 2008).

The defining characteristic of this type is the ability of the bound morpheme to occur either as head or as modifier in a complex form with another lexical morpheme. Possible sources of variation within the type, or of overlap between it and other types, include whether the other element of the compound is also a bound form, in which case this type may have more in common with the obligatorily inflected nouns; and what, if any, restrictions exist on the syntactic type of the other element. In the prototypical case, this element is also nominal in nature. If other options exist, e.g. if it can be a verb, the construction gains properties more similar to other types: if the bound noun is the head, it overlaps with obligatorily modified nouns, whereas if it is not, it has more in common with the incorporated nouns, to be discussed below.

D. OBLIGATORILY MODIFYING NOUNS

Nominal classifiers are bound forms with lexical content, and as such could be understood as a type of bound nouns; indeed, Aikhenvald (2000: 85–86) discusses the difficulties in distinguishing between classifiers and generic nouns in compound constructions in many languages, and notes (p. 91) that in some languages classifiers are a subclass of nouns. Epps (2012) describes how a number of "syntactically bound nouns" in Hup have classifying functions, and Aikhenvald (2000: 85) notes that there are languages where "almost any generic noun can be used as a classifier", suggesting that classifiers are a subclass of nominal lexeme; in general, one of the most common diachronic sources for classifiers are lexical nouns (Aikhenvald 2000: 353). As such, classifiers could be understood as nominal forms which have an obligatorily modifying function – that is, they are only, or mainly, used to modify (classify) another noun. Such an analysis naturally accounts for the occasional "absolute" use of classifiers: as nominal lexemes they have not entirely lost their ability to function as nominal heads.

E. INCORPORATED NOUNS

Bound nominal forms can be found filling an argument position in a verbal construction, in which case they are typically analysed as incorporated, since, being bound, they do not form independent argument NPs but rather combine with the verb root into a single

complex form. Such constructions are described for many North American languages (see e.g. Mithun 1999, DeLancey 1999).

Note that I am not proposing that all instances of incorporation involve bound nouns. For example, the Oceanic language Kosraean (Kusaiean) can incorporate a noun into a formally intransitive verb construction where any affixes follow the verb-noun unit:

(22)   Kosraean (Sugita 1973: 399)

ŋa   owo   nuknuk-lœ

1SG   wash   clothes-COMP

'I finished washing clothes.'

Kosraean *nuknuk* 'clothes' is not a bound noun; it takes the same form in contexts where it is not incorporated. When I speak of incorporation as involving bound lexical morphemes, I am referring to cases like e.g. Mohawk, where noun roots mostly do not occur as independent words; they must either be incorporated or take additional morphology in order to function independently. Thus *-tsi'tsi-* 'flower' can be incorporated, but not used as an independent noun; in the latter function we find the form *o-tsì:si-a'* 'NEUTER-flower-NOUN.SUFFIX' (Mithun and Corbett 1999: 51–52). Incorporation, then, is one type of construction in which bound nouns can occur, but it does not as such define the nominal lexeme in question as bound, any more than compounding does (cf. type C).

The extent to which this type is distinct from type C is to some extent dependent on whether incorporation is considered to be a verb-argument construction or a form of noun-verb compounding (Mithun 1984, 1986, Sadock 1986). While the status of incorporated nouns as syntactic arguments of their verbs has been debated, there is clearly a thematic relation between noun and verb: for example, in a form like *berry-picking* the noun *berry* serves to identify which kind of entity is being picked, and so specifies the type, if not the individual referent, of the verb's theme argument. It is in this broad sense that I refer to incorporated nouns as being arguments of a verb. For the present purposes, the salient point is that an incorporated noun stands in some type of dependent relation to the verb; it cannot be the head of the construction. In this sense, it

is distinct from type C, which was taken to involve forms that might potentially be either heads or modifiers in a compound construction. It does, however, have obvious affinities with the obligatorily modifying nouns, differing mainly in that the latter were taken to modify other nouns whereas incorporated nouns "modify" a verb.

Based on this overview, two main parameters of variation emerge within the previously undifferentiated class of bound nouns. The first is the head-modifier parameter: whether a bound noun functions as the head or modifier in the complex form within which it occurs. The fact that some bound nouns can occur in either position in a complex form suggests that it may be fruitful to see this parameter as having three possible values, namely 'head', 'modifier', and 'either'. If it is seen as a binary parameter, then the nouns discussed under type C above would need to be viewed as falling into two classes simultaneously: one where the bound noun is the head of the complex form, another where it is the modifier.

The second parameter is the type of element that the bound noun combines with. This is a highly complex parameter: it pertains to both the flexibility of type, i.e. whether the bound noun can combine with a range of different type of elements, or just one or a few types, and, in the latter case, what the type is. The latter in turn will be restricted by the types of elements which are available to modify a noun, or be modified by it, in any individual language.

Given this complexity, it is not clear that combining these two parameters translates into anything like a well-defined set of types. The discussion above, which simply extrapolated from examples of bound nouns referred to in the literature, showed that there are a number of ways in which what I have set out as distinct types may be taken to overlap. Moreover, additional parameters may be of relevance in individual languages, as will be discussed in section 5.

Nevertheless, the classification as it stands suggests a cline of relative morphosyntactic and referential independence, though the interrelations between the categories are more complex than simply adjacent points on a scale. The obligatorily inflected nouns have individual reference and pattern like non-bound nouns in all respects except for the obligatory presence of an inflectional element. The obligatorily modifying nouns have lost their ability to function as heads and to have independent reference, occurring only as modifiers of another nominal element. Something similar

could be said of the incorporated nouns, which similarly serve as modifiers to another lexical morpheme (in a broad sense of 'modifier' as including predicate-argument relations) and typically have a fairly general semantics, functioning to narrow down the meaning of a verb and "indicate the general involvement of a kind of entity" (Mithun 1999: 54) rather than referring to an independent entity. This could be interpreted as a classifier-like function, in that the nominal forms refer to a class rather than an individual.

These types could thus be seen as defining the borders of this functional space, with the most morphologically and referentially independent forms at one end and the least independent at the other. In between we find obligatorily modified nouns, which remain heads of their constructions, but must be modified by an element providing some sort of further semantic specification; and obligatorily compounding nouns, which differ from the obligatorily modified nouns in that they are not necessarily heads of their constructions, although they can be. As such they might be said to sit between obligatorily modified nouns, which are always heads, and classifiers, which are predominantly modifiers.

The surveyed types and their characteristic properties are summarised in Table 2 below.

Table 2. Types of bound noun and their defining properties

	A: Obligatorily inflected	B: Obligatorily modified	C: Obligatorily compounding	D: Obligatorily modifying	E: Argument of verb (incorporated)
Head/modifier	Head	Head	Head/modifier	Modifier	Modifier
Type of second element	Inflectional affix	Varying	Root - free or bound - different syntactic classes	Noun	Verb

This is not to suggest that this is the only possible way to classify bound nouns, or that the suggested parameters are the only ones relevant within this functional space; in 5.4 below I will reexamine the analysis in light of the Äiwoo data and suggest a somewhat revised formulation. The notion of referential independence – whether a bound nouns can be employed to refer to individuals vs. to classes – was referred to in the discussion above and is clearly relevant, as seen for example in the quote about incorporated nouns indicating "the general involvement of a kind of entity". However, while one may

assume a general crosslinguistic tendency towards a greater degree of referential independence at the left-hand end of Table 2 and a lower degree of referential independence towards the right-hand end, much more detailed crosslinguistic data is required to determine the degree to which there is a correlation between the formal properties laid out in Table 2 and referential properties of bound nouns across languages.

Something similar can be said about phonological independence, which is clearly also a relevant parameter of variation within the class of bound nouns. However, the extent to which degrees of phonological independence correlate with morphosyntactically defined types such as those suggested above is an empirical question which can only be answered by careful examination of a large number of languages; moreover, the properties defining phonological independence may differ across languages (e.g. stress, syllable structure, etc.), making comparison a complex matter. The characteristics included in Table 2 are thus restricted to formal parameters that are relatively easy to identify across languages.

The properties discussed above were extrapolated from discussions of bound nouns in the literature, in an attempt to identify what the characteristic properties of bound nouns may be. The intermediate conclusion that emerges is that this is a complex concept, with formal variation seen to range along a rough scale that involves different combinatorial properties and different degrees of morphological independence. In the next section I will apply the distinctions made above, in terms of the parameters of headedness and type of second element, to the GBN constructions in Äiwoo, to determine to what extent they can provide a basis for a more precise analysis of GBNs in Äiwoo "on their own terms", i.e. as part of a system of bound lexical items with different functional and distributional properties.

5 Äiwoo bound nouns revisited

While the Äiwoo GBNs presented in 2.2 are the most complex in terms of distribution and analysis, they are not the only forms in the language which can be classified as bound nouns according to the parameters set out above. In this section I will look at the different types of bound nouns found in the language in the light of the classification given above, with a view to determining both how the GBNs fit into the larger picture of bound nouns in Äiwoo, and what characteristic properties of this particular type of

bound noun leads to the affinities with other types of forms such as nominalisers, relative clauses and classifiers, as discussed above.

5.1 Directly possessed nouns

In addition to the type B forms we have been examining so far, Äiwoo has type A bound nouns in the form of directly possessed nouns, that is, nouns which do not occur without possessive marking. As noted in 4.2, this is a common phenomenon in Oceanic languages; in Äiwoo, as in other Oceanic languages, the class of directly possessed nouns consists largely of kinship terms and body-part terms, as shown in examples (23–24):

(23) a. *tumo*   b. *tumo-mu*   c. *tumwä*

father.1MIN   father-2MIN   father.3MIN

'my father'   'your father'   'his/her father'

(24) a. *nyime*   b. *nyime-mu*   c. *nyimä*

hand.1MIN   hand-2MIN   hand.3MIN

'my hand'   'your hand'   'his/her hand'

As can be seen from (23–24), most directly possessed nouns in Äiwoo have two distinct stems, one which in the absence of suffixes indicates the 1st person minimal (*tumo, nyime*) and one which in the absence of suffixes indicates the 3rd person minimal (*tumwä, nyimä*); the other person/number forms are then formed by adding suffixes to these stems. The parameter of phonological independence, which will be of relevance of the discussion to some of the other bound noun types below, is somewhat complex for these forms, since the stems cannot be separated from their person endings and as such could be argued to have a low degree of independence. However, by other criteria the phonological independence of these forms is relatively high; they can take primary stress, and can consist of multiple syllables. As such, their degree of phonological independence might be said to be intermediate.

Note also that, unlike in some other Oceanic languages, directly possessed nouns require person marking even when combining with another noun referring to the

possessor. That is, for example, 'the woman's father' would be *tumwä singedâ*, with the 3MIN form of 'father'; there is no unmarked form of such nouns.

5.2 Plant-part and body-part nouns

The class of obligatorily modified nouns in Äiwoo is larger than the forms that have been discussed so far. Not all body-part terms in Äiwoo are directly possessed, and those which are not mostly cooccur obligatorily with another noun referring either to the larger body part to which they are attached, or to the body as a whole. In a parallel fashion, nouns referring to parts of trees and plants are mostly required to cooccur with either *nyenaa* 'tree' or the noun for the type of tree or plant that the part is ascribed to. Perhaps the most striking example of a bound noun of this type is *läge* 'skin, bark, shell', the exact English translation of which depends on the cooccurring noun:

(25) a. *läge*   *nyisi*   b. *läge*   *nyenaa*
          covering   body.1MIN   covering   tree
          'my skin'   'bark'

      c. *läge*   *päbu*
          covering   clam
          'clam shell'

Other body-part terms which pattern in this way include e.g *nyiluu* 'hair, feather' (*nyiluu nuwotaau* 'my hair, lit. hair my head') and *nagago* 'digit' (*nagago nyime* 'my finger, lit. digit my hand'), while plant-part nouns include e.g. *nula* 'branch' (*nula nyenaa* 'branch, lit. branch tree'), *nuwa* 'fruit, seed' (*nuwa nyenaa* 'fruit, lit. fruit tree'), *nupa* 'flower' (*nupa nyenaa* 'flower in general, lit. flower tree', *nupa negi* 'hibiscus flower'). It is worth noting that plant-part terms are also among the obligatorily bound nouns in Hup (Epps 2008: 246–250), and that other Oceanic languages show similar patterns; for example, the class that Early (ms.) calls "construct bound non-locational nouns" consists almost entirely of plant-part nouns (Early, ms. p. 126–127).

These nouns share with the GBNs the inability to occur without a modifying element. On the other hand, they also differ in a number of respects. Firstly, they are more phonologically independent; while the GBNs are consistently monosyllabic and

monomoraic, the body-part and plant-part terms are phonologically identical to independent lexical items, in that they generally consist of two or more syllables, and indeed typically include the accreted article found on the majority of nouns in Äiwoo (cf. 3.2). Primary stress, on the other hand, generally falls on the second part of the complex form, consistent with the general pattern of penultimate stress found in the language.

Secondly, the range of modifiers that the body-part and plant-part nouns occur with is much more restricted; they require a nominal modifier, and cannot be directly modified by a verbal expression, as is the norm for the GBNs. Nor do they combine directly with a demonstrative (N 2006: 273). Thus they share properties both of type C, obligatorily compounding nouns, and type B, obligatorily modified nouns: they can only take modifiers of a particular syntactic type, which is more characteristic of type C, but like type B they can only be heads of their constructions.

5.3 Reduced compound forms

The reduced compound forms of nouns discussed in 3.2 similarly have properties in common both with what I have called obligatorily compounding nouns and with obligatorily modified nouns. While it is typically only the initial noun in a compound that loses its initial accreted article, there are sporadic examples of this happening to the final noun in the compound, as in *uliegago* 'type of pana (lesser yam)' where the second element is likely *nagago* 'finger, toe', cf. *gago laki* 'little finger', *gago eolo* 'thumb'. That is, compound forms of nouns are typically modified by another element, but in some cases they can also occur as modifiers of another noun.

Moreover, as shown in 3.2, it is possible for the reduced nouns to be modified directly by a verbal expression, though not by a demonstrative or a possessive; that is, the reduced nouns have a greater degree of combinatorial freedom than the body-part and plant-part nouns, which only combine with another noun, but are nevertheless more restricted than the GBNs, which can, in principle, be modified by anything that can modify an independent noun. This can in turn be linked to their lower degree of referential independence. Compound forms of nouns can refer only to classes, rather than to individual entities (cf. 3.2), and as such they cannot take possessive or demonstrative modifiers, as these require reference to an individual entity. In other words, the compound forms of nouns are referentially more similar to type D bound

nouns, i.e. classifiers, than to the GBNs. This is the basis for Næss (2006: 284) referring to these forms as "class prefixes", though the approach taken in the present paper offers a more nuanced understanding of their function and properties.

While these compound forms often consist of a single syllable (e.g. *nyibä* 'basket' > *be*, *nupo* 'net' > *po*), they can be di- or even trisyllabic, as in *nulie* 'pana, lesser yam > *ulie*; as such, they might be considered to be more phonologically independent than the GBNs. On the other hand, it was noted in 3.2 that the compound form of a noun is not always identical to the independent form minus the initial syllable, and that the compound form may be further reduced. On formal grounds alone, the distinction in Äiwoo between what I have called generic bound nouns and compound forms of independent nouns may not be entirely clear-cut. For example, *nuwoi* 'fresh water, drinkable liquid' has the reduced form *u-*, which seems only to occur in the term for 'stream, river', where it is modified by an inflected verb (*u-ki-pe* water-IPFV-go 'running water') and in toponyms for freshwater sources where it may combine with a possessive classifier (*u-numwä Saa* water-POSS:DRINK.3MIN Saa 'Saa's Water'); this distribution is clearly reminiscent of that described for the GBNs in section 2.

5.4 Revisiting the parameters

In the above discussion, the different kinds of bound nouns in Äiwoo were discussed in terms of the types presented in 4.2. As previously noted, these types were not based on any systematic typological survey, but simply on an attempt at identifying the characteristic properties of different types of forms which have been referred to in the literature as bound roots. As such, the attempt at applying them to the forms found in Äiwoo can be viewed as a test of their applicability as categories of analysis: How well do the properties of different classes of bound nouns in Äiwoo match these types?

Not unexpectedly, we find more variation towards the middle of the cline laid out in Table 2. The directly possessed nouns fall neatly into type A, obligatorily inflected nouns. Since type B was set up as a way of describing the characteristics of what I have called bound nouns in Äiwoo, it is not surprising that these forms also match the type perfectly. The other two classes of Äiwoo bound nouns, on the other hand, to some extent straddle different types: the body-part and plant-part nouns have properties in common with both type B and type C, whereas the reduced compound

forms of nouns are like type C in that they occur only in compounds, and show some degree of flexibility in their status as heads or modifiers; but as heads they allow a larger range of modifier types than the body-part and plant-part nouns. It would seem that the line between type B and C is not a sharp one, and this is not surprising, given the flexibility inherent in the descriptions of both these types, where a type B noun might take only a particular type of modifier or a range of different types, and the defining property of type C being precisely variability on the parameter of head vs. modifier.

It follows that some of the types presented in 4.2 allow for a considerable degree of internal variation. The GBNs and the body-part and plant-part nouns both fall into type B in that they are heads which require a modifier; but they differ considerably in what kinds of modifier they allow, and subsequently in the complexity of the resulting complex form.

This internal variability increases when the additional parameter of phonological independence is taken into account. While the GBNs are monosyllabic and monomoraic, and so from a phonological perspective more like affixes, the body and plant-part nouns are phonologically identical to independent nouns. In turn, the compound forms of nouns vary greatly both in their phonological form as such – attested forms vary from one to three syllables – and in their degree of phonological reduction relative to the corresponding independent noun.

Table 3. Properties of bound nouns in Äiwoo

	Type	Head or modifier	Type of second element	Phonological independence
Directly poss'd nouns	A	Head	Possessive suffix	Intermediate
Body and plant parts	B	Head	(some) N	High
GBNs	B	Head	Unrestricted	Low
Compound forms	C	Head (modifier)	N or V	Variable

As can be seen from Table 3, the bound nouns in Äiwoo are all heads of their constructions, with the reservation that the compound forms of nouns may also

functions as modifiers, though this appears to be rare. The difference between them is thus largely in their degree of combinatorial freedom, i.e. the range of forms they may combine with. This is lowest for the directly possessed nouns, which may only combine with a small, closed set of possessive suffixes. It is higher for the body-part and plant-part nouns, which may combine with a range of lexical nouns, although the set still appears to be restricted to terms for the human body or body parts, trees and plants. The compound forms of nouns may combine with nouns or verbs, with no obvious restrictions, while the GBNs have the highest degree of combinatorial freedom, occurring with any type of element which may function as a nominal modifier. This ranking in terms of combinatorial freedom cross-cuts the classes discussed above, in that the compound forms, which were categorised as type C, is intermediate between two sets of type B forms, the body and plant part nouns and the GBNs.

The degree of combinatorial freedom can be seen as a rephrasing of the parameter 'type of second element' that was used in the preliminary typological overview in 4.2, subsuming both the range and type of the elements that the bound noun roots may combine with. It depends to some extent on the head/modifier parameter, as modifiers are typically restricted to combining with certain classes of heads, while heads can be expected to be able to combine with a range of different elements. Given that all bound nouns in Äiwoo occur primarily as heads, the range of possibilities for bound nouns which occur as modifiers cannot be explored in the present context. We see, however, that for heads, the range of combinatorial possibilities goes from very restricted at one end, allowing a particular type of inflectional affix only, to very open at the other end, combining with any type of element that can occur as modifiers to nouns. These two parameters, then – the head/modifier parameter and the degree of combinatorial freedom – provide a nuanced tool to distinguish between different types of bound nouns both within a single language and crosslinguistically.

A parameter which was referred to in the preceding discussion but not listed in the table was that of referential independence. Although it is clear that there are differences in referential independence between the Äiwoo forms, as shown in the discussion of GBNs vs. compound forms of nouns in 3.2, it is not obvious that these differences correlate systematically either with the overall types of bound noun listed in 4.2, or with the classes proposed for Äiwoo. For the body part and plant-part nouns, it

seems clear that a form like *nugo* 'leaf' patterns like the compound forms in referring to a class of entities – *nugo nenu* 'coconut leaf', *nugo lobu* 'koilo leaf', *nugo nââ* 'sago leaf' are all types of *nugo,* just as e.g. *ponebi, pobulou, pokilangi* are types of *nupo* 'net'. On the other hand, e.g. *nabisi nyime* 'my fingernail' and *nabisi nyike* 'my toenail' do not refer so much to different types of *nabisi* 'nail, claw' but rather function to anchor a specific referent within a part-whole relation (Koptjevskaja-Tamm 2004), and as such have a higher degree of referential independence. In other words, within a single formally defined class there are clear differences in referential independence. As with many functional distinctions relevant to language, it may be easier to identify opposing endpoints than to draw a clear border in the middle, and indeed the relevance of the distinction may vary both between languages and between formally defined classes within a language.

To summarise, bound nouns in Äiwoo are largely distinguished by their degree of combinatorial freedom, as well as to some extent by their phonological independence, as some types are monosyllabic and affix-like and others are more similar to independent nouns in their ability to consist of more than one syllable and to take stress like an independent word. They are to a much lesser extent distinguished by the head-modifier parameter, since all types occur primarily or exclusively as heads, though the compound forms of nouns can occasionally function as modifiers. In the next section, I will consider how the properties of GBNs, as defined by these parameters, can account for the problems of classification discussed in section 3.

5.5 An account of the GBNs

Above I suggested that from a crosslinguistic perspective, the properties of bound nouns can be usefully described in terms of the head/modifier parameter and the degree of combinatorial freedom. An analysis in terms of these parameters, in combination with the more language-specific properties of referential and phonological independence, allows us to pinpoint more precisely the properties of the Äiwoo GBNs discussed in sections 2–3 which make them difficult to classify in terms of traditional notions such as nominalisation, compounding, etc. What appears to be unusual about the Äiwoo GBNs is a particular combination of properties: a bound, referentially independent head which has a high degree of combinatorial freedom and a low degree of phonological

independence. The fact that these are bound forms, with a low degree of phonological independence, which are nevertheless referentially independent, goes a long way towards accounting for the parallels to nominalising prefixes, since the low phonological independence means that the forms are prefix-like and the high referential independence means that they refer to individual entities rather than classifying other nouns. The high degree of combinatorial freedom in turn accounts for the fact that the complex forms appear to range on a cline from more word-like to more relative clause-like, depending on the complexity of the modifying element. In turn, the analysis shows how the GBNs relate to other bound noun types of the language, in particular the reduced compound forms, which differ from GBNs in terms of referential independence, with the compound forms referring to classes rather than individuals; degree of combinatorial freedom, which is higher for the GBNs than the compound forms, although both score higher than one would expect for a canonical affix; and to some extent phonological independence, in that the compound forms are typically more phonologically independent than the bound nouns, although they show a considerable degree of class-internal variation.

5.6 The categories 'root' and 'affix'

As noted in the introduction, the distinction between roots and affixes is central to our understanding of morphological processes, yet their precise definition continues to be subject to debate. What many of the definitions have in common, though, is that while being bound is a crucial part of the definition of an affix, being morphologically and phonologically independent is not in the same way a necessary criterion for being a root. Independent morphemes with lexical content are certainly roots, but – as should be abundantly clear from the above discussion – not all roots are independent forms. In the words of Mugdan (2015: 256), "[it] is ... more accurate to speak of **potentially free** and **obligatorily bound**".

This definitional asymmetry suggests that the domain of bound forms is considerably more complex than what can be captured by a simple division into roots and affixes. I have argued above that the division of our analytical apparatus into processes applying to roots and processes applying to affixes is an oversimplification which obscures the actual range of constructions found in language. While my examples

have come from a single language, there is no reason to assume that Äiwoo is unique in this respect, and so a better understanding of the actual word-formation processes found in human language requires a more flexible framework.

What I have proposed above, then, amounts to an analytical framework for a more nuanced approach to **bound morphemes** as a class. Extending this to include affixes seems fairly straightforward; in terms of the parameters discussed above, canonical affixes would have a low degree of both phonological and referential independence, and be highly restricted in their distribution, combining with forms of one lexical category only. The headedness parameter might be relevant here in the sense that some morphological theories consider derivational affixes to be heads of their words (see e.g. Spencer 2000: 319–320 and references therein).

My concern is not so much with revising or improving the definition of roots vs. affixes as such, as from the current perspective I believe this is the wrong question to ask. My aim with this paper has been precisely to provide an analysis of various types of bound nominal forms which does not depend on defining them as more or less "root-like" or "affix-like", but rather describes their characteristic distributional and referential properties and allows for relevant distinctions between different classes of forms to be drawn in a principled way. How these characteristics relate to the traditional concept of a 'root' is a complex question. Part of the issue is the common assumption of a direct link between semantic content and morphological class, in the sense that 'lexical meaning' is associated with independent morphemes (i.e. canonical 'roots') and 'grammatical meaning' with dependent morphemes (i.e. affixes), which makes it difficult to untangle which types of meanings are actually expressed by which types of morphemes crosslinguistically; moreover, there is a risk of circularity in that which meanings get classified as 'lexical' vs. 'grammatical' might to some extent depend on whether they are encoded as roots or affixes (cf. the discussion in Croft 2000: 258). And while it is generally recognised that there are cases where grammatical meanings are expressed by independent forms (e.g. Bybee's (1985: 12) continuum of expression types that includes free grammatical forms as well as lexical, derivational, inflectional and syntactic expression), much less attention has been paid to cases of the opposite relationship, i.e. where arguably lexical meanings are expressed by bound forms. While such cases are rare in European languages, and have therefore been treated as

exceptional, crosslinguistic phenomena such as classifiers, the "lexical affixes" found in many North American languages, or the bound nouns in Äiwoo and other Oceanic languages, suggest that this is not an adequate approach for language in general. Until we have an accurate picture of how different types of meaning correlate with morpheme types from a broad crosslinguistic perspective, and can identify the formal and functional parameters that characterise the variation, I would argue that a precise definition of the concept 'root' is going to remain elusive.

6 Conclusion

In this paper, I have discussed the properties of a small set of bound nouns in Äiwoo and how they can best be analysed in terms that both do justice to the complexities of the individual system and maximise comparability with other languages. I have argued that the problems in analysing them in terms of well-established categories such as nominalisers, compounds, relative clauses or classifiers stem from the fact that these are categories which build on the distinction between roots and affixes, and that bound roots do not conform to this distinction and therefore do not fall clearly into any of the traditional categories.

An accurate account of the Äiwoo facts requires a nuanced account of the concept of a bound lexical morpheme, a concept which has received little systematic attention in linguistic literature. Within the Äiwoo nominal lexicon alone, there is a range of bound forms with differing distributional and referential properties. That is, within the overall category of bound morphemes, we find a range of entities with a variety of properties even in this single language, and clearly the same is the case in many other languages, as shown e.g. by the detailed discussion of the various types of bound nouns in Hup in Epps (2008, 2012). From a crosslinguistic perspective, it is clear that an analytical apparatus is required which can account for this variation in a principled way. This requires viewing the categories of 'root' and 'affix' as just two options among many, recognising the range of variation found beyond these two options as no less representative of linguistic structure in general than forms which happen to fall neatly into these two categories, and systematically examining the formal properties of entities within this range rather than writing them off as marginal exceptions.

The discussion in this paper has pointed to some properties which may function as a starting-point for such a systematic examination: bound nouns differ in whether they are heads or modifiers of their construction, and in their degree of combinatorial freedom; more specifically in the type and range of other forms that they may combine with. Given that a defining criterion of bound lexical morphemes is precisely that they are bound, i.e. obligatorily found in combination with some other linguistic unit, its precise relation to this other unit, both in terms of headedness and in terms of selection criteria, provides a fruitful starting-point for mapping the properties which distinguish bound lexical morphemes from independent roots and affixes on the one hand, and different types of bound lexical morphemes from each other on the other.

This paper has focused on accounting for the properties of one particular type of bound lexical morpheme in one particular language, and has shown that an approach in terms of the distributional and referential properties which define them **qua bound lexical forms** is able to account systematically for the behavioural patterns which appear to fall between several types of better-established analytical categories. In due course, detailed studies of bound lexical morphemes in other languages may confirm or reject this approach as valid from a broader crosslinguistic perspective, and will certainly be able to refine and improve on the criteria employed here. By analysing bound lexical morphemes on their own terms and focusing on their characteristic properties rather than on how they deviate from better-studied morpheme types, linguistic theory can get beyond the concepts of 'root' and 'affix' to a more nuanced understanding of morpheme types and word-formation across languages.

References

Aikhenvald, Alexandra Y. 2000. *Classifiers: a typology of noun categorization devices.* Oxford: Oxford University Press.

Andrews, Avery D. 2007. Relative clauses. In Timothy Shopen (ed.), *Language typology and syntactic description*, 2nd edition. *Volume II: Complex constructions,* 206–236. Cambridge: Cambridge University Press.

Baker, Mark C., and Nadya Vinokurova. 2009. On agent nominalizations and why they are not like event nominalizations. *Language* 85:3, 517–556.

Bauer, Laurie. 2009. Typology of compounds. In Rochelle Lieber and Pavol Štekauer (eds.), *The Oxford Handbook of Compounding*, 343–356. Oxford: Oxford University Press.

Bickel, Balthasar. 2010. Capturing particulars and universals in clause linkage: a multivariate analysis. In Isabelle Bril (ed.), *Clause-hierarchy and clause-linking: the syntax and pragmatics interface*, 51–101. Amsterdam: John Benjamins.

Bickel, Balthasar. 2011. Multivariate typology and field linguistics: a case study on detransitivization in Kiranti (Sino-Tibetan). In Peter K. Austin, Oliver Bond, David Nathan, and Lutz Marten (eds.), *Proceedings of the Conference on Language Documentation and Linguistics Theory* 3, 3–13. London: SOAS.

Booij, Geert E., Christian Lehmann and Joachim Mugdan (eds.) 2000. *Morphology: an international handbook on inflection and word-formation, Volume I*. Berlin/New York: Walter de Gruyter.

Bresnan, Joan. 1997. Mixed categories as head sharing constructions. In Miriam Butt and Tracy Holloway King (eds.), *Proceedings of the LFG97 Conference, University of California, San Diego*. Stanford: CSLI Publications. Accessed online:
http://web.stanford.edu/group/cslipublications/cslipublications/LFG/LFG2-1997/lfg97bresnan.pdf

Bril, Isabelle. 2002. *Le nêlêmwa (Nouvelle-Calédonie): Analyse syntaxique et sémantique*. Paris: SELAF/Peeters.

Bril, Isabelle. 2013. Ownership, part-whole, and other possessive-associative relations in Nêlêmwa (New Caledonia). In Alexandra Y. Aikhenvald and R.M.W Dixon (eds.), *Possession and ownership*, 65–89. Oxford: Oxford University Press.

Bybee, Joan. 1985. *Morphology: a study of the relation between meaning and form*. Amsterdam: John Benjamins.

Citko, Barbara. 2004. On headed, headless, and light-headed relatives. *Natural Language and Linguistic Theory* 22:1, 95–126.

Comrie, Bernard, and Sandra A. Thompson. 2007. Lexical nominalization. In Timothy Shopen (ed.), *Language typology and syntactic description*, 2nd edition. *Volume III: Grammatical categories and the lexicon*, 334–381. Cambridge: Cambridge University Press.

Corbett, Greville G. 2005. The canonical approach in typology. In Zygmunt Frajzyngier, Adam Hodges, and Davis S. Rood (eds.), *Linguistic diversity and language theories,* 25–49. Amsterdam: John Benjamins.

Croft, William. 2000. Lexical and grammatical meaning. In Booij et al. (eds.), 257–263. Berlin/New York: Walter de Gruyter.

DeLancey, Scott. 1999. Lexical prefixes and the bipartite stem construction in Klamath. *International Journal of American Linguistics* 65:1, 56–83.

Early, Robert. A grammar of Lewo. Unpublished manuscript.

Epps, Patience. 2007. Birth of a noun classification system: the case of Hup. In W. Leo Wetzels (ed.), *Language endangerment and endangered languages: linguistic and anthropological studies with special emphasis on the languages and cultures of the Andean-Amazonian border area,* 107–127. Leiden: CNWS Publications.

Epps, Patience. 2008. *A grammar of Hup*. [Mouton Grammar Library 43]. Berlin/New York: Mouton de Gruyter.

Epps, Patience. 2012. Between headed and headless relative clauses. In Bernard Comrie and Zarina Estrada-Fernández (eds.), *Relative clauses in languages of the Americas: a typological overview*, 191–211. Amsterdam: John Benjamins.

Foley, William A. 2014. A comparative look at nominalizations in Austronesian. In I Wayan Arka and N.L.K. Mas Indrawati (eds.), *Argument realisations and related constructions in Austronesian languages: papers from 12-ICAL*, 1–51. Canberra: Asia-Pacific Linguistics.

Grinevald, Colette. 2000. A morphosyntactic typology of classifiers. In Gunter Senft (ed.), *Systems of nominal classification*, 50–92. Cambridge: Cambridge University Press.

Grinevald, Colette, and Frank Seifart. 2004. Noun classes in African and Amazonian languages: towards a comparison. *Linguistic Typology* 8:2, 243–285.

Koptjevskaja-Tamm, Maria. 2004. Maria's ring of gold: adnominal possession and non-anchoring relations in European languages. In Ji-yung Kim, Yury A. Lander, and Barbara H. Partee (eds.), Possessives and beyond: semantics and syntax, 155–181. Amherst, Mass: GLSA Publications.

Lichtenberk, Frantisek. 1983. Relational classifiers. *Lingua* 60, 147–176.

Lieber, Rochelle, and Joachim Mugdan. 2000. Internal structure of words. In Booij et a. (eds.), 404–416.

Lieber, Rochelle, and Pavol Štekauer. 2009. Introduction: status and definition of compounding. In Rochelle Lieber and Pavol Štekauer (eds.), *The Oxford Handbook of Compounding*, 1–18. Oxford: Oxford University Press.

Lynch, John, Malcolm Ross and Terry Crowley. 2002. *The Oceanic languages*. Richmond, Surrey: Curzon.

Mithun, Marianne. 1984. The evolution of noun incorporation. *Language* 60, 847–894.

Mithun, Marianne. 1986. On the nature of noun incorporation. *Language* 62, 32–37.

Mithun, Marianne. 1999. *The languages of Native North America*. Cambridge: Cambridge University Press.

Moyse-Faurie, Claire. 2016. Referential markers in Oceanic nominalized constructions. In Claudine Chamoreau and Zarina Estrada-Fernández (eds.), *Finiteness and nominalization*, 171–203. Amsterdam: John Benjamins.

Mugdan, Joachim. 2015. Units of word-formation. In Peter O. Müller, Ingeborg Ohnheiser, Susan Olsen and Franz Rainer (eds.), *Word-formation: an international handbook of the languages of Europe*, 235–301. Berlin: de Gruyter Mouton.

Næss, Åshild. 2006. Bound nominal elements in Äiwoo: a reappraisal of the "multiple noun class systems". *Oceanic Linguistics* 45:2, 269–296.

Næss, Åshild. 2015. Voice at the crossroads: symmetrical clause alternations in Äiwoo, Reef Islands, Solomon Islands. *Oceanic Linguistics* 54:1, 270–307.

Olsen, Susan. 2014. Delineating derivation and compounding. In Rochelle Lieber and Pavol Štekauer (eds.), *The Oxford Handbook of Derivational Morphology*, 26–49. Oxford: Oxford University Press.

Palmer, Bill, and Dunstan Brown. 2007. Heads in Oceanic indirect possession. *Oceanic Linguistics* 46:1, 199–209.

Pirani, Laura. 2008. Bound roots in Mandarin Chinese and comparison with European «semi-words». In Marjorie K.M. Chan and Hana Kang (eds.), *Proceedings of the 20th North American Conference on Chinese Linguistics (NACCL-20)*. Volume 1, 261–277. Columbus, OH: The Ohio State University.

Ross, Malcolm, and Åshild Næss (2007). An Oceanic origin for Äiwoo, the language of the Reef Islands? *Oceanic Linguistics* 46:2, 456–498.

Sadock, Jerrold M. 1986. Some notes on noun incorporation. *Language* 62, 19–31.

Spencer, Andrew. 2000. Morphology and syntax. In Booij et al. (eds.), 312–334.

Stassen, Leon. 2011. The problem of crosslinguistic identification. In Jae Jung Song (ed.) *The Oxford Handbook of Linguistic Typology*, 90–99. Oxford: Oxford University Press.

Sugita, Hiroshi. 1973. Semitransitive verbs and object incorporation in Micronesian languages. *Oceanic Linguistics* 12 (1/2), 393–406.

van den Berg, René, and Brenda H. Boerger. 2011. A Proto-Oceanic passive? Evidence from Bola and Natügu. *Oceanic Linguistics* 50: 1, 221–246.

van Linden, An, and Françoise Rose. 2017. How to distinguish between nouns and classifiers in Binominal Naming Constructions? Answers from two Amazonian languages. Conference presentation, 50th Annual Meeting of the Societas Linguistica Europaea, University of Zürich.

Whaley, Lindsay. 1997. *Introduction to typology: the unity and diversity of language.* Thousand Oaks, CA: SAGE Publications.

Wurm, Stephen A. 1981. Notes on nominal classification systems in Äiwo, Reef Islands, Solomon Islands. In Andrew Gonzalez and David Thomas (eds.), *Linguistics across continents: studies in honor of Richard S. Pittman*, 123–142. Manila: Summer Institute of Linguistics and Linguistic Society of the Philippines.