Physical properties and culture-specific factors as principles of semantic categorisation of the Gújjolaay Eegimaa noun class system.

Abstract[1]

This paper investigates the semantic bases of class membership in the noun class system of Gújjolaay Eegimaa (Eegimaa henceforth), a Niger-Congo and Atlantic language of the *BAK* group spoken in Southern Senegal. The question of whether semantic principles underlie the overt classification of nouns in Niger-Congo languages is a controversial one. There is a common perception of Niger-Congo noun class systems as being mainly semantically arbitrary. The goal of the present paper is to show that physical properties and culture-specific factors are central principles of semantic categorisation in the Eegimaa noun class system. I argue that the Eegimaa overt grammatical classification of nouns into classes is a semantic categorisation system whereby categories are structured according to prototypicality, family resemblance, metaphorical and metonymic extensions and chaining processes, as argued within the framework of Cognitive Linguistics. I show that the categorisation of entities in the Eegimaa nominal classification system productively makes use of physical properties such as shape as well as using culture-specific, less productive parameters for the semantic categorisation of entities denoted by nouns. The analysis proposed here also shows that the cases of *multiple morphosyntactic classifications* of nouns reflect multiple conceptual categorisation strategies. A detailed examination of

the formal and semantic instances of multiple classification reveals the existence of conceptual correlations between the physical properties and the culture-specific semantic parameters of categorisation used in the Eegimaa noun class system.

1 Introduction

Noun class/gender systems, such as those found in Niger-Congo languages, are often assumed to be predominantly semantically arbitrary (see Amidu 1997, Contini-Morava 1997, P. J. Denny & Creider 1986, Givón 1971, Maho 1999, Schadeberg 2001 for further discussion). Most authors recognise as exceptions the singular and plural classes that include mainly nouns with human referents (conventionally labelled class 1 and 2). Traditional approaches to the semantic analyses of noun class systems, which generally search for a common denominator between the denotata of nouns, argue that these systems predominantly lack a semantic basis because members of categories such as body parts, plants, animals and artefacts appear in different classes. Richardson's (1967: 378) often quoted claim that "it is impossible to prove conclusively by any reputable methodology that nominal classification in Proto-Bantu was indeed widely based on conceptual implication…", reflects a common perception in research on noun class systems, not only in Bantu linguistics, but also in Atlantic linguistics where noun class semantics is less studied than in Bantu languages.

In the last few decades, studies on Niger-Congo nominal classification systems have increasingly proposed, generally using cognitive semantics as a basis (Breedveld 1995, Contini-Morava 1997, 2002, P. J. Denny & Creider 1986, Moxley

1998, Spitulnik 1989), that these noun class systems are overt manifestations of speakers' mental categorisation of their experience. Such findings suggest similarities with other types of nominal classification systems such as numeral classifier systems, where the classification of entities is said to have a semantic basis, motivated by their physical properties (e.g., shape). Culture-specific motivations have also been suggested to play a role as part of the semantic criteria for nominal classification (see Adams & Conklin 1973, Aikhenvald 2000, Allan 1977, Craig 1986a).

The present study explores the semantic categories underlying the overt formal classification of nouns in Eegimaa [2], highlighting the significance of physical properties of nominal referents, as well as a number of culture-specific principles, for the categorisation of nouns. The focus is on singular and plural classes whose prototypical members are categorised based on shape, on the semantic basis of the classes which contain nouns of human denotation, and on cases of irregular singular-plural pairings. I show that traditionally proposed taxonomic categories (e.g., artefacts, animals) have little significance in the Eegimaa noun categorisation system. Using prototype theory, I will show that shape is a productive criterion which accounts for the categorisation of loanwords, novel objects in experiments and also the formation of augmentative meaning in Eegimaa. Shape has been reported as a classificatory criterion, especially in Bantu languages (see Contini-Morava 1997, P. J. Denny & Creider 1986). I also show that in Eegimaa, shape is a more central criterion

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[2] Several names are used to refer to this language. These include Gúllaay 'the language of Sállagi', Gubanjalay/Bandial/Banjal 'the language of Banjal' or Gussilay/Gusiilay 'the language of Essil'. Of these, Banjal/ Bandial (ISO 639-3: bqj) is the most popular name of the language among outsiders, which accounts for its use in the literature (e.g., Sapir 1971). Native speakers use the term Gújjolaay (gal) Eegimaa 'the Jóola (of) Eegimaa' to refer to their language. There are important phonological and lexical differences between the dialect spoken in the village of Banjal (Gubanjalay) and those of other villages such as Essil and Sállagi. The fact that the term 'Eegimaa' is used by speakers to distinguish their language from other Jóola languages spoken in the area justifies my choice for this name following Sambou's choice (Sambou 1989). Gújjolaay Eegimaa is a Jóola language of the *BAK* group which is part of the Atlantic family of the Niger-Congo language phylum. It is spoken in Southern Senegal (South-west of Ziguinchor, the capital city of the Southern region of Senegal) by 7000 to 10000 people.

of categorisation than has been reported in other related Atlantic languages. I argue that there are also culture-specific factors which, along with shape, underlie a number of unproductive overt irregular singular and plural correlations that occur with count nouns. Eegimaa has classes such as class 12 (the class of *economy and social organisation* [Tendeng 2007]), where, as demonstrated in Sagna (2008), nouns are classified based on the status or function of the denoted entities in the speakers' life. These cases are not discussed in this paper. Here, I focus on the semantic categorisations that are formally reflected by irregular singular versus plural correlations. I introduce the notion of overt multiple semantic categorisation processes to account for these irregular singular versus plural correlations. Another important proposal introduced here is that there is a conceptual link between physical properties and some of the culture-bound criteria used as underlying principles of semantic categorisation. The results presented in this paper highlight the particular importance of cultural knowledge for "the interpretation of conventional tropes" (Palmer 1996: 7).

The discussion proposed here begins with an overview of the complex morphosyntactic properties of the Eegimaa noun class system in Section 2. This is followed by a discussion of semantic parameters of classification in Section 3, where an analysis of native Eegimaa nouns, an examination of loanwords and a discussion of experiments show that shape is encoded in Eegimaa noun classes 7 and 9. This section also includes a discussion of the culture-specific criteria by which nouns of human and non-human denotation are classified, and demonstrates that the Eegimaa semantic principles of categorisation reflect the way speakers "conceive of and think about the objects and events which make up their world" (D'Andrade 1995: 1). Before concluding this discussion in Section 5, in Section 4, I examine the types of

conceptual links between physical properties and culture-specific parameters of classification.

2 Morphosyntactic properties of the Eegimaa noun class system

In this section, I give an overview of the formal properties of the Eegimaa noun class system discussed in more detail in Sagna (2010). First, I discuss the agreement criteria used for the inventory of the Eegimaa noun classes and introduce the notion of multiple classification in Section 2.1. Second, I discuss in Section 2.2 the major functions of noun class markers as well as aspects of the Eegimaa number system which are relevant to the discussion in the paper.

2.1 Agreement & noun class inventory

A noun in Eegimaa comprises an obligatory base, a prefix referred to as its noun class marker (NCM[3]) and an optional suffix such as the possessive suffix in *a-ññol-ol* 'his/her child'. Noun class prefixes are monosyllabic with syllables having the following shapes: V- e.g., *e-ol* 'fish', C- e.g., *f-al* 'river', CV- e.g., *fu-how* 'head' and CVC- e.g., *bug-an* 'people' (see also Table 1). In addition to prefixed nouns, there are also native Eegimaa nouns and loanwords that do not combine with a noun class prefix. Generally, these nouns (e.g., *háhae*[4] 'leprosy', *koton* 'cotton' [Fr. 'coton']) can be assigned to a class based on the agreement they trigger. The affiliation of a noun to a class is, as discussed later in this section, decided primarily based on agreement criteria which provide "the basis for defining [noun class] and for

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[3] The abbreviations used in this paper are: C = consonant; CL = agreement (on agreement targets); DEF = definite; DEM = demonstrative; DIR = directional; DUP = reduplication; Fr = French; Introsp = introspection; LOC = locative marker (spatial and temporal); MED = medial; NCM = noun class marker; NEG = negative; Part-Obsv = participant observation; PL = plural; POSS = possessive; PRO = pronoun; PROH = prohibitive; SG = singular; V = vowel. The sources of the example sentences are given in parenthesis near free translations.
[4] Eegimaa is a non-tonal language with [ATR] vowel harmony. In the orthography, an acute accent on the first vowel of a word indicates that vowels in that word are [+ATR]. In addition to [ATR] vowel harmony, Eegimaa has vowel height harmony which accounts for the allomorphic variations between noun class prefixes of the shape *Cu-* and *Ci-* (see Sagna 2008: 82-83 for a detailed discussion of this issue). The language does not have a standard orthography. The orthography used here is an updated version of the one used in Sagna (2008).

establishing the number of genders/noun classes in a given language" (Corbett 1991: 105).

In the simplest case, agreement is alliterative in Eegimaa, in which case "agreement features [are] clearly indicated on both controller and target, and by the same phonological material" (Corbett 2006: 88). Nouns or noun phrases, also referred to as controller nouns (Corbett 1991, Greenberg 1978), trigger agreement on their dependent elements, on their targets, e.g., definite determiners, numerals, adjectives, relative clauses, and on verbs. Examples (1) to (3) below illustrate cases of alliterative agreement. In example (1), the same initial consonant is found on the controller noun, the definite determiner, the adjective and the verb. Examples (2) and (3) present semivowels *y-* and *w-* which are phonologically conditioned allomorphs of vowels *e-* and *u-* respectively on agreement targets. The former occur before vowels whereas the later occur before consonants. As will be argued below, agreement markers identified as regular markers for a class will be used as indicative of (primary) class membership.

(1) ***fí-nnir***   ***fafu***   ***fu-vvugul***   ***fafu***   ***fi-let***
     NCM7a-axe   CL7:DEF   CL7-new   CL7:DEF   CL7-not.be
     'The new axe is missing' (Introsp)

(2) ***é-mbiro***   ***yayu***   ***y-olil***   ***e-joulat***
     NMC3-wrestling.champion   CL3:DEF   CL3-POSS   CL3.3SG-go:DIR:NEG
     'Their wrestling champion has not come.' (Part-Obsv)

(3) ***w-añ***   ***wawu***   ***u-kkur-e***
     NCM6-cloth   CL6:DEF   CL6-be.clean-PFV
     'The clothes are clean.' (Part-Obsv)

In addition to cases of alliterative agreement, there are also instances of mismatches between the form of the noun class marker on the controller and the agreement markers on dependent elements (see Sagna 2010: 24 for further discussion). This is called non-alliterative agreement and is illustrated in examples (4) and (5) below. In example (4), despite the presence of the NCM 5b prefix on the singular

noun *bá-jur* 'young woman' the class 1 agreement *a-* is triggered on the verb. Its plural counterpart *sú-jur* 'young women' takes NCM 4 *su-* but triggers class 2 agreement *gu-* on the verb. Both of these are examples of non-alliterative agreement. The dashed line between class 5 and class 4 in Table 2 below also indicates this irregular singular-plural correspondence.

(4) **bá**-*jur*   **b**a**bu**   *n-**a**-kke*   **a**-*juh*   *jaw-ol*
     NCM5b-young.woman   CL5:DEF   LOC-CL1.3SG-go CL1.3SG-see   mother-
     3SG.POSS
     'The young woman went to see her mother' (ref: ss20041013_gnabai)

(5) **sú**-*jur*   *sasu*   *n-**gu**-kke*   **gu**-*juh*   *jaw-ol*
     NCM4-young.woman   CL4:DEF   LOC-CL2.3PL-go CL2.3PL-see   mother-
     3SG.POSS
     'The young women went to see her mother (another woman's mother)' (introsp)

In cases of use of a noun class prefix from one class but an agreement marker from another class, I will talk about multiple class membership. Multiple class membership always results in non-alliterative agreement between a controller noun and its agreement targets. Multiple class memberships are found with nouns of class 2 (the plural correspondent of class 1) discussed below and with the nouns *bá-jur* 'young woman' (primarily a noun from class 1 because of the agreement it triggers) and *ji-ggaj* 'panther' (primarily from class 3, also because of the agreement it triggers). I will argue in Section 3.3 below that these are formal manifestations of multiple conceptual categorisation. Put differently, some nouns from one class may 'borrow' the noun class marker of another class to highlight culturally salient properties of the classified entities.

In Table 1, a sample of agreement correspondences between noun class markers and their agreement correspondents is presented. It includes both cases of alliterative and non-alliterative agreement (cf. class 2) and should be read together with Table 2 which focuses on the singular plural pairings. For a complete discussion

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of the phonological variations in noun class prefixes, the agreement markers as well as the criteria used for noun class assignment, see Sagna (2010).[5]

Table 1: Noun class prefixes and agreement markers (adapted from Sagna [2008: 191])

NC	NCMs	DEF.DET	PRES.DEM	POSS.PRO	PRO	SUBJ	REL	ADJ
1	*a-*	*Øa-h-u*	*u-m-DEM*	*Ø-úmbam*	*Ø-o*	*a-*	*Ø-a-*	*a-ADJ*
2	*bug-*	*bug-a-g-u*	*u-bug-DEM*	*bug-úmbam*	*bug-o*	*gu-*	*g-a-*	*gu-ADJ*
	gu-	*g-a-g-u*	*u-bug-DEM*	*bug-úmbam*	*bug-o*	*gu-*	*g-a-*	*gu-ADJ*
	u-	*w-a-w-u*	*u-bug-DEM*	*bug-úmbam*	*bug-o*	*gu-*	*g-a-*	*gu-ADJ*
	e-	*y-a-y-u*	*u-bug-DEM*	*bug-úmbam*	*bug-o*	*gu-*	*g-a-*	*gu-ADJ*
	su-	*s-a-s-u*	*u-bug-DEM*	*bug-úmbam*	*bug-o*	*gu-*	*g-a-*	*gu-ADJ*
3	*e-, y-*	*y-a-y-u*	*u-y-DEM*	*y-úmbam*	*y-o*	*e-*	*y-a-*	*e-ADJ*
4	*su-, si-, s-*	*s-a-s-u*	*u-s-DEM*	*s-úmbam*	*s-o*	*su-*	*s-a-*	*su-ADJ*
5	*bu-, bi-, b-, ba-*	*b-a-b-u*	*u-b-DEM*	*b-úmbam*	*b-o*	*bu-*	*b-a-*	*bu-ADJ*
6	*u-, w-*	*w-a-w-u*	*u-w-DEM*	*Ø-úmbam*	*w-o*	*u-*	*w-a-*	*u-ADJ*
7	*fu-, fi-, f-, fa-*	*f-a-f-u*	*u-f-DEM*	*f-úmbam*	*f-o*	*fu-*	*f-a-*	*fu-ADJ*
8	*gu-, ga-, g-*	*g-a-g-u*	*u-g-DEM*	*g-úmbam*	*g-o*	*gu-*	*g-a-*	*gu-ADJ*
9	*ga-*	*g-a-g-u*	*u-g-DEM*	*g-úmbam*	*g-o*	*gu-*	*g-a-*	*gu- ADJ*
10	*mu-, mi-, ma-, m-*	*m-a-m-u*	*u-m-DEM*	*m-úmbam*	*m-o*	*mu-*	*m-a-*	*mu- ADJ*

In Table 1, the conventional numburing of noun classes is presented under the 'NC' column. The forms of the noun class prefixes (under the NCMs column) and those of the agreement markers (in all other columns) are highlighted in boldface. Clear cases of alliterative agreement can be observed for example in classes 4, 5, 7, 8, 9 and 10. It is important to note that classes 8 and 9, which show phonological

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[5] In Table 1, noun class prefixes of the form *Cu-* and *Ci-* are allomorphs whose variation is based on vowel height harmony. Noun class prefixes can also occur as consonants *C-* or in the form *Ca-*. However, these forms are not phonologically related synchronically to other prefixes forms (*Cu-* and *Ci-*). Nouns which combine with prefixes of the form *Ca-* generally constitute semantic subclasses.
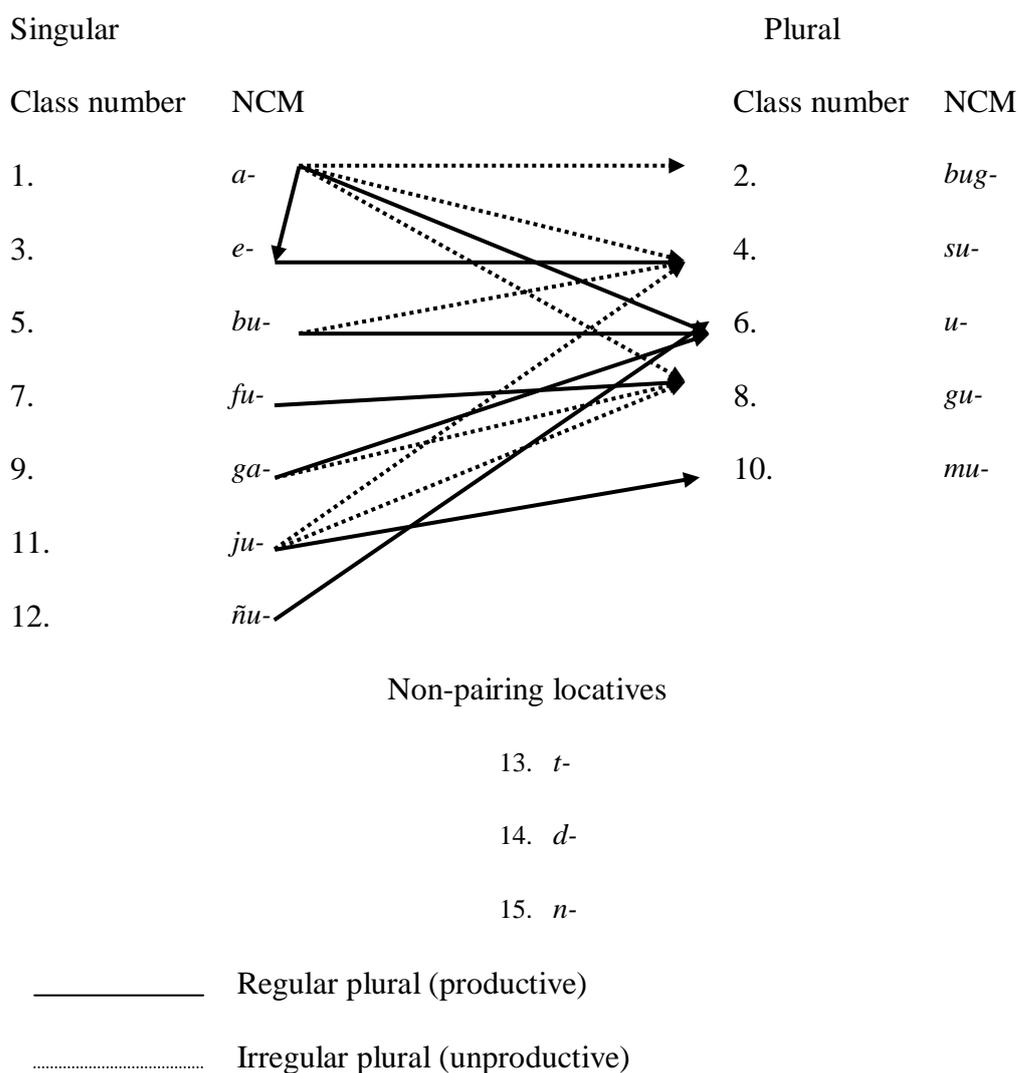
similarity in all their agreement targets, are treated as members of distinct classes (see Sagna 2008, Sagna 2010). This follows the tradition in Niger-Congo languages of assigning singular and plural forms of a noun to different classes (de Wolf 1971, Katamba 2003, J. D. Sapir 1971, Welmers 1973).

Table 1 also presents, in class 2, a variety of prefixes which combine with nouns of human denotation to form the plural of class 1. Most of those prefixes are identical to the noun class prefixes of classes 3 (*e-*), 4 (*su-*) 6 (*u-*) and 8 (*gu-*). There are two possible ways of analysing these facts. The first option is to treat the noun class prefixes in class 2 as homonymous to those in other classes as suggested in Sagna (2008). The other option is to argue that it is actually the prefixes of classes 3, 4, 6 and 8 which are 'borrowed' to pluralise nouns of human denotation to express semantic content that is associated with these noun class markers. The latter option, which supports the multiple semantic categorisation argument (see Section 3.3.3 below), is the one proposed in this paper.

2.2   *Noun class Markers*

Noun class markers, as shown above, have different shapes. They participate in a complex system of number marking which is partly shown by the regular and irregular singular and plural correspondences presented in Table 2 below. Singular prefixes are on the left side whereas their plural correspondents are on the right. The conventional numbers for singular classes are the odd numbers from 1 up to 11. Class 12 is the only singular class to be labelled with an even number. Even numbers from 2 to 10 are all labels of plural noun classes. As can be observed from Table 2, there are, as is typical in Niger-Congo languages (Heine 1982), more singular classes than plural classes.

Table 2: Summary of noun classes and singular-plural pairing correspondences[6]

Singular			Plural	
Class number	NCM		Class number	NCM
1.	*a-*		2.	*bug-*
3.	*e-*		4.	*su-*
5.	*bu-*		6.	*u-*
7.	*fu-*		8.	*gu-*
9.	*ga-*		10.	*mu-*
11.	*ju-*			
12.	*ñu-*			

Non-pairing locatives

13. *t-*

14. *d-*

15. *n-*

_____ Regular plural (productive)

.... Irregular plural (unproductive)

In the table, dotted lines represent irregular and unproductive singular-plural correlations whereas solid lines indicate productive correlations. There are two types of irregular singular-plural correlations. In the first type, the noun class prefix on a noun stem and its corresponding agreement markers belong to different classes. These

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[6] The allomorphs of noun class prefixes (cf. Table 1) and the sub-class markers (with NCMs of the form *Ca-*) are not represented in table 2. In the examples and in the rest of the text, I use the conventional numbers in tables 1 and 2 to name noun classes. Noun class prefixes that have the forms *Cu-/ Ci-* and *Ca-* are referred to NCM Xa and NCM Xb respectively. For example, most nouns in class 7 take noun class prefix *fu-* or its allomorph *fi-* NCM7a. But there is also a set of nouns which take the prefix *fa-* (NCM7b) and show a strong tendency of semantic coherence by expressing collectives for insects such as swarms of bees and wasps. It is important to bear in mind that prefixes having an identical initial consonant are analysed as markers of the same class based on agreement criteria, since class membership is based on agreement patterns.

are the irregular correspondences shown by dashed lines between NCM 1 to 2, 4, and 8; NCM 5 to 4 and NCM 11 to 4. Irregularities of this type show multiple morphosyntactic classifications, which in most cases, reflect culture-specific multiple semantic categorisation processes (see Section 3.3.3). The other irregular singular-plural correspondences are those between NCM 11 to 8 and NCM 9 to 8. These irregularities, as will be argued in Section 3.2 below, reveal a semantic categorisation based on shape.

Noun class markers, except in cases of multiple classification, indicate noun class membership and number, distinguishing singularity versus plurality as exemplified in (6).

(6)   **e-**ol   'fish'   **su-**ol   'fish (PL)'

         fu-how   'head'   **gu-**how   'heads'

Noun class markers also express collective meanings as illustrated with **ba-**ññil 'group of (small) children' in example (7), where the prefix **ba-** is used, as is generally the case, to express collective meaning for small things.

(7)   **a-**ññil   'child'   **u-**ññil   'children'

         ba-ññil   'group of (small) children'

Furthermore noun class markers also combine with nouns denoting mass and abstract concepts as exemplified in (8).

(8)   **ba-**raj   'rice gruel'   **ba-**pah 'rudeness'

Note that the same noun class prefix can occur, not only with singular count nouns such as *bu-ul* 'face', but also with mass nouns e.g., *bú-kkuɤay* 'fertilisers' and with abstract nouns such as *bu-soŋet* 'stupidity' where singularity is not relevant. Note that there are also mass nouns and abstract nouns which combine with noun

class prefixes associated with plural[7] classes. Thus mass and abstract nouns are found in both singular (singularia tantum) and plural classes (pluralia tantum). For example, *bu-nuh* 'palm wine' and *m-al* 'water', which denote drinkable liquids, are in a singular and a plural class respectively.

The examples above show that the noun class systems in Niger-Congo languages such as Eegimaa exhibit complex number systems (see Table 2 above) which are not easily captured by the labels 'singular' and 'plural' classes, especially when non-count nouns are taken into account, nor do they "fit neatly into the traditional distinction between 'derivation' and 'inflection'" (Contini-Morava 2000: 23).

In an attempt to provide more appropriate descriptions than the traditional singular versus plural distinctions, recent studies have proposed an alternative treatment of number in individual Bantu languages. Mufwene (1980) proposes the treatment of count and non-count noun distinctions in Bantu noun class systems such as Lingala as an opposition between "individuation" and "non-individuation". Using the *li-/ma-* noun class, he demonstrates that in Lingala, this approach is more powerful than the traditional one, since it accounts for the singular versus plural distinctions as well as the count and mass distinctions. In the same vein, Contini-Morava proposes, using Swahili data, a continuum ranging from the "most individuated" to the "least individuated" (Contini-Morava 2000: 18). These proposals stem from the now-established idea that plurals are a subclass of mass nouns (see Corbett 2000: 79, Langacker 1991: 76) and are as a result not individuated, differing from singulars which are the most individuated categories.

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[7] Recall that in the description of noun class systems, singular and plural are analysed as different classes. Thus the singular and the plural forms of the same noun stem are assigned to different classes.

Other analytical approaches have been proposed to account for the count and non-count differences for languages other than the Bantu noun class systems. Wierzbicka (1985) shows that in English, the division of mass nouns between singularia tantum and pluralia tantum "reflects iconically the way in which different classes of things and 'stuffs' are conceptualized" Wierzbicka (1985: 334).

Eegimaa non-count nouns can be divided into singularia tantum (singular-only) and pluralia tantum (plural-only) since they occur in singular or plural classes. I show in Section 3.2 below (see also Sagna 2008), that there are conceptual motivations which underlie the assignment of nouns denoting certain mass or abstract entities into different classes. Due to the focus of this paper however, the issue of number is not fully discussed here. The complex correlations of number with inflection and derivation, as well as individuation and non-individuation and the conceptual basis for the assignment of non-count nouns into different classes (singular or plural), remain topics for future investigations.

With count nouns where singular and plural pairings are relevant, Eegimaa exhibits a nominal classification system of the crossed type (Heine 1982) whereby the singular and plural correspondences are related on three main bases. First, there are non-reciprocal one-to-one singular and plural correspondences as exemplified in (9) with singular nouns from classes 7 (*fu-how* 'head') and 12 (*ñu-hul* 'funeral'). The plural forms of these nouns can be predicted from their singular counterpart, but the reverse is not true. In other words, noun class prefixes *fu-* and *ñu-* have the prefixes *gu-* (*gu-how* 'heads') and *u-* (*u-hul* 'funerals') respectively, as their only plural correspondents, but the latter have other singular correspondents in addition to NCMs *fu-* and *ñu-*. In Table 2, this can be seen with arrows from classes 7 and 12 to class 8 which also functions as a plural correspondent of class 2.

(9)   Singular   Plural

      fu-*how* 'head'   **gu**-*how* 'heads'

      ñu-*hul* 'funeral'   **u**-*hul*   'funerals'

Second, there are one-to-many singular and plural correlations with nouns using the same noun class marker in the singular as illustrated in (10), but forming their plural with two different noun class markers. In Table 2, this is illustrated with arrows from singular classes 1, 5, 9, and 11 to various plural classes.

(10) **ji**-*ttaja*   'sparrow'   **mu**-*ttaja*   'sparrows'

      jí-*çil*   'eye'   **gú**-*çil*   'eyes'

Finally, there are many-to-one singular and plural correlations where nouns use different noun class markers in the singular but the same prefix in the plural. The arrows from different singular classes to classes 4 and 6 in Table 2 show that these plural classes have different singular correspondents. Example (11) illustrates such cases with the prefix *u-* (the noun class marker from class 6) which functions as a plural marker for noun class prefixes *bu-* (from class 5), *ñu-* (from class 12) and *ga-* (from class 9).

(11) **bu**-*nunuhen*   'tree'   **u**-*nunuhen*   'trees'

      ñu-*vvul*   'Borassus aethiopium palm tree' **u**-*vvul*   'Borassus aethiopium palm trees'

      ga-*yugum*   'lazy person'   **u**-*yugum*   'lazy people'

With locative (non-pairing) prefixes (NCMs 13, 14 and 15) which indicate precise location, location inside and temporal location, singular and plural distinctions are irrelevant.[8] Note that Table 2 does not reflect the full complexity of the Eegimaa noun class system. For example, it does not indicate the correspondences between noun class prefixes in the formation of collectives or show the distribution of

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[8] A point can be made that the same is true for abstract and mass nouns in other classes since they do not pair. However the difference is that abstract and mass nouns combine with prefixes which in other contexts function as singular or plural markers whereas locative markers do not.

non-count nouns into various noun classes. As pointed out above, one of the focuses of this paper is to show that these irregular singular plural correlations have semantic motivations.

The arrows in Table 2 show the complexity of the singular and plural correlations with count nouns. Taking nouns of human denotation as an example, it appears that most singular nouns denoting humans are assigned to class 1 and mostly combine with the prefix *a-*. Nouns in class 1 form their plural on a one-to-many basis using five different noun class prefixes. Those plural prefixes include NCM 2 *bug-*, NCM 3 *e-* (elsewhere a marker of singularity), NCM 4 *su-*, NCM 6 *u-* and NCM 8 *gu-* as exemplified in (12). In table 1 these correspondences are indicated by arrows from class 1 to classes 2, 3, 4, 6 and 8. In Table 2, the noun class prefixes associated with those classes are listed both under class 2 and in their original classes for comparison.

Note that there are nouns of class 1 which have zero marking, i.e., do not combine with a noun class marker in the singular as illustrated in example (12).

(12) *Singular*   *Plural*

   Ø-an   'person'   ***bug-****an*   'people'

   á-*fula*   'a Fula person'   ***é-****fula*[9]   'Fula people'

   payya   'father'   ***si-****ppayya*   'fathers'

   a-*aña*   'cultivator'   ***u-****aña*   'cultivators'

   a-*ttiay* 'same sex sibling'   ***gu-****ttiay*   'same sex siblings'

As pointed out above, solid lines indicate that the prefixes *e-* & *u-*, which function as the plural of *a-*, are productively used as plural markers. By contrast, *bug-*, *su-* and *gu-* are not productively used as plural markers for nouns of human denotation,

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[9] NCM 3 *e-* is normally a singular noun class prefix which is also used as a collective marker (see Table 3) for 'colonising plants'. Here it seems to be out of place by functioning as a plural marker. The semantic basis of such a use and the semantic correlations between the denoted humans and plants in this class are discussed in Section 03.3.2 below.

as indicated by the dashed lines in Table 2. The use of the prefix *bug-* as a noun class prefix (it also functions as an agreement marker) is lexically determined. It combines with only one noun (*bug-an* 'people') which in the singular does not combine with a noun class marker. As is the case for nouns from other classes which do not combine with noun class prefixes, class membership is decided on the basis of the agreement markers they trigger on agreement targets (cf. Section 2.1).

Note that there are also nouns of human denotation which belong to classes other than classes 1 and 2 and whose prefixes and agreement markers are not those of noun class 1 or 2 as illustrated in examples (13) and (14).

(13) ***é-mbiro***   ***yayu***   ***y-****olil*   ***e-****jo-ulat*
      NCM3-champion CL3-DEF   CL3-POSS   CL3.3SG-go-DIR:NEG
      'Their wrestling champion has not come' (Part-Obsv)

(14) ***gá-****ffannum*   ***gagu ga-****çila,*   ***gu-****bbañ-e*   ***gu-****bbañ-ul*
      NCM9-old.person CL9:DEF CL9-PRO   CL9.3SG-return-PFV   CL9.3SG-return-DIR
      'The same old person cam back' (Introsp)

The conceptual motivations underlying such classifications of humans will be discussed in detail in Section 3 below.

Three main points, which also apply to nouns denoting other entities, can be made in order to summarise the morphosyntactic behaviour of nouns of human denotation. First, humans appear in different classes just like body parts and animals. Second, there are nouns such as those in examples (13) and (14) that belong to a class, use the noun class prefix of that same class and trigger alliterative agreement. Third, there are nouns that use a noun class prefix other than that of their original class and trigger non-alliterative agreement except on the determiner (cf. (4) and (5) above). These are cases referred to as overt multiple classifications which, as will be argued below, reflect multiple cognitive categorisation.

The overview of the formal properties of the noun class system as proposed here shows that Eegimaa has a complex noun class and number system, which,

because of the focus of this paper, are not fully discussed. In the next section I examine the semantic motivations underlying Eegimaa's complex system of nominal classification. First, I introduce some key concepts of prototype theory used in the discussion in the rest of the paper.

3   Noun class semantics

3.1   Theoretical background

In traditional approaches based on the classical, Aristotelian model of categorisation, the lack of synchronic semantic classes corresponding to taxonomic categories such as animals, body parts, or plants has resulted in the widespread belief that noun class systems are to a large extent devoid of semantics. According to the latter, an entity belongs to a category if it exhibits all the required necessary and sufficient criteria to be included in that category. It follows from this that classical categories have clear boundaries with entities either included or clearly excluded from them. In Eegimaa, class 1, which only contains nouns of human denotation, is a good candidate for an analysis based on the classical view of categorisation, since all nouns in this class have the feature [+human]. However, such an analysis shows the limitations of binary features since this approach does not account for the inclusion of nouns of human denotation in other classes as well, as will be shown in 3.3.2 below0 below.

The rejection of synchronic semantic motivations for the noun class systems in Niger-Congo languages often goes together with the belief that noun class systems are "historically based on cognitive distinctions such as human, plant, animal, congregation, size, shape, but have become conventional and overtly marked with almost all nouns" (Schadeberg 2001: 8). This position was previously expressed in

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Givón (1971: 33), but challenged in Maho (1999: 69) "since there are no modern Bantu languages with easily defined noun class systems" of that kind.

In this paper, I use prototype theory to account for the semantic networks underlying the assignment of Eegimaa nouns into classes. Prototype theory emerged as an alternative to the classical view of categorisation (see Croft & Cruse 2004, Kleiber 1990, Lakoff 1987, Lewandowska-Tomaszczyk 2007, Taylor 2003 for discussions). It proposes an alternative account to the structure of categories. The approach used in this paper is mainly based on Lakoff's (1987) general principles of categorisation. Essentially, the idea is that categories have no clear boundaries and that some members of a category are more basic or more central than others. According to this approach, complex categories are structured by chaining processes where central members may be linked to less central members by common properties, or may be motivated by family resemblance or by association to culture-specific domains of experience. The idea that there are degrees of membership to a category i.e., certain entities may instantiate a category better than others, will be illustrated with shape-based classifications. For example, in Eegimaa as will be shown in 3.2 below, globular-shaped entities instantiate the category of 'roundness' better than other non-central roundish entities which are assigned to the same category. In addition to these links which are based on similarity of features, in the literature on cognitive semantics it has also been demonstrated that categories are extended by metaphor ("understanding and experiencing one kind of thing in terms of another" (Lakoff & Johnson 1980: 5) and metonymy ("use of one entity to stand for another" [Lakoff & Johnson 1980: 36]). Instances of cognitive categorisation based on metaphor and metonymy are discussed in Section 4 below. Recent analyses of noun class systems based on prototype theory have suggested that noun class systems

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reflect cognitive strategies of categorisation. These approaches are based on the assumption that members of a category may not have anything in common. Prototype theory has also been fruitfully used for an analysis of the German gender system, and the authors (Zubin & Köpcke 1986) show that even in such a grammaticalised system of nominal classification, the classification of nouns exhibits strong synchronic semantic motivations.

Table 3 presents in the form of a list a summary of the semantic features expressed in the different Eegimaa noun classes as discussed in Sagna (2008: Ch. 5). The classes are presented in pairs (the numbering convention is the same as the one presented in Table 2), showing that whenever semantic features are expressed in the singular, they are also found in the plural. The purpose of this table is to serve as a background for the discussion provided in the rest of this paper.

Table 3: **Outline of Eegimaa semantic parameters of categorisation**

Singular/Plural noun classes	Typical semantics
1/2	Humanness[10] (including kinship and identity groups in plural)
3/4	Default or unspecified or unfeatured; special humans; birth and maternity (in plural); collectives for colonies; loanwords
5/6	Assemblages or wholeness; production (also singular class of birth and maternity) and protection; collectives for small entities; enormous entities & augmentatives
7/8	Roundness; thickness; extended parts of things; augmentative with the meaning round or fat; collectives for swarms (of insects); flexibility
9/6	Flatness; thinness; width; big size; augmentative and derogatory meaning;

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[10] Note that animacy, which is an important common parameter of semantic classification in some noun class languages, does not play a role in the classification of Eegimaa (beyond the human – non-human distinction).

	unpleasant things; rigidity
11/10	Small size; diminutive meaning; endearment
12/6	Economy and social organisation or interactions
13	Precise location
14	Location inside
15	Temporal location

It is important to bear in mind that culture-specific parameters of classification are also found in other classes which are not discussed in this paper. For example, class 12 is labelled the class of 'economy and social organisation' because it includes nouns denoting elements which are essential to the economic life and the survival of the Eegimaa people. These elements include *ñi-hin* 'plot of rice field' but also *ñí-it* 'palm tree' and *ñu-vvul* 'Borassus Aethiopium palm tree', the only two trees in class 12. These two palm trees are the most exploited of all trees for their products which, like rice, are consumed or used as exchangeable goods in the traditional barter economy, and their parts are used in construction and to make most artefacts (See Sagna 2008: 256-259 for a full discussion of the semantic network of class 12).

Another example of culture-specific semantic classification is Class 5 (Sagna 2008: 234-242) which has a complex network of semantic categorisation. Most trees are included in this class, which is labelled the class of "assemblages", "birth", "production" and "protection". The meaning of assemblages for instance, includes among other things, human collectivities e.g., *bi-çin* 'habitat', collections of small things such *ba-vval* 'pile of small stones', as well as entities made of collections of individual parts such as *bu-ra* 'bed' which is composed of an assemblage of *e-ra* 'bed stick' and *bí-ssit* 'plumage' (from *ga-ssit* 'feather').

The discussion proposed here is restricted to the cases of irregular singular versus plural correlations which reflect multiple classification for nouns of class 2 and for a few nouns of classes 5 and 11. Classes 7/8 and 9/6 constitute an important part of the discussion because they encode shape and size.

Allan (1977: 290) points out that there are three ways to discover the semantic basis of a classifier system: "native speaker intuition", "foreign observer's intuition" and "introduction of new words & objects". The following discussion is based on over nineteen months of fieldwork and a combination of an analysis of the class membership of nouns found in texts of various genres, an analysis of loanwords and experiments with novel objects combined with my own native speaker's intuition which not only contributed to the analysis of the collected data, but also provided an insider's perspective of the cultural facts discussed here. The encoding of shape as a relevant criterion of categorisation in the Eegimaa noun class system will be discussed first.

3.2 Shape-based classification

Along with size, shape is one of the most important physical properties of classification in Eegimaa. The analysis of domains such as animals and body parts, as well as that of loanwords and ad-hoc terms with novel objects, show a clear encoding of shape in classes 7 and 9 in the singular and 6 and 8 in the plural.

The relevance of physical properties such as shape as an important parameter for noun categorization has been reported for different classifier systems and thus seems to be one of the most common properties responsible for categorisation across languages (see Adams & Conklin 1973, Aikhenvald 2000, Craig 1986b, Friedrich 1970 among others). Within Niger-Congo languages, the use of shape has also been reported as one of the parameters of nominal classification (see e.g., Contini-Morava

1997, P. J. Denny & Creider 1986). Even though previous studies of Eegimaa (e.g., Tendeng 2007) and other Jóola languages (D. J. Sapir 1965) do not mention shape as a semantic parameter for nominal classification, it is argued in the present paper that shape is of paramount importance in understanding the semantic categorisation in Eegimaa.

Shape as a parameter of semantic categorisation in Eegimaa is based on prototypicality. The two shape types that are encoded in the Eegimaa noun class system are roundness and flatness, which in most cases correlate with the physical properties of thickness and thinness, respectively. Roundness as a category of semantic classification is instantiated by globular entities such as fruits and vegetables (cf. (15)a), which accounts for previous references to this class as the class of fruits in Jóola Fogny (D. J. Sapir 1965). Other nouns referring to globular-like entities (cf. (15)b-(15)c) and loanwords denoting globular entities (exemplified in (15)d) are incorporated in class 7 on the basis of the roundness property. Further evidence showing the prevalence of the roundness property comes from experiments (discussed below) where speakers who were requested to name novel objects used noun class 7 for globular-like objects illustrated in example (15)e.

(15)

a. *fu-mangu*	'mango'	*fí-rillo*	'kind of fruit'
b. *fí-melep*	'globular artefact'	*fu-ssor*	'rice cake (globular or oval shape)'
c. *fi-e*	'egg'	*fú-amba*	'Package made with a cloth'
d. *fú-çuppome*	'cabbage' (Fr. Chou pommé)	*fu-baloŋ*	'football' (Fr. Ballon)
e. *fu-mongolifier*	'air balloon'	*fu-lamp*	'big and globular electric bulb'

In addition to globular-shaped objects, objects with a circular shape and those with a semi-circular shape are included in class 7 along with globular-like objects. Such a classification of round and 'roundish' entities is based on the 'roundness'

feature and shows evidence of categorisation structured by the principle of family resemblance. Consider the examples in (16).

(16) ***fu-**hay*   'circle formed for dancing'   ***fi-**sercal*   'rim (Fr. cercle)'

    ***fu-**gaŋ*   'wheel'   ***fu-**rogal*   'kind of artefact (circular)'

    ***fu-**ŋŋajen*   'bow'   ***fí-**liññah*   'bracelet'

The round and long entities exemplified in (17) below have the properties of roundness like globular and circular objects in addition to their long configuration. This is true for long and round objects familiar to Eegimaa people and borrowed objects as well as long objects used in experiments, which were all classified among round objects in class 7. Note here that if a long object has a flat and or thin configuration (*ga-ccil* 'thread') it is assigned to class 9. We can therefore conclude that with long objects, roundness and flatness are the most significant semantic parameters of classification.

(17) ***fu-**ttara*   'bamboo'   ***fú-**ggoh*   'creeper'

    ***fi-**mindiŋ*   'piece of a tree trunk'   ***fu-**kkokkobur*   'cucumber' (Fr. concombre)

    ***fi-**bbik*   'pen' ('Bic' brand of pen) ***fu-**rakkor*   'pipe' (Fr. raccord)

    ***fi-**kkirayoŋ*   'pencil' (Fr. crayon)   ***fu-**laor*   'rope'

Emissions from the body include concrete ones which have a clear round shape as those in example (18). Other less concrete emissions such as those in (19) are included in class 7 because of their relation with other emitted substances rather than their shape.

(18) ***fí-**mmel* 'round and oblong piece of excrement'   ***fu-**sur*   'puddle of urine'

(19) ***fu-**mas* 'spittle'   ***fí-**sim*   'blood'

    ***fi-**rim*   'voice'   ***fu-**ffujuh*   'whistle'

Almost all terms for body parts with a round configuration (except *jí-çil* 'eye'; see below.) are assigned to class 7. These include globular-like ((20)a), semi-circular ((20)b) and long and round (cf. (20)c-(20)d) human and animal body parts and parts of trees and other entities.

(20)

a. **fu**-*how*	'head'	**fu**-*la*	'buttock'
b. **fí**-*riŋ*	'forehead'	**fi**-*ep*	'chin'
fu-*rongol*	'nape'	**fu**-*toñ*	'heel'
c. **fí**-*rerum*	'tongue'	**fi**-*ssih*	'finger'
fu-*boŋ*	'thigh'	**fu**-*ttun*	'penis'
d. **fí**-*lej*	'tail'	**fu**-*roç*	'throat'
fu-*ar*	'root'	**fu**-*foŋol*	'trunk'

Most nouns denoting cyclic periods of time (except *e-mit* 'year', *bí-ttiŋa* 'period before the rainy season') are included in class 7 by metaphor, based on perceived similarities with the circular shape of concrete objects. As argued in studies in metaphor that "source domains […] include the various properties of objects and substances, such as their shape, color, size, hardness, transparency, sharpness, weight, and many more" (Kövecses 2010: 22). The interpretation proposed here is that periods of time in class 7 e.g., days and months exemplified in (21), are conceptualised as circular. The noun *fi-eñ* for instance, designates both the 'moon' and the 'month' and the categorisation of the latter among round entities is most likely based on the shape of the former. This is a conceptual metaphor which originates from an understanding of time (the target domain) as an object (the source domain).

(21)

fu-*nah* 'day'		**fi**-*eñ*	'month/moon'
fu-*jam* 'rainy season'		**fi**-*e*	'dry season'
fí-*yyay* 'last day of the week (holiday)		**fu**-*ccanamut*	'fourth day of the week'

Edible animals such as fish and birds are classified based on their perceived physical shape and the interactions humans have with them, rather than on their membership in a 'category' of animals. Thus fish having a round shape (the fattest ones) are included in class 7 as is the case for birds which are conceived of as rounder i.e., those that are fatter than others and those that are more valued for consumption.

(22)   **fu-**sabet   'brown bullhead'   **fi-**ŋŋeŋam   'kind of fish'

       fú-hun   'kind of fish'   **fu-**laç   'shark'

(23)   **fu-**fora   'partridge'   **fú-**puget   'spur-winged goose'

       fu-ppata   'male duck'   **fu-**gotta   'African darter'

The relevance of round shape as a fundamental parameter of classification for class 7 is further corroborated by a productive class shift whereby a noun from another class denoting a non-round entity combines with the prefix for class 7 and triggers class 7 agreement if it is to be interpreted as round or fat as exemplified in (24).

(24)   **a-**ññil   'child'   **fi-**ññil   'round/fat child'

       ga-ñen   'hand'   **fi-**ñen   'round/fat hand'

       Ø-áine   'man'   **f-**áine   'round/fat man'

       Ø-aare   'woman'   **f-**aare   'round/fat woman'

In summary the classification of nouns in class 7 is not based on categories such as fruit, animals, fish, body parts, but primarily on round shape. Objects are assigned to class 7 based on prototypicality and family resemblance, and include those from the most globular to the least round. Note that all nouns in class 7 form their plural in class 8 which includes round objects in the plural. These include loanwords such as *gú-ru* 'wheels' (Fr. roue), *gu-vvolaŋ* 'steering wheel' (Fr. volant) but also Eegimaa nouns that denote round entities which do not have a singular counterpart e.g., *gu-ffot* 'testicles'. The noun *jí-çil* 'eye' is incorporated in this plural class and realised as

gú-çil 'eyes' on the basis of shape. In the singular class the eye is classified among small and fragile entities by its assignment to class 11. In Table 2 above, this mismatch is represented by a dashed line between class 11 and class 8.

The principles of classification of entities according to their shape also apply to the categorisation in class 9 where flatness is the main semantic parameter. Contrary to round objects which are generally thick, flat objects are prototypically thin and also include the feature of width.

An example of an entity that instantiates the prototype of flatness in class 9 is *ga-toj* 'leaf'. Other nouns in Eegimaa referring to objects having a flat and thin shape are exemplified in (25) below. Similar to these objects, loanwords referring to entities with a flat and thin configuration are classified in class 9 as illustrated in (26) below.

(25) **gá-***bil* 'grass skirt' **gá-***bifum* 'fan (made from a leaf)'

    ga-*ppeh* 'mat' **ga-***babar* 'plank'

    ga-*kkaraj* 'dried fish' (normally flattened) **ga-***sinja* 'belt'

(26) **ga-***hait* 'sheet of paper '(Wolof 'këyit') **ga-***ssede* 'CD (Fr, CD)'

    gá-*ppano* 'panel' (Fr. Panneau) **ga-***palat* 'lid' (Fr. Plate)

    ga-*kkorijet* 'piece of corrugated iron' (Fr ?) **ga-***bbaç* 'tarpaulin' (Fr. bâche)

Flatness is attributed to open spaces (typically wide spaces where there are very few or no trees) which also include the feature of 'width' (cf. [27]). Visibility in such places is generally unlimited because of the extension in space, and these spaces can be considered flat when compared to the forests which dominate the Eegimaa people's environment. The spatial features of flatness and width which account for the semantic classification of concrete entities are also applied to nouns which refer to periods of time such as those illustrated in (28) below. Time concepts in class 9 contrast with those assigned to class 7 which, as suggested in example (21) above, are conceptualised as round. The former include periods of rest, conceived of as flat like

concrete objects because they are characterised by a lack of activities in the community. Based on Kövecses (2010: 22), it is suggested here that the source domains of the metaphorical categorisation of time periods in class 9 include, similar to those of class 7, properties of concrete objects like shape and size. Note here that this suggested spatio-temporal metaphorical link is also motivated by culture-specific factors discussed in the next section.

(27) **ga-*ffit***   'shore'   **gá-*haŋ***   'clear area of the rice fields'

ga-*parandaŋ*   'glade'   **ga-*as***   'territory'

(28) **gá-*yyil***   'era'   **gá-*elo***   'rest'

ga-*robo-ró*   'holiday'   **ga-*vvela***   'year without pre-initiation ceremony' (which takes place every two years.)

gá-*jjimel*   'dinner'   **gá-*jimandiŋ***   'sacred week after the death of a member of the royal family' (no activity takes place)

Like the fish types in class 7 which are classified on the basis of their shape (round), the classification of those in class 9 is motivated by their flat shape as illustrated in (29). However, other animal types are incorporated in class 9 based on their size rather than their shape. For example birds in this class are the biggest among birds, and flatness seems to be a less relevant criterion justifying their categorisation into class 9. In contrast to birds in class 7 which I referred to as the roundest among birds, those in class 9 are in most cases not hunted. Their semantic classification is primarily motivated by their big size which is linked to the criterion of width through a radial category as suggested in Sagna (2008: 239).

(29) **ga-*felej***   'kind of flat fish'   **ga-*poroh***   'carp'

ga-*pparah*   'low croaker'   **ga-*tommal***   'sole'

(30) **ga-*çiroŋ***   'wood ibis'   **gá-*hubut***   'great plain eater'

gá-*laŋa*   'pelican'   **ga-*gganar***   'crow'

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gá-*lluttu*	'ground hornbill'	**ga-***teganiñambas*	'giant kingfisher'

Body parts in class 9 are predominantly flat as can be seen in (31) below. However, they also include thinness and rigidity to a lesser extent as part of the parameter of classification (see Sagna 2008: 249-254). There are two plural correspondences to these body parts which thus show a one-to-many singular plural correspondence represented in Table 2 above with two lines from class 9 to class 8 (dashed line) and class 6 (solid line). The last three examples in (31) and those in (32) are nouns in class 9 denoting body parts which do not always have a flat or thin shape. A possible motivation for their inclusion in this class in the singular is the strong tendency for limbs e.g., *ga-bes* 'wing (of bird or plane)/palm (of a palm tree)' to be included in this class. Another possibility for 'hand/arm' and 'leg/foot' is a metonymic classification based on the shape of the 'hand' and 'foot'. The distinction between body parts with flat configuration and those which are not flat but are included in class 9 in the singular is formally reflected in the plural by the use of distinct noun class markers. Semantically, body and tree parts with a clear flat shape form their plural in class 6 (except *u-an* 'branches') whereas those that form their plural in class 8 possess the feature of roundness, just like other round entities which form their plural in class 8. As in the case of *jí-çil* 'eye', the singular seems to use different criteria than the plural, where shape encoding is more clearly expressed. Note that the plural of *ga-nnu* 'ear' is realised by some speakers as *u-nnu* 'ears' instead of the more common *gu-nnu*, thus pointing at a competition of criteria between the features of roundness and flatness combined with relative thinness.

(31)	**ga-***rab*	'cheek'	**u-***rab*	'cheeks'
	ga-*pol*	'skin'	**u-***pol*	'skins'
	ga-*bes*	'wing/palm leaf'	**u-***bes*	'wings/palm leaves'

| | *ga-an* | 'branch' | *u-an* | 'branches' |

(32)	*ga-nnu*	'ear'	*gu-nnu*	'ears'
	ga-ññen	'hand/arm'	*gu-ññen*	'hands/arms'
	ga-at	'foot/leg'	*gu-ot*	'feet/legs'

From the discussion above, it appears that features such as flat shape and big size are properties central to class 9. Nouns from a different class may be productively shifted to class 9 to express big size and by extension augmentative and derogatory meanings as illustrated in example (33) below. Such an extension of meaning is most probably triggered by a chaining process based on the association of width with big size and a negative association with oversized entities.

(33)	*fi-ssih*	'finger'	*ga-ssih*	'big/ugly finger'
	e-mottar	'watch (fr. Montre)'	*ga-mottar*	'big/broken watch'
	a-ññil	'child'	*ga-ññil*	'big/useless child'
	e-pattaloŋ	'trousers' (Fr. Pantalon)	*ga-pattaloŋ*	'big/ugly trousers'

In the discussion above, I briefly mentioned the integration of loanwords[11] as evidence for the importance of shape as a criterion in the Eegimaa noun class system. Table 4 presents the distribution of loanwords into different Eegimaa noun classes also presented in Table 2 above.

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[11] This study includes all the loanwords in the Eegimaa database. These loanwords, which are frequently used by monolingual speakers, have been collected through elicitation, participant observation and from texts from different genres (e.g., conversations and narratives). Their integration in the language is phonologically characterised by the use of epenthetic vowels to break any consonant clusters in the source word and morphologically by their combination with a noun class marker.

Table 4: The distribution of loanwords in the Eegimaa noun class system (from Sagna [2008: 285])

| Noun class	Used prefixes	Number	%	Typical domains
1	a-	15	11.3%	Humans
3	e-	58	43.6%	Default class/unspecified
4	su-/si-	2	1.5%	Paired entities
5	bu-	7	5.3%	Trees
7	fu-/fi-	21	15.8%	Round shape
9	ga-	30	22.6%	Flat shape
Total		133	100%	

There are three main strategies by which loanwords are assigned to the Eegimaa noun classes. First, most loanwords are assigned to the default class 3 where no semantic property of the borrowed nouns is specified. Loanwords can also be integrated into a noun class based on phonological similarities of the first syllable of the borrowed noun to an Eegimaa noun class prefix. The nouns *si-garet* '**ci**garettes' (from French) and *ga-rafa* 'bottle' (from Portuguese Creole '*garaafa*') are examples of phonologically based noun class assignment. Finally, most loanwords other than those in class 3 are directly assigned to classes 7 and 9 if they exhibit the prototypical shapes encoded in these classes e.g., *fu-baloŋ* 'football', *gá-ffay* 'sheet of paper' (Fr. feuille). Note however that a noun may be reclassified based on semantic reanalysis. The noun *si-garet* 'cigarettes' which by analogy acquired the singular *e-garet* 'cigarette' is often realised *fu-garet* 'cigarette', thus pointing at a semantic reclassification in progress based on round shape as is the case for round and long objects illustrated in (17) above.

Results of experiments involving the naming and description of unfamiliar objects show patterns similar to those observed in the process of integration of loanwords and the conventionalised classification of Eegimaa nouns.

The experiments that were carried out included describing objects included in pictures taken from a Description task designed by members of the Max Plank Institute for Psycholinguistics in Nijmegen (see Hellwig 2006, Seifart 2005), naming novel objects (Baptising task), and drawings of different shapes changing in size from the smallest to the largest in a power point slide task referred to as the Power Point elicitation task (Lüpke 2005). In the Description and Power Point tasks, speakers were asked to use the pro-form *-nde* 'what do you call it/thing' to which they attached one of the fifteen noun class prefixes, to describe the objects[12]. For the Baptising task, I took pictures of objects deemed to be unfamiliar to most Eegimaa speakers (e.g., electric bulb and royal mail pillar box), and asked speakers to name them, with one of the fifteen noun class prefixes attached to the noun used as a name. Recall that in Eegimaa, a noun, except in uncommon instances discussed in 2 above, combines with an obligatory noun class marker.

The aim of these experiments was to discover the criteria used by speakers to classify objects which are unfamiliar to them and compare the results with the classification of the objects in their environment. Pictures 1 to 6 present some of the objects used in the experiments which are described in more detail in Sagna (2008: 65-69 & 296-303). Ten speakers participated in the Baptising task, eight in the shape Description task and three in the Power Point elicitation task.

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[12] Note that the use of any noun class marker was always followed by an explanation, in Eegimaa language, of the choice of that noun class marker instead of another one.
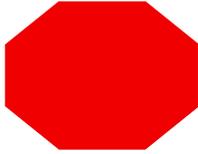
Picture 1: Power Point task-01
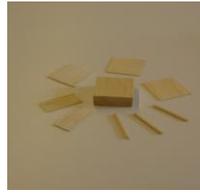
Picture 2: MPI-Serge-Picture-I

Picture 3: Baptising task-01

Picture 4: Baptising task-05

Picture 5: Baptising task-02

Picture 6: Baptising task-09

The results of the Power Point task show that the small-sized objects are predominantly assigned to class 11, where other small entities are found. However, the octagon in Picture 1 above is assigned to class 7 (with round objects) in 70% of the cases and to class 9 (with flat objects) in 30% of the assignments. This suggests a preference for roundness over flatness as a classificatory criterion in this instance, probably because of the resemblance of this object with round entities. On the other hand, the wide and flat square (middle object in Picture 2) is assigned to class 9 in 79% of the cases and to class 7 in only 21% of the responses. The high percentage of assignments to class 9 with flat objects is probably due to a focus on the flat surface of the object and its width rather than its thickness. For the Baptising Task, the white spherical electric bulb photographed from a pavement in London (cf. Picture 3) is assigned to class 7 with other round objects in 100% of responses. The air balloon in Picture 4 is assigned to class 7 with objects having a round shape in 86% of the cases, and 14% in the default/unspecified noun class 3 *e-*. The Elizabethan double aperture royal mail pillar box (cf. Picture 5) is included in class 7 in 57% of cases, 29% in the default class 3 and only 14% in class 9. Here again, it can be hypothesised that the predominant assignment of this object with round objects suggests that roundness is a

more salient feature than size. The clearest case of conflict between speakers occurred in the naming of the round but flat object in picture 6 (taken from Armstrong 2005) in the Baptising task. This object was assigned in equal numbers of responses to class 7 (43%) and 9 (43%) with 14% of assignments to the default class. The conflict of criteria is due to a focus on different features of the objects (roundness and flatness) by speakers. In summary, the discussion of the results of the experiments above has shown that shape is a very important parameter of classification of Eegimaa nouns into classes. Roundness and flatness, which are central criteria used in the categorisation of entities in the Eegimaa speakers' environment as well as borrowed objects, are also used for the classification of novel objects.

In the next section, I examine the culture-specific semantic motivations underlying the unproductive singular-plural pairings (see dashed lines in Table 2) and the related agreement irregularities. The section will mainly include a detailed discussion of the distribution of nouns of human denotation to various classes on the basis of their multiple classifications.

3.3   Culture-specific semantic parameters of classification

In the previous section, I showed that the singular-plural irregularities which occur not only between NCM 11 *ju-* and NCM 8 *gu-* for the noun stem *-çíl* 'eye', but also between NCM 9 *ga-* and NCMs 6 *u-* and 8 *gu-* (cf. Table 2) are motivated by shape encoding. As also reported for other languages (see e.g., J. P. Denny 1976, Dixon 1968, 1982, 1986), the culture-specific motivations of the Eegimaa nominal classification system discussed below reflect an attempt to categorise entities (including humans) of different types with which humans interact.

3.3.1 The classification of humans in Eegimaa. Aikhenvald (2000: 306) observes that among the preferred semantic parameters of classification across nominal

classification systems are the classification of humans according to "social status" and "kinship relationship" in numeral classification systems and only according to "social status" in noun classifier systems. However in systems such as Niger-Congo noun class systems, such parameters are not used. Some West African peoples such as the Fula live in hierarchically organised societies, distinguishing, among other castes, nobles, blacksmiths and griots. But to my knowledge such features of social organisation are not reflected in the noun class systems where the languages spoken in those societies have such systems. Eegimaa people live in an egalitarian society, but the distribution of nouns of human denotation reveals a semantic categorisation of humans based on social factors. The categorisation of humans is discussed in some detail because of the multiple categorisations exhibited by nouns of human denotation. As will be shown in 4 below, the semantic motivations underlying the multiple categorisation of humans are not fundamentally different from that of other entities.

3.3.2 The semantic categorisation of humans. The bulk of nouns denoting humans combine with noun class markers of four classes in the singular. These are NCM 1 *a-*, NCM3 *e-*, NCM 5b *ba-* and NCM 9 *ga-*.

Class 1 is the noun class which includes by far the most nouns of human denotation, some of which are illustrated in (34) and (35). This is also the class productively assigned to loanwords denoting humans (see (35) below), except in the special circumstances discussed below.

(34) **a-rafuhow**   'human being'   **a-aña**   'present'

   á-ssila   'cook'   **a-rema**   'drinker'

(35) **a-lekkola**   'student'   **á-ppurofesar** 'professor'

   a-soddali   'soldier'   **á-tatisa**   'catechist'

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In addition to nouns assigned to class 1 because of their human denotation, a number of nouns denoting humans, including a small number of loanwords, are assigned to class 3 and trigger class 3 agreement on all their dependents. All nouns of human denotation that occur in class 3 in the singular refer to special humans who, compared to those of class 1, stand out in the community because they have extraordinarily good characteristics or they are unique or 'more precious' like the 'only child' (cf. (36) below). Humans in class 3 also include other special humans who are not included in class 1 on the basis of their especially 'abnormal' behaviour as illustrated in (37) below. These are social deviants, for example the 'bachelor' *é-furah*, included in this class because in the Eegimaa people's culture, a man is expected to be married after his traditional initiation. If he remains single after most members of his age group are married, he is categorised as atypical by being referred to as *é-furah* 'bachelor'. A woman on the other hand loses prestige if she cannot give birth and is referred to as *e-motombo* 'sterile woman'. Note that these terms of reference cease to be relevant once a man formerly referred to as *é-furah* 'bachelor' marries or a woman who was considered sterile gives birth.

(36) **é-mbiro**   'champion of wrestling'   **sí-mbiro** 'champions of wrestling'

      e-janjaŋ   'very beautiful person'   **si-janjaŋ** 'very beautiful people'

      é-rimbani   'only child'   **sí-rinmani**   'only children'

(37) **e-ccaga**   'prostitute'   **si-ccaga**   'prostitutes'

      é-furah   'bachelor'   **sú-furah**   'bachelors'

      e-motombo   'sterile woman'   **su-motombo**   'sterile women'

      e-sawas   'savage person (Fr. Sauvage)' **si-sawas**   'savage people'

There is only one noun of human denotation that combines with NCM 5b *ba-*, *bá-jur* 'unmarried young woman'. This noun also triggers the class 5 agreement marker on the definite determiner, but its agreement markers on all other dependent

elements are those of class 1 *a-* as shown in examples (4) and (5) above. This is therefore a case of multiple class membership showing that *bá-jur* '(unmarried) young woman' belongs to both class 1 (humans) and class 5 at the same time. This double categorisation is semantically motivated. Class 5 is the class of assemblages, but also of nouns associated with the domain of experience of birth and maternity, and also includes *bu-yyan* 'heifer', the only mammal in this class. Class 5 is furthermore the class which includes trees whose fruit products are used for consumption and whose leaves, barks and roots used to produce medicine e.g., *bi-llemuña* 'lemon tree/medicine from lemon tree'.

The Eegimaa people are wet rice cultivators and practice cattle breeding. Wealth is traditionally measured by the amount of rice a person has in their loft and by the size of their cattle. Heifers in this context, because of their potential for reproduction, mean expansion of the wealth of a person. During a marriage ceremony, the bride-to-be is referred to as *bu-yyan* 'heifer', instead of *bá-jur* '(unmarried) young woman'. The metaphorical reference of the '(unmarried) young woman' as a 'heifer' indicates that these two entities belong to the same domain of experience because of the function they are expected to play in society. As a result, the '(unmarried) young woman' is included in this class by metaphorical extension since her marriage to a family means the expansion of the family and the increase in the number of workers in the rice fields[13]. As already noted above, if a young woman does not fulfil the function of giving birth, she is included among 'special-abnormal' humans and is therefore referred to as *e-motombo* 'sterile woman'.

The final singular noun class where a limited number of nouns of human denotation are found is class 9. These nouns include *gá-ffannum* 'old person who has

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[13] When the Eegimaa people were entirely dependent on their rice fields for their survival, having a large family was prestigious since it automatically meant being able to increase rice production.

lost their mental and physical abilities', *ga-yugum* 'lazy person', *ga-jjoŋoy* 'person who has lost their physical strength for example because of an illness', *ga-nuhulat* 'adult who has no title'. [14] Recall from the discussion in 3.2 above that class 9 includes nouns denoting a flat configuration when shape is relevant, but also nouns with augmentative and derogatory meanings and is also used to refer e.g., to impaired entities. The notion of impairment is metaphorically applied to humans and justifies the inclusion of weak humans in this class. Note that shifting the noun stem *-ffannum* to class 1 produces *a-ffannum* 'old person', which is a normal way of referring to an old person without any further implications. The stem *-yugum* 'lazy person' cannot shift to noun class 1 to produce **a-yugum*. A lazy person is conceptualized as a useless person just like impaired entities, hence the incorporation of the noun *ga-yugum* 'lazy person' in class 9.

In summary, the classification of humans in different singular noun classes (including cases where a single noun stem can appear with more than one noun class marker) reveals aspects of the culture-specific semantic motivations of the Eegimaa noun class system. These strategies of categorisation are expressed even more clearly in the pluralisation of nouns of human denotation.

There is a formal manifestation of the semantic sub-categorisation of humans in the use of five noun class markers as plural correspondents of NCM 1 *a-*. One of these prefixes, *bug-*, is lexically determined since it is attested with only one noun stem (*an* 'person', *bug-an* 'people'). The noun class prefix 6 *u-* is used as a plural marker with most nouns of human denotation which use NCM 1 *a-* as a singular noun class marker. Humans in this class may be interpreted as ordinary because they do not exhibit any special characteristics and do not have a special status in the community.

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[14] Among Eegimaa people, there used to be different titles whose functions were to acknowledge the hard work, wealth and achievements of a person. Every member of society was expected at the very least to have one title. Failing to achieve any title was sign of laziness.

The use of NCM 8 *gu-* and NCM 3 *e-* as plural markers for NCM 1 *a-* are, on the other hand, semantically based. NCM8 *gu-* is used unproductively (see dashed line from NCM 1 *a-* to NCM 8 *gu-* in Table 2 above) as a plural marker and is restricted to nouns referring to consanguineal kinship relations (cf. (38) below) or nouns denoting humans who can be considered extended members of the family circle i.e. close friends and neighbours.

(38) *a-ttiay*   'same sex sibling'   *gu-ttiay*   'same sex siblings'

    á-llinay   'opposite sex sibling'   *gú-llinay*   'opposite sex siblings'

    a-somay   'father's sister'   *gu-somay*   'father's sisters'

    a-çindor   'neighbour'   *gu-çindor*   'neighbours'

As for noun class prefix 3 *e-*, it is used on the one hand as the singular prefix for the default class and as a collective for colonizing plants (cf. (39) below), i.e. those which wherever they grow tend to choke other plants preventing them from growing in that environment (as discussed above, it is also used as a singular class for 'abnormal' humans).

(39)
    a. *gá-gabal*   'water lily plant'   *ú-gabal*   'water lily plants'

        é-gabal   'colony of water lily plants'

    b. *ga-rarah*   'Impomea asarifolia plant' *u-rarah*   'Impomea asarifolia plants'

        e-rarah   'colony of Impomea asarifolia plants'

On the other hand, NCM 3 *e-*[15] is also used as a plural (or collective) class marker with nouns of human denotation (see dashed line from NCM 1 *a-* to NCM 3 *e-* in Table 2 above), specifically, those denoting human identity groups e.g., those having the same geographical, linguistic, cultural or professional background as

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[15] The fact that NCM3 *e-* can be used in both singular and plural contexts raises the problem of labelling noun class prefixes as singular of plural. This is a question that will be addressed in detail in future research.

illustrated in (40). Note that NCM 3 *e-* can also be used with human nouns in a collective sense to refer to an identity group when conceived of as a unit.

(40)   ***a-labe***   'priest' (Fr. l'abbé)   ***e-labe***   'priests'

       á-jjola   'a Jóola person'   ***é-jjola***   'Jóola people'

       a-pirisoŋ   'prisoner' (Fr. prison)   ***e-pirisoŋ***   'prisoners'

       á-muse   'teacher' (Fr. monsieur)   ***é-muse***   'teachers'

Recall that nouns of human denotation which use NCM 3 *e-* as a singular marker also use NCM 4 *su-* as their plural correspondent and trigger class 3 and 4 agreement marking. The only nouns of human denotation to form their singular using noun class markers other than NCM 3 *e-* but which combine with its plural correspondent NCM 4 *su-* are those shown in (41). These nouns trigger non-alliterative agreement as indicated in Section 2.1 above.

(41)   ***Ø-payya***   'father/mother's opposite sex sibling'   ***si-payya*** 'fathers/mother's opposite sex siblings'

       Ø-jayya   'mother/mother's same sex sibling'   ***si-jayya*** 'mothers/mother's same sex siblings'

       bá-jur   '(unmarried) young woman'   ***sú-jur*** '(unmarried) young women'

The types of humans in example (41) constitute a small subclass of humans with a special status, that of birth-giving. This special status is the reason why the 'young woman' and the two parents have a multiple classification. It justifies their classification as 'normal' humans as their agreement markers suggest, but also their conceptualisation as special humans as indicated by the use of NCM 4 *su-* in the plural[16]. In Table 2 above, these multiple classifications are illustrated by dashed lines between noun class 1 and noun class 5 to class 4.

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[16] Maternal relatives play a very important role in a person's life. This includes among other things, sharing responsibility in the education of the child and providing the heritage (in plots of rice fields) the child receives as an adult for their subsistence. As a result, in case of death, a person's maternal relatives are informed before the death is announced to the rest of the community. The importance of

Multiple semantic categorisations can be seen as a form of "alternate construal" (Langacker 1987: 38). Here, the use of a noun class marker from one class, but an agreement marker from a different class (except on the definite determiner), is a way of alternatively viewing the same entity, by shifting attention (from humanness in the case of *bá-jur* 'young woman' for example) to culture-specifically salient aspects.

The discussion of the categorisation of humans in the singular and the plural shows that they do not fall into one single anthropocentric class, but that culture-specific factors may trigger their incorporation into classes other than those referred to as the human classes. Some nouns of human denotation exhibit multiple morphosyntactic classification which is revealed by the use of a noun class marker other that of their original class but an agreement marker of the class to which they belong. As shown above, such apparent morphosyntactic irregularities are in fact overt reflections of the use of multiple criteria in the categorisation of humans. This use of different noun class markers is in line with Palmer's (1996: 141) claim that a "speaker can use noun class prefixes to […] reschematize noun-root[s]" by selecting features of their referents. Humans do not only classify non-human entities based on their interactions with those entities, they also classify other humans in their environment based on some of their characteristics and behaviours.

3.3.3 Multiple categorisations with non-humans. Another irregular singular-plural correspondence which is also a case of multiple classification is the one shown by the dashed line between NCM 11 *ju-* and NCM 4 *su-* in Table 2 above. This apparent exception illustrates another culture-specific semantic motivation of the Eegimaa noun class system with the singular and plural formation of *ji-ggaj* 'panther', which

maternal relatives and the fact that they are said to 'own' a child is probably why they are also referred to as 'parents'.

uses the singular diminutive noun class marker 11 *ju-* but the plural noun class marker 4 *su-*. The use of NCM 11 *ju-* to refer to such a dangerous animal is based on euphemism, a way of taming an animal which is described as one that used to be the main predator in the Eegimaa habitat. Note that there is speaker variation in the plural realization of this noun. Some speakers use the singular form *ji-ggaj* 'panther' with a plural agreement marker whereas other speakers use the form *si-ggaj* 'panthers' with class 4 agreement. The argument that the choice of noun class marker is motivated by euphemism in this instance is corroborated by the existence of 'the ritual of the panther' *ga-ggaj* which is performed during the funerary ceremony of a man to prevent a possible reincarnation of the dead man into a vicious panther.

4   Correlations between principles of semantic categorisation

This section attempts to address the question of why there are multiple classifications and why certain prefixes are preferred to others in these contexts. In the previous sections (see also Table 3), I have shown that noun classes encode certain semantic features e.g., shape. In cases of multiple classifications, a given noun class prefix is used to overtly indicate that the classified entity comprises properties associated with both the class whose prefix is used and its original class (as revealed by agreement). Although some of these classifications are based on shape, the semantic parameters used in these cases are generally culture-specific.

The classified entities belong to different categories, but their use of the same noun class marker is a way of focussing on the shared salient properties between those entities. For example, the use of NCM 3 *e-* as a plural and collective marker for nouns denoting human bodies and a collective marker for plants suggests that human identity groups are conceived of as colonies, just like 'colonising plants' (cf. Table 3) which choke other plants wherever they grow. For example, ethnic groups normally

occupy a specific geographical area of their own[17] hence their conceptualisation as a colony. Similarly, humans involved in the same professional activities make up a homogenous group since these newly introduced activities are in most cases monopolised by a restricted, though expandable group of qualified people and typically exclude unqualified people for these activities. Therefore, the use of NCM 3 *e-* is based on perceived similarities of properties between some human groups and certain plant species.

Kinship (see (38) above), on the other hand, is metaphorically conceived of as a relatively closed circle, hence the use of the plural prefix NCM8 *gu-* which combines with nouns denoting globular, roundish and circular concrete and abstract entities. Therefore, it can be argued that metaphorically, kinship is conceptualised as a circle of humans, thus showing a link with (round) shape. The reason why the nouns for 'father and mother', which are consanguineal kin terms, do not combine with NCM 8 *gu-* is because of the special status of 'parents'. 'Parents' have a special status just like the 'young woman' because of their role in birth-giving, which justifies their inclusion in the same plural class (combining with NCM 4 *su-*) as other special humans.

In addition, it can be said following Lakoff and Johnson's (1980) formula (TIME IS MONEY) that A YOUNG WOMAN IS A HEIFER because of the value and the function she is expected to play as a married woman. This is what motivates the multiple classification of 'young woman'. Similarly WEAK HUMANS ARE IMPAIRED because of their uselessness in society just like damaged entities such as tools that have lost their value and importance. The metaphorical conceptualization of certain humans as 'impaired' accounts for their assignment to class 9. Furthermore, A PANTHER IS

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[17] Note that the existence of multiethnic villages and cities is a relatively recent phenomenon in the history and the surroundings of the Eegimaa people.

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(metaphorically) A SMALL THING. This strategy of categorisation is not rare in noun class systems. Contini-Morava (1997) shows how in Swahili, the classification of the 'Rhinoceros' is based on similar principles whose objectives are to figuratively tame or conceptually represent a dangerous and feared entity as less harmful than it is in reality.

Finally, on the basis of its classification, an eye is presented as a fragile and round entity. The combination of the noun stem denoting 'eye' with the diminutive prefix NCM11 *ju-* is due to a foregrounding of the features of smallness or fragility in the singular and the backgrounding of shape which becomes foregrounded in the plural, thus confirming the observation that the semantic parameters of categorisation are expressed more clearly in the plural. The semantic features of shape then account for the irregularity in the singular-plural correlations between NCM 11 *ju-* and NCM 8 *gu-*. Once the irregularities in Table 2 are accounted for, it becomes clear that Eegimaa uses multiple classifications to indicate the way speakers relate to certain entities. This means that multiple conceptual categorisations are revealed by multiple overt noun classification. Without such expressions every singular class in Table 2 would have only what one plural correspondent and there would be no one-to-many singular-plural correlations.

5 Conclusion

In this paper, I have shown that the classification or categorisation of entities in the Eegimaa noun class system is not based on binary features as suggested by the Aristotelian theory of categorisation which is the approach traditionally used in research on Niger-Congo noun class systems. Rather, Eegimaa has a complex noun class and number system, exhibiting singular and plural correlations with count nouns on a one-to-one, one-to-many and many-to-one basis. I have shown that there are

cases of multiple classifications, characterised on the one hand by irregular singular-plural correspondences and on the other hand by mismatches between noun class prefixes and their agreement correspondents. I have also shown that, in some instances, plural classes reveal semantic classes more clearly than their singular counterparts. The semantic motivations underlying noun class systems such as Eegimaa are generally downplayed in Niger-Congo linguistics. However, the proposal that noun class systems are reflections of conceptual categorisation systems structured by prototypicality, family resemblance, metaphor and metonymy has proven to be a fruitful tool for the analysis of the semantic basis of the Eegimaa noun class system. In this paper, I have argued that categories such as animals, abstract nouns and fish used in traditional approaches have little significance in the categorisation system of Eegimaa. In this language, physical properties (primarily round or flat shape for Eegimaa) are used to classify entities familiar to speakers, but are also used productively in the classification of loanwords and novel objects shown to speakers in experiments. Furthermore, there are culture-specific semantic parameters of categorisation which account for the overt multiple classifications of nouns. Individual noun classes have conceptual content and for this reason, a noun that shows multiple classifications also reveals multiple conceptual categorisation of the entity it denotes. Moreover, the culture-specific semantic parameters, which are not acknowledged in traditional approaches, often override criteria such as humanness, based on functional or interactional criteria. Overall, the analysis proposed here shows that Eegimaa has an overt grammatical noun class system which also overtly reveals speakers' mental categorisation of their experience.

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