

Morphological alternation and event delimitation in Eegimaa

Serge Sagna

Department of Language & Linguistic Science, University of York <serge.sagna@york.ac.uk>

It is rare for a language to be able to use noun class markers in the nominal domain to categorise entities, and at the same time, use these same linguistic markers to categorise events from the verbal domain. Such a system can be found in Eegimaa and some other related Atlantic languages spoken in the Basse-Casamance area of Southern Senegal, where non-finite verbs and the events they refer to are classified using several different noun class prefixes. In these languages, the use of individual noun class markers as non-finite verb classificatory markers is lexically determined. But, there are also instances where different noun class prefixes can alternate on verbal stems. Whenever these alternations are attested, one of the alternants must be *e-*, and the other can be any prefix attested on non-finite verbs, including class prefixes *ga-* and *ba-* which are studied here. I show that in these alternations, class marker *e-* is used to express event delimitation by expressing features such as individuation and telicity which, in the typological literature, have been associated with properties of high transitivity. However, when other prefixes like *ga-* and *ba-* alternate with *e-*, they express values of non-individuation and atelicity which are placed on the lower end of the transitivity scale.¹

KEYWORDS: Non-finite verbs; infinitives; verbal nouns; overt verb classification; transitivity hierarchy; event delimitation

1. Introduction

This paper explores the strategies by which event singularity is expressed in Eegimaa non-finite verbs, drawing on the literature on features such as affectedness (e.g. Beavers 2011), individuation, and telicity, which are properties associated with scalar transitivity distinctions (see e.g. Hopper & Thompson 1980; Næss 2007). In Eegimaa, an Atlantic (Niger-Congo) language of the Jóola language cluster spoken in Southern Senegal, noun class prefixes are used as nominal classification devices. Several different noun class markers from the nominal domain are also used to classify verbs in their non-finite forms, and thereby categorising the events and states they refer to. Eegimaa non-finite verbs are assigned to up to 15 morphological classes, each with its own prefix. The combination between a verbal stem and one of the possible 15 prefixes is lexically determined. However, many stems

allow alternations between at least two prefixes. Whenever these alternations are attested, one of the prefixes must be the nominal default prefix *e-*, which combines with most Eegimaa nouns and loanwords that are not classified based on phonology and semantics.

In this paper, I argue that the alternations between the prefix *e-* and other prefixes like *ba-* and *ga-* reflect strategies of event delimitation. The prefix *e-* is used as a marker of individuation and is as a result preferred in clauses having definite singular objects, and expressing features like telicity, specificity and affectedness, which are associated with higher transitivity. By contrast, prefixes like *ba-* and *ga-* are preferred in clauses with indefinite and plural objects, where atelicity, non-individuation, non-specificity and non-affectedness are expressed. I argue that such contrasts are even more apparent with objectless clauses where the use of the prefix *e-* produces very odd sentences. In this paper, I show that while prefixes like *ba-* and *ga-* can occur with verbal stems in objectless clauses to express features such as atelicity and non-specificity, the prefix *e-* would only be acceptable in objectless clauses in context-dependent object deletion, where the deleted object can be recovered from context (Næss 2007: 124-125).

This paper is structured as follows. Section 2 discusses the use of noun class prefixes on nouns and on non-finite verbs as a preliminary for the discussion in the rest of the paper. I show that non-finite verbs are morphologically classified and briefly show why such a classification reflects a semantic categorisation of events. In section 3, I examine instances of prefix alternations on non-finite verbs taking different kinds of objects and in objectless clauses, focussing on noun class prefixes *e-*, *ba-* and *ga-*. I show why these morphological alternations should be seen as strategies of event delimitation.

2. Noun class markers on nouns and on non-finite verbs

2.1. Noun classification and agreement marking

Eegimaa has a noun class (or non-sex-based gender) system of the Niger-Congo type. In this type of nominal classification system, all nouns are assigned to a category referred to as a ‘noun class’ or a ‘gender’ depending on the approach. There are two main approaches to the analysis of noun class systems. In the traditional Africanist approach, singular and plural forms of a noun are analysed as members of different noun classes based on differences in agreement patterns. The morphological markers on nouns are not taken into account in the identification of classes.

The approach I use here follows Corbett (1991; see also Aronoff 1994) and separates morphological classes from agreement classes, which include singulars and plurals analysed as one category. ‘Noun class marker’ is the term used for the marker on the noun and ‘gender marker’ for the one that occurs on the agreeing element².

Table 1 below shows that morphological class marking and agreement class marking do not always match. For example, the nouns ‘panther’ and ‘elephant’ in Table 1 belong to different morphological/inflection classes, namely *ji-/su-* and *e-/su-*, as shown by the prefixes they take. However, their agreement class is the same as is evident from their identical agreement markers (*e-/su-*).

Table 1. Mismatches between morphological marking and agreement marking

GLOSS	EXAMPLE	INFLECTION CLASS	ADJ.AGR	VERB.AGR
‘panther’	<i>ji-ggaj</i>	<i>ji-/su-</i>	<i>e-/su-</i>	<i>e-/su-</i>
‘elephant’	<i>e-ñih</i>	<i>e-/su-</i>	<i>e-/su-</i>	<i>e-/su-</i>

Using this approach, Eegimaa has 10 genders but 31 morphological classes. For reasons of space the Eegimaa morphological classes and their interactions with agreement cannot be discussed in detail here. The reader is referred to Sagna (*under review*) for a detailed study of the different analytical approaches, and an account of the interactions between Eegimaa morphological classes and agreement classes.

This paper focusses on the use of prefixes in their function as non-finite verb class markers. Genders are not analysed here. Table 2 presents all the prefixes found with both nouns and non-finite verbs. Only non-finite verbs are presented in the table.

Table 2. Prefixes found in both the nominal and verbal domains

NONFINITE VERBS TAKING SINGULAR PREFIX			NONFINITE VERBS TAKING PLURAL PREFIX		
SG	Examples	Gloss	PL	Examples	Gloss
<i>e-</i>	<i>e-ber</i>	‘to laugh / laughing / laughter’	<i>su-/</i>	<i>si-ttehumor</i>	‘to dither/ dithering’
<i>bu-</i>	<i>bu-ñumor</i>	‘to woo / wooing’	<i>u-</i>	<i>u-kkoŋ</i>	‘to cry/crying’
<i>ba-</i>	<i>ba-vvu</i>	‘to sweep / sweeping’	<i>gu-</i>	<i>gú-teh</i>	‘to beat/beatting up’
<i>fu-</i>	<i>fú-rosor</i>	‘to play/playing/game’	<i>mu-</i>	<i>mu-jah</i>	‘to be clever/ cleverness’
<i>fa-</i>	<i>fá-ruho</i>	‘todaydream/daydreaming’	<i>ma-</i>	<i>ma-rem</i>	‘to drink/ drinking’
<i>ga-</i>	<i>ga-ven</i>	‘to row/rowing’			
<i>ju-</i>	<i>ji-bij</i>	‘to lie/lying’			
<i>ja-</i>	<i>ja-ssaw</i>	‘to hunt/hunting with gun’			
<i>ñu-</i>	<i>ñu-ssu</i>	‘to be/being ashamed; shame’			
<i>ña-</i>	<i>ña-es</i>	‘to barter/barter’			

The shaded rows in the table highlight the classes of non-finite verbs which are investigated in this paper. The prefixes studied include the singular prefix *e-*, which is traditionally referred to as the default prefix because it applies to the largest number of nouns, as well as being the prefix which combines with loanwords that are not assigned to morphological classes or genders based on semantic or phonological grounds. In the nominal domain this prefix is not associated with a specific semantic property, but in the verbal domain, as will be shown below, it functions as a marker of event singularisation. The second prefix studied here is *ba-* whose main function in the nominal domain is to express diminutive collective meaning i.e. assemblage or collections of small things. The meaning of collection is carried over to the verbal domain to express multiplicity of actions and participants, thus showing parallels between the nominal and verbal domains (Schultze-Berndt & Sagna 2010). The last prefix examined in the paper is *ga-*, which in the nominal domain includes meanings like flatness and width, while the verbal domain it expresses durativity as argued in Sagna (2008). Of interest in this paper, are the alternations between the prefix *e-* and these last two prefixes. Since non-finite verbs are not involved in singular-plural distinctions, I use the term ‘non-finite verb class’ in this paper to refer to the set of non-finite verbs that take the same prefix before any alternations of the type discussed here.

2.2. Noun class markers as non-finite verb markers

As pointed out above, Eegimaa non-finite verbs are formed using several of the noun class markers from the nominal domain. They can be distinguished from finite verbs based on a number of properties. Non-finite verbs combine with noun class markers just like nouns, whereas their finite counterparts take subject prefixes, which occur in the same slots as the noun class markers, showing agreement in gender, number and also person with their controller nouns. In example (1) below, the subject marker *a-* on the finite verb ‘draw’ shows agreement in Gender I, singular number, and 3rd person with the subject noun *Jirimma*. Finite verbs also take TAM affixes like the completive suffix *-e* and the realis marker *n-* which are not permitted with non-finite verbs.

- (1) Subject marker on finite verbs
Jirimma *n-á-ij-e* *m-al*
 Jirimma(I.SG) REAL-I.3SG-draw-CPL CL10-water(VI.SG)
 ‘Jirimma drew water’ (ss20060410_ab)³

Combining with noun class prefixes is one of the nominal properties of Eegimaa non-finite verbs. Other nominal properties include

occurring in argument position as in (2) below where the non-finite verb *gá-ij* ‘draw/drawing water’ occurs in subject position and triggers agreement in gender and number.

- (2) A non-finite verb functioning as a noun
gá-ij *gú-ttañi-ttañi*
 CL9-draw.water(V.SG) V.SG-be_difficult-REDUP
 ‘Drawing water is difficult’

In terms of their distribution, non-finite verbs generally occur after complement taking predicates (CTP) as is the case cross-linguistically (see e.g. Haspelmath 1989; Koptjevskaja-Tamm 1993; Noonan 2007). These CTPs include desiderative (‘want’) verbs (see example (3)), phrasal aspectual predicates including inceptive verbs (see example (4)), continuative verbs, and terminative verbs (see example (5)). Non-finite verbs also occur in non-verbal clauses as in example (6).

- (3) The non-finite verb ‘laugh’ takes the prefix *e-*
Appu *na-mammaj* *e-ber* *mámah*
 Appu(I.SG) REAL.I.3SG-want.REDUP cl3-laugh a-lot
 ‘Appu likes to laugh a lot’ (ss20140404_AmT)
- (4) The non-finite verb ‘weed’ takes the prefix *ba-*
aare-aw *na-kkumasi-e* *ba-fosul* *u-llah* *wawu*
 [CL1]woman-I.SG.DEF REAL.I.3SG-start-CPL CL5B-WEED CL6-field(V.PL) V.PL.DEF
 ‘The woman has begun weeding the fields’ (ss20130819_RB)
- (5) The non-finite verb ‘hunt’ takes the prefix *ja-*
Appu *na-hal-e* *ja-ssaw* *si-tahalla*
 Appu(I.SG) REAL.I.3SG-stop-CPL CL11B-hunt CL4-gazelle(II.SG)
 ‘Appu has stopped hunting gazelles’ (ss20140404_AmT)
- (6) The non-finite verb ‘mind cattle’ with the prefix *ga-*
bu-rokk-ol *ga-kkoñ* *si-haj*
 CL5a-work-3sg.POSS CL9-mind_cattle CL4-domestic_animal(II.SG)
 ‘His/her job is to mind cattle’

Eegimaa non-finite verbs also retain verbal properties. For example, they are modified by adverbs as illustrated in (3) above with the adverb *mámah* ‘a lot’. They also take objects just like finite verbs. This can be seen by comparing examples (1) above with (7) below, where the non-finite verb *gá-ij* ‘draw/drawing water’ takes an object.

- (7) A non-finite verb taking an object
Jirimma *n-a-kka-e* *gá-ij* *m-al*
 Jirimma(I.SG) REAL-I.3SG-go-CPL CL9-draw CL10-water(VI.SG)
 ‘Jirimma has gone to draw water’ (ss20060410_ab)

We have seen in this section that non-finite verbs are belong to different morphological classes. In total, up to 15 different noun class prefixes combine with verbal stems to form these non-finite verbs. The use of several mutually exclusive noun class prefixes to assign non-finite verbs into different morphological classes is a form of overt verb classification, which, I argue, reflects a semantic categorisation of events and states in Eegimaa. Overt verb classification may be defined following McGregor (2002: 1-2) as a phenomenon whereby “verbs and/or the events they refer to are overtly categorized into types by grammatical means”. I provide a brief overview of the semantic categories of non-finite verb classes in Eegimaa in the next section.

2.2.1. A brief survey of the overt classes of verbs

The discussion above has shown that Eegimaa non-finite verbs are mixed categories in that they have both nominal and verbal properties. It is in their verbal functions that non-finite verbs categorize event and states. Sagna (2007; 2013; 2014; see also Schultze-Berndt & Sagna 2010) argues that the prefix *ba-* exemplified in (4), which functions as a marker of diminutive collective marker with nouns to express multiplicity of entities, is also used with verbs to express multiplicity of actions and participants. I argued that the use of this prefix in the nominal and verbal domains shows that there are parallels in the categorisation in both domains based on the concept of multiplicity. Here events are inherently composed of multiple actions or performed by multiple participants. Note that multiplicity does not mean that the entire event is repeated multiple times. The prefix *ja-* in (5) is used with verbs of fishing, hunting, and sports played with opposite sides. Sagna (2008), referred to this category as one of “contact and force”, a term borrowed from Clausner & Croft (1999) to capture the idea that most verbs presuppose attraction and counterforce. Non-finite verbs that take the prefix *ma-* refer to unbounded events such as bodily processes, which include verbs of emission and ingestion like *ma-sur* ‘urinate/urinating’ and *ma-rem* ‘drink/drinking’ (Sagna 2008: 311). As argued in Schultze-Berndt & Sagna (2010), the categorisation of unbounded events in the verbal domain shows parallels with the categorisation of liquids and masses from gender *mu-/ma-* in the nominal domain, because the latter are unbounded entities. As for those taking the prefix *ga-* they were described as the durative class to capture the fact that most verbs in this class refer to events which describe lasting activities (Schultze-Berndt & Sagna 2010). Note, as pointed out earlier, that the prefix *e-* which is the

default morphological class marker in the nominal domain does not seem to be associated with any special overt semantic category. It is in fact the class which contains most verbs in their non-finite forms.

Subsequent research on the classification of non-finite verbs (verbal nouns) in Baïnounk Gubëeher (Cobbinah 2013), and Kujireray, a variety of Eegimaa, (Watson 2015) also report the existence of non-finite verb classes expressing the concepts of durativity, multiplicity, and emission and ingestion, as well as the parallels between the nominal and verbal domains previously discovered in e.g. Schultze-Berndt & Sagna (2010). In the next section, I introduce the issue of prefix alternations on non-finite verbs, before investigating the motivations behind these alternations in section 3 below.

2.2.2. Morphological alternations

Verbal stems especially those from class *e-* like *-ber* ‘laugh’ illustrated in (3) above are only compatible with one prefix, *e-* in this case. So they are lexically restricted and cannot take another prefix. There are however other stems which allow more than one prefix, and whenever this happens, the alternating prefix is always the prefix *e-* as pointed out earlier. This is exemplified in (8) and (9) below where the prefixes *e-* and *ga-* alternate on the verb stem *-rafen* ‘breastfeed’.

- (8) The root ‘suckle’ with the prefix *e-*
aare-aw *umu* *n’* *e-raf-en* *a-n̄ñil* *ahu*
 [CL1]woman-I.SG.DEF I.SG.COP PREP’ CL3-suckle-CAUS CL1-child(LSG) I.SG.DEF
 ‘The woman is breastfeeding the child.’ (ss20060409_ab)
- (9) The root ‘suckle’ with the prefix *ga-*
aare-aw *umu* *n’* *ga-raf-en*
 [CL1]woman-I.SG.DEF I.SG.COP PREP’ CL9-suckle-CAUS
 ‘The woman is breastfeeding the child.’ (ss20060409_ab)
- (10) The non-finite verb ‘spit’ takes the prefix *e-*
aare-aw *umu* *n’* *e-mas*
 [CL1]woman-I.SG.DEF I.SG.COP PREP CL3-spit
 ‘The woman is spitting.’
- (11) The non-finite verb ‘spit’ takes the prefix *ga-*
aare-aw *umu* *n’* *ga-mas*
 [CL1]woman-I.SG.DEF I.SG.COP PREP CL9-spit
 ‘The woman is vomiting.’

When these alternations are attested, the two prefixes may occur in free variation as in Fogny (Sapir 1965), or they may result in derivation as exemplified in (10) and (11) above. There are intermediate cases where the outputs of the prefix alternations are not instances of canonical derivation. I will argue in the next section that the alter-

nations between noun class prefix *e-* and prefixes like *ga-* or *ba-* are strategies of event delimitation, and express differences of features associated with semantic transitivity.

3. Semantics of prefix alternations and event delimitation

3.1. The transitivity parameters

In traditional accounts, the notion of transitivity is viewed as existing in a clear-cut dichotomy between transitive and intransitive verbs. In the first case, verbs occur in clauses with two arguments or more, whereas in the second, verbs are found in clauses having one argument.

Hopper & Thompson (1980) argue that transitivity is a continuum, and that clauses can be ranked as more or less transitive. Hopper and Thompson propose the parameters presented in Table 3 to account for transitivity in language. They argue that if a clause exhibits a great number of high transitivity features, it will be ranked higher in the transitivity scale than one that shows fewer high transitivity features, which will be classified as a lower transitive clause⁴.

Table 3. Transitivity parameters according to Hopper and Thompson 1980

		HIGH	Low
A.	Participants	2 or more participants, A and O	I participant
B.	Kinesis	Action	Non-action
C.	Aspect	Telic	Atelic
D.	Punctuality	Punctual	Non-punctual
E.	Volitionality	Volitional	Non-volitional
F.	Affirmation	Affirmative	Negative
G.	Mode	Realis	Irrealis
H.	Agency	A high in potency	A low in potency
I.	Affectedness of O	O totally affected	O not affected
J.	Individuation	O highly individuated	O nonindividuated

Hopper and Thompson (1980) further argue that the parameter of individuation is composed of the features presented in Table 4 below.

Table 4. The features of the individuation parameter

INDIVIDUATION	NON-INDIVIDUATION
proper	common
human, animate	inanimate
concrete	abstract
singular	plural
count	mass
reference, definite	non-referential

The approach of transitivity proposed by Hopper and Thompson has been further examined and refined in subsequent works on this topic (e.g. Tsunoda 1985; Malchukov 2006; Næss 2007). In this paper I draw on the works on scalar transitivity to account for the semantics of prefix alternations between the default prefix *e-* and other prefixes on non-finite verbs. I argue that when prefixes alternate on non-finite verbs in non-derivational contexts, the prefix *e-* is generally employed, particularly in clauses with definite singular objects, as a marker of event individuation/unitization and is as a result, an expression of what Hopper and Thompson (1980) call high transitivity. By contrast, the use of other prefixes such as *ba-* and *ga-*, particularly in clauses with indefinite objects or with objectless clauses, expresses features such as indefiniteness and unaffectedness, revealing affinities with lower transitivity. Note that this is not a categorical situation as will become apparent but an indication of strong tendencies. So in other words, prefix alternations of the type discussed here can be seen as a continuum between high and low transitivity expressed by the prefixes *e-* and other prefixes like *ga-* and *ba-*. I begin the discussion with clauses having definite singular objects in the next section. Due to space restrictions, I do not examine all the transitivity features presented in Table 3 and Table 4 above. Rather I focus on (un)bound-ness, (a)telicity, affectedness and individuation to show that prefix alternation on non-finite verbs is related to transitivity features.

3.2. *Definite singular objects*

In Eegimaa non-finite clauses with definite object NPs, there is a strong preference for the prefix *e-* to combine with the verbal stem of the non-finite verb. An example of the use of noun class prefix *e-* is given in (12) below. Noun class prefix alternations are also possible, that is, clauses which take definite singular objects can also take prefixes other than *e-*. In contexts where these alternations are found, as in examples (12) and (13), the choice of the prefix on the non-finite verb indicates subtle semantic differences.

- (12) Definite singular object with prefix *e-*
aare-aw *umu* *n'e-raf-en* *a-ññil-aw*
 [CL1]-woman(1.SG)-DEF.1.SG 1.SG.COP PREP'CL3-suckle-CAUS CL1-child(1.SG)-1.SG.DEF
 'The woman is breastfeeding the child.' (ss20060409_ab)
- (13) Definite singular object with prefix *ga-* (least common)
a-are-aw *umu* *n'ga-raf-en* *a-ññil-aw*
 [CL1]-woman(1.SG)-DEF.1.SG 1.SG.COP PREP'CL9-suckle-CAUS CL1-child(1.SG)-1.SG.DEF
 'The woman has been breastfeeding the child.' (ss20060409_ab)

Alternations with definite object NPs such as those presented in the examples above, yield readings, which range from apparent free variation to clear semantic distinctions. For example, (12) and (13) above may be viewed as instances of free variation, but there are subtle semantic distinctions. The use of the prefix *e-* on the non-finite verb in (12) indicates that the event is construed as individualised in the sense that it describes an ongoing and one-off event. The sentence is normally interpreted as describing a single telic event with a built-in goal. Telicity refers to situations that have inherent or intended endpoint (see e.g. Smith 1991; Depraetere 1995). In example (12) there is a perceived intended endpoint. It is expected that the woman who is breastfeeding the child will stop in the near future. The example is more suitable to describe a situation where a woman is quickly breastfeeding a child to keep him/her quiet.

By contrast, a prefix like *ga-* focuses more on the activity and there is no intended endpoint for the activity. This accounts for the durative and atelic reading of the sentence as in (13) above, where there is no perceived endpoint for the event. Example (13) would suggest that the woman is breastfeeding the child continuously.

In this paper I use the expression ‘take X time to do Y’ to test telicity in Eegimaa. This is because it is difficult to find an equivalent of the standard adverbial ‘in X time’ test used to discover telic events. This test, which implies the existence of an inherent endpoint to an event is exemplified in (14) and (15). For atelicity is used an equivalent of expression to the ‘for X time adverbial test’ in (16). Example (14) shows that the prefix *e-* is preferred with the expression ‘take x time to do y’. However, as shown in example (15) using the prefix *ga-* is odd in that context. On the other hand, the prefix *ga-* is preferred with atelic events as exemplified in (16) below. Using the prefix *e-* instead of the *ga-* in this sentence would produce an odd sentence.

- | | | | | | | |
|------|--|--|--|----------------------------|----------------------------------|------------------------------|
| (14) | <i>n-a-kkan</i>
REAL-1.SG-do
<i>y-aj</i>
CL3-house(II.SG)
‘S/he took two years to build the house.’ | <i>to</i>
there | <i>sí-mit</i>
CL4-year(II.PL)
<i>yayu</i>
II.SG.DEF | <i>sú-uba</i>
II.PL-two | <i>bi</i>
PREP | <i>e-tt-ep</i>
CL3-build |
| (15) | <i>??n-a-kkan</i>
PEAL-1.SG-do
<i>yaj</i>
CL3-house(II.SG)
‘S/he took two years to build the house.’ | <i>to</i>
there | <i>sí-mit</i>
CL4-year(II.PL)
<i>yayu</i>
II.SG.DEF | <i>sú-uba</i>
II.PL-two | <i>bi</i>
PREP | <i>ga-tt-ep</i>
CL9-build |
| (16) | <i>n-á-kkontine</i>
REAL-1.SG-continue
‘S/he continued to build it for two years’ | <i>ga-ttep-yo</i>
CL3-build-II.SG.PRO | | <i>butum</i>
up.to | <i>sí-mit</i>
CL4-year(II.PL) | <i>sú-uba</i>
II.PL-two |

Further illustrations of alternations in clauses with definite singular object NPs are given in examples (17) and (18) with prefixes *e-* and *ga-* on the non-finite *-sóttēn* ‘treat’. The reading of example (17) with the prefix *e-* is that the event is ongoing, but is conceived of as having time boundaries. It implies a single event with an expected endpoint (telic), but also with a temporal (though unexpressed) boundary (bounded as defined in Depraetere (1995), i.e. involving a temporal boundary). The speaker expects the nurse to finish attending to the patient in a little while. The primary reading of example (18), where the prefix *ga-* is used, is that the treatment is conceived of as a long-term process with no determinable end in mind, possibly over weeks or months. Example (18) would be more natural in a discussion of the treatment of an incurable or long term illness, whereas (17) would be better to refer to the treatment of a wound. It may involve stopping and restarting the process several times. The process rather than the isolated instance is in focus in this case.

- (17) Definite singular object with prefix *e-*.
a-lopitan-aw *umu* *n'ě-sóttēn* *a-ññil-aw*
 [CL1]-nurse(1.SG)-DEF.1.SG 1.SG.COP PREP'CL3-treat CL1-child(1.SG)-1.SG.DEF
 ‘The nurse is treating the child’ (now).
- (18) Definite singular object with prefix *ga-*.
a-lopitan-aw *umu* *n'gá-sóttēn* *a-ññil-aw*
 [CL1]-nurse(1.SG)-DEF.1.SG 1.SG.COP PREP'CL9-treat CL1-child(1.SG)-1.SG.DEF
 ‘The nurse has been treating the child’ (over an extended period).

A final illustration of prefix alternations on non-finite verbs in clauses having definite singular objects is given in (19) and (20) with prefixes *e-* and *ba-*. In these examples the semantic differences yielded by the alternations are much clearer. The use of the prefix *e-* with the root *-vuu* ‘demolish in one go/sweep’ may yield two interpretations. First, example (19) could be understood as describing an event of ‘sweeping’ the club. Second, it could also be understood as describing a situation where the entity is wiped out with a single action; in this case, the reading would be that the club has been demolished in one go without leaving any traces. The latter would result in a change of state and the club would then appear to be totally affected, and would thus pass the ‘what happened to X is Y’ test and the ‘entailment test’ for affectedness (Beavers 2011). Thus, *what happened to the club was that it was demolished* suggests persistent change and total affectedness. Likewise, with the entailment test, saying *they have destroyed the club*, #*but it was not destroyed* would result in a contradiction, since destroying the club entails total change in the referent of the

O argument. Note that if a progressive construction is used instead of the aspectual verb ‘finish’, example (19) cannot normally be interpreted as describing a ‘demolition in one go’ since such an event is a punctual event. Instead, it would normally refer to a sweeping event. In example (20) however, the reading is that people were ‘sweeping’ the club with a broom. In this case the club is less affected than in the previous case, and would fall into Beaver’s (2011: 339) “surface contact and impact” category of affectedness.

- (19) Clearer semantic differences between non-finite verbs having the prefixes *e-* and *ba-*
- | | | | |
|---|------------------|-----------------|-------------|
| <i>gu-ban-e</i> | <i>e-vvu</i> | <i>e-ssal</i> | <i>Yayu</i> |
| 2PL-finish-CPL | CL5b-sweep/clear | CL3-club(II.SG) | II.SG.DEF |
| ‘They have finished sweeping/demolishing (in one go) the club.’ | | | |
- (20)
- | | | | |
|---|------------------|-----------------|-------------|
| <i>gu-ban-e</i> | <i>ba-vvu</i> | <i>e-ssal</i> | <i>yayu</i> |
| 2PL-finish-CPL | CL5b-sweep/clear | CL3-club(II.SG) | II.SG.DEF |
| ‘They have finished sweeping the club.’ | | | |

To sum up, as pointed out above, non-finite verbs taking the prefix *ba-* describe events, which are inherently characterised by a repetition of the same action. They express single events characterised by multiplicity of action (and also participants) and are comparable to Mithun’s (1988: 217) “continuous repetitive actions” described in North American languages. The alternations of prefix *e-* on many non-finite verbs that take the prefix *ba-* include derivational strategies where new lexemes are created. For example, *ba-gub* ‘turn round soil with a plough’ and *e-gub* ‘turn upside down’ are different lexemes, as are *ba-fum* ‘seize someone’s belongings (multiple participants involved)’ and *e-fum* ‘break’. The use of prefix *e-* in alternations can also serve to individuate events, resulting in ambiguities which can only be disambiguated by the discourse context.

In short, the fact that non-finite verbs, with definite singular objects predominantly take the prefix *e-* is not surprising when viewed from the broader cross-linguistics perspective. Definite singulars have determined reference (de Swart 2006: 172). Næss’s (2007: 112) argument that “expressions of definiteness are used as expressions of total affectedness” relates the Malchukov’s (2006: 333) that “affectedness [...] is related to O-individuation [i.e. individuation of the object], inasmuch as total affectedness is easier to envisage in case of definite object”⁵. The examples presented above show that the object arguments in the clauses are definite and specific, which according to Hopper and Thompson (1980) indicate values of individuation. Thus, from the discussion above, I argue that in the context of prefix alternation on non-finite verbs, the prefix *e-* is used to express features of high transitivity

including individuation. On the other hand, other prefixes like *ga-* and *ba-* are employed to indicate focus on activities, which means that there is no focus on the endpoint of the event. In the light of the discussion above, it could be argued that *ga-* and *ba-* function as morphological viewpoint operators which de-telicize verbal stems, but further research is required to determine whether this claim can be made in all contexts where prefix alternations are observed.

3.3. Definite plural objects

With clauses involving definite plural objects, noun class prefixes like *ga-* illustrated in (21) below, or *ba-* are more frequently used than *e-* on non-finite verbs. This shows a contrast with definite singular objects discussed in the previous section, where the prefix *e-* is the most frequent. In both examples (21) and (22) the object is plural and definite.

- (21) Definite plural object with prefix *ga-*
a-lopitan-aw *umu* *n'gá-sotten* *u-ññil-aw*
 [CL1]-nurse(I.SG)-DEF.I.SG I.SG.COP PREP'CL9-treat CL6-child(I.PL)-I.PL.DEF
 'The nurse has been treating the children.' (Over an extended period).
- (22) Definite plural object with prefix *e-*
a-lopitan-aw *umu* *n'é-sotten* *u-ññil-aw*
 [CL1]-nurse(I.SG)-DEF.I.SG I.SG.COP PREP'CL3-treat CL6-child(I.PL)-I.PL.DEF
 'The nurse is treating the children.' (now)

De Swart (2006: 172) argues that definite plurals have determined reference and “determined reference imposes boundedness on the event (s)”. The boundedness reading accounts for the use of the prefix *e-* as exemplified in (22) which describes a specific or isolated treatment event. The event is delimited in this sense, it has an intended endpoint, and is therefore telic. From a semantic transitivity perspective, definiteness is a component of high transitivity and accounts for the use of the prefix *e-* in alternations. However, as pointed out above the use of prefixes other than *e-*, like *ga-* make up the majority of prefix uses on non-finite verbs in clauses with definite plural objects. Plurality is associated with low transitivity and accounts for the use of prefixes like *ga-*. Prefixes such as *ga-* are used when the focus is on the activity described by the verb without any perceptible endpoint or temporal boundary to the event. These events are therefore atelic and unbounded.

In summary, similar to clauses with definite singular objects analysed in 3.2 above, non-finite clauses with definite plural objects also have a specific reference. However, there is a crucial difference between

these two, in that the number of elements the definite singular objects denotes is known whereas that of definite plural objects is not. The expression of plurality, which is a feature of lower transitivity in Hopper and Thompson's characterisation, and the focus on the activity whose endpoint is not in focus are captured by the use of the prefix *ga-*, whereas singularity and definiteness is captured by the use of the prefix *e-*.

3.4. Indefinite singular objects

Expressions of indefiniteness indicate partial affectedness of entities (Næss 2007: 112), which is a property attributed to low transitivity (Hopper & Thompson 1980). Singularity, on the other hand, is a property of individuation which is associated with high transitivity. Thus, indefinite singulars combine features which point at opposite ends of the high and low scalar transitivity continuum. Another way of capturing the behaviour of indefinite singulars is to say that they are characterised by a lack of determined reference, but they describe bounded and telic situations (de Swart 2006: 171-172). Examples (23) and (24) show that noun class prefix alternations are possible on non-finite verbs taking indefinite singular objects. Note however that in these contexts the preferred prefixes are the non-default ones, that is, prefixes other than *e-*, which are exemplified with class prefix *ga-* in example (23).

- (23) Class prefix *ga-* on a non-finite verb taking an indefinite singular object
Démbo umu ni gâ-binda e-letar
 Démbo(I.SG) I.SG.COP PREP CL9-write CL3-letter(IL.SG)
 'Démbo is writing a letter.'

- (24) Class prefix *e-* on a non-finite verb taking an indefinite singular object
Démbo umu ni é-binda e-letar
 Démbo(I.SG) I.SG.COP PREP CL3-write CL3-letter(IL.SG)
 'Démbo is writing a letter.'

The idea that indefinite singular objects are linked to boundedness relates to the fact that in both examples (23) and (24) above the writing of a letter has an expected natural endpoint. Once the letter is written, it is totally affected. Partial affectedness mentioned above points at the fact that only one out of all the possible letters that can be written is being written. This reading would differ from *Démbo is writing the letter* where there is one specific letter to be completed, and not one of a possible larger set.

The prefix variations on non-finite verbs in the examples above reflect subtle semantic differences. The use of the prefix *ga-* in example (23) indicates focus on the writing activity. Though there is an expected end to the writing, the attention of the speaker is mainly on

the writing process. The prefix *ga-* would be more appropriate than *e-* if the writer has difficulties completing the letter either because they are learning how to write a letter or he or she requires a long time to complete the letter. By contrast, example (24), which illustrates less common sentences than those in (23), is more focused on the output of the writing. The prefix *e-* would be more appropriate if the person knows how to write a letter and has no difficulty completing it, or the person is not expected to spend much time to complete the letter.

In summary, the indeterminacy of the referent is shared in both examples, but the readings differ depending on which prefix is used. As with the previous examples, the use of *e-* indicates focus on the result and described a more delimited event, whereas with other prefixes like *ga-* the activity described by the verb is in focus and the endpoint of the event is backgrounded.

3.5. Indefinite plural objects

Indefiniteness and plurality are values of non-individuation, which is a feature associated with low transitivity (Hopper & Thompson 1980; Næss 2007). In de Swart's (2006) terms, the combination of indefiniteness and plurality leads to atelicity and unbound-ness. Indefinite plurals are also associated with lower degree of affectedness (Næss 2007). In Eegimaa, the majority of non-finite clauses with indefinite plural objects take prefixes like *ga-* or *ba-* (see example (25)), which are found in contexts of lower transitivity expressions as discussed above. Alternations with the prefix *e-* as shown in (26) are possible but generally less natural.

- (25) Noun class prefix *ga-* on a non-finite verb taking an indefinite plural object

bu-rokk-ol *ga-kkoñ* *si-haj*
CL5a-work-3SG.POSS CL9-mind CL4-domestic.animals(II.PL)
'His job is to mind domestic animals.'

- (26) Odd use of noun class prefix *e-* on a non-finite verb taking an indefinite plural object

bu-rokk-ol *e-kkoñ* *si-haj*
CL5a-work-3SG.POSS CL3-mind CL4-domestic.animals(II.PL)
'His job is to mind domestic animals.'

Example (25) describes an event characterized by its durativity with no perceived endpoint and is therefore atelic. When we apply the telicity tests presented in examples (14) to (16) above we see that regardless of the prefix chosen, the 'take X time' telic test is not natural with indefinite plural arguments (cf. (27) and (28)). By contrast, example (29) presents a sentence that is perfectly acceptable with the equivalent of the 'for adverbial', because the event is atelic.

- (27) *??n-a-kkan to sí-mit sú-uba bi ga-kkoñ*
 REAL-I.SG-do there CL4-year(II.PL) II.PL-two PREP CL9-mind
si-haj
 CL4-domestic_animals(II.PL)
 ‘??S/he took two years to mind domestic animals.’
- (28) *??n-a-kkan to sí-mit sú-uba bi e-kkoñ*
 PEAL-I.SG-do there CL4-year(II.PL) II.PL-two PREP CL3-mind
si-haj
 CL4-domestic_animals(II.PL)
 ‘??S/he took two years to mind domestic animals.’
- (29) *n-á-kkontine ga-kkoñ si-haj butum sí-mit*
 REAL-I.SG-continue CL9-mind CL4-domestic_animals(II.PL) up.to CL4-year(II.PL)
sú-uba
 II.PL-two
 ‘S/he took two years to mind domestic animals.’

Going back to examples (25) and (26) above, the number of elements in the set of animals is unknown, and minding domestic animals (cattle among Eegimaa speakers) is generally an activity, which extends over time. Crucially, the event described here refers to the general activity of minding cattle and not a specific instance of cattle minding. If the shepherd’s activity was to mind one specific animal, the form *e-kkoñ e-haj yayu* (CL3-mind CL3-domestic.animal(II.SG) II.SG.DEF) ‘minding the domestic animal’ would be more appropriate. The prefix *e-* would then be used indicating that the event is telic because an endpoint is expected, but also individuated as shown by the specificity of the referent of the NP. The use of the prefix *ga-* in (25) thus indicates atelicity, and also non-individuation of the event because no intended or natural endpoint is expected. Given the durative nature of the kind of event described and the genericity of the activity in (25), it is difficult in this context, to use the prefix *e-* which, as shown in the previous sections, functions as a marker of individuation. In other words, the prefix *e-*, which is used to unitize or delimit events, yields an odd sentence if it is used with indefinite plurals where the reading is a generic one.

To summarise, indefinite plural objects are typically characterised by the lack of identity of their referent. The combination of indefiniteness and plurality leads to atelicity (de Swart 2006), which is a component of low transitivity. As the examples above show, in Eegimaa the atelic reading of sentences with indefinite plural objects is generally overtly marked by the use of prefixes like *ga-*. A telic reading is difficult to obtain with sentences having indefinite plural objects, hence the difficulty of employing the prefix *e-* which is generally used in context associated with higher transitivity.

3.6. Objectless clauses

3.6.1. Context-dependent and context-independent object deletion

Most transitive verbs in Eegimaa allow indefinite objects to be deleted. Following Næss (2007), a distinction is made here between two kinds of object deletion strategies. On the one hand, there is “context-independent object deletion” in which case “the semantics of the verb implies that some object is present, but where the specific referent of the omitted object is not expected to be retrievable from context” (Næss 2007: 125). Context-independent object deletion occurs with verbs like ‘eat’ and ‘drink’ whose object must “always be interpreted as indefinite”. The other kind of object deletion is termed “context-dependent object deletion” which is characterised by the deletion of an object whose referent can, as Næss (2007: 124-125) points out, be retrieved using cultural or linguistic cues, or from previous discourse or the general context. This distinction is crucial to understanding the types of noun class prefix alternations found in objectless clauses.

The process of object deletion is not restricted to ingestion labile verbs like ‘eat’. For verbs that allow prefix alternations, indefinite object deletion is accompanied by change in prefix, where prefixes other than the default *e-* are used. Example (30) contains a non-finite verb, which is compatible with a direct object argument, but the object is omitted. The non-finite verb takes the prefix *ga-* as a result. Using the prefix *e-* in a clause where the indefinite object is deleted as in example (31) normally yields an infelicitous sentence.

- (30) Objectless clause with the prefix *ga-*
n-gu-janga-oli *gá-us*
 PREP-3PL-teach-1PL.EXCL CL9-confess
 ‘They taught us how to confess.’ (ss20060428_kup)

- (31) Infelicitous sentence with the use of *e-* in an objectless clause
?n-gu-janga-oli *é-us*
 PREP-3PL-teach-1PL.EXCL CL3-confess
 ‘They taught us how to confess.’ (ss20060428_kup)

Example (30) illustrates context-independent object deletion where the omitted object is indefinite and the hearer does not need to identify it to interpret the utterance. The referent of the missing object is unspecific and the non-finite verb describes the general activity of confessing rather than a specific confession event. The only context in which the use of the prefix *e-* can be acceptable would be in context-dependent object deletion, if the object has been mentioned in previous discourse. As argued above, the prefix *e-* is used in prefix alternations to delimit events, so it would only be possible in objectless clauses in highly contextual situations.

As with the examples from previous sections, lower transitive clauses which include expressions of indefiniteness and non-specificity are those whose non-finite verbs take prefix like *ga-* and *ba-*. They contrast with high transitive clauses, which express definiteness and specificity and whose non-finite verbs take the prefix *e-*.

3.6.2. Intransitive clauses

Similar to object deletions discussed above, prefix alternations are also extremely restricted with intransitive verbs, which because they do not take objects, cannot have an affected O participant. For example, the stem *-ccigo* ‘get shaved’ takes the prefix *ga-* in its non-finite form shown in example (32), but as shown in (33) it is incompatible with the prefix *e-*.

- (32) Use of noun class prefix *ga-* with an intransitive verb
n-a-ag-e *ja-ol* *n-a-kka-e* *gá-ccigo*
 REAL-1.3SG-say-CPL mother(1.SG) REAL-1.3SG-go-CPL CL9-get_shaved
 ‘S/he said his/her mother has gone to get shaved.’ (ss20060428_kup)

- (33) Ungrammatical use of noun class prefix *e-* with an intransitive verb
 **n-a-ag-e* *ja-ol* *n-a-kka-e* *é-ccigo*
 REAL-1.3SG-say-CPL mother(1.SG) REAL-1.3SG-go-CPL CL3-get_shaved
 ‘S/he said his/her mother has gone to get shaved.’ (ss20060428_kup)

Most CTPs take intransitive verbs which, in their non-finite forms, do not allow prefix alternations. I have only found prefix alternations in intransitive clauses after the allative/purposive preposition *bi* ‘to/in order to’. This is exemplified in (34) and (35). A possible explanation for this is that the allative preposition which introduces purposive clauses, expresses an intention to perform an isolated action, rather than expressing the general happening of that event. Thus, the exceptional use of the prefix *e-* is a way of expressing event singularity.

- (34) Use of noun class prefix *ga-* with an intransitive verb after the allative preposition
n-a-ag-e *ja-ol* *bi* *gá-ccigo*
 REAL-1.3SG-say-CPL mother(1.SG) PREP CL9-get_shaved
 ‘S/he said his/her mother is going to get shaved.’ (ss20060428_kup)

- (35) Use of noun class prefix *e-* with an intransitive verb after the allative preposition
n-a-ag-e *ja-ol* *bi* *é-ccigo*
 REAL-1.3SG-say-CPL mother(1.SG) PREP CL3-get_shaved
 ‘S/he said his/her mother is going to get shaved.’ (ss20060428_kup)

Note that it is not clear whether a classification into unaccusative and unergative categories would account for the classification of intransitive verbs using different prefixes, and the predominant lack of prefix alternation with stative verbs. This can only be established with

future research. At this stage, it appears that unaccusativity is not relevant for prefix alternation. For example, the non-finite verbs *e-ber* ‘laugh’ and *ga-mas* ‘vomit’, which are unergative take prefix *e-* and *ga-*. Conversely, *gá-ccigo* ‘get (head) shaved’ and *e-hay* ‘be dry’ are unergative but they take different prefixes, namely *ga-* and *e-* respectively.

3.6.3. Stative verbs

When the verb in the non-finite clause is a stative verb, prefix alternations on the non-finite verb are normally not allowed. In example (36) the prefix on the non-finite stative verbs is the noun class prefix *ba-*, which in the nominal domain is the diminutive collective marker. Stative verbs which combine with noun class prefix *ba-* describe permanent behavioural characteristics which result from multiple observable signs or traits. The meaning of multiplicity of entities with nouns and multiplicity of actions and participants with dynamic verbs is carried over to the stative verbs characterised by multiple manifestations of a behavioural traits, which when put together, make up a personal character. These stative verbs do not allow the use of prefix *e-* as shown in example (37), because these characteristics cannot be individuated.

- (36) Stative verb ‘be rude’ with the prefix *ba-*
a-ññil-aw *n-a-kkumasi-e* *ba-pah*
 CL1-child(L.SH)-I.SG.DEF REAL-1.3SG-begin-CPL CL5b-be.rude
 ‘The child is beginning to be rude.’
- (37) Infelicitous prefix alternation with the stative verb ‘be rude’
?a-ññil-aw *n-a-kkumasi-e* *e-pah*
 CL1-child(L.SH)-I.SG.DEF REAL-1.3SG-begin-CPL CL3-be.rude
 ‘The child is beginning to be rude.’

The examples above show that patterns of prefix alternations between the prefixes *e-* and other prefixes like *ba-* or *ga-* in objectless clauses are motivated by semantic transitivity features. In objectless clauses, these alternations tend to be restricted to context-dependent object deletion where the referent of the missing object can be retrieved from the discourse context. As for the other prefixes, they are used in context-independent object deletion where the identification of the missing object is not crucial to understand the utterance. Intransitive verbs and stative verbs in intransitive clauses do not tend to allow alternations with the prefix *e-*. The prefix *e-* functions as an event unitizer in the context of alternations and relates to Hopper & Thompson’s (1980) high transitivity. Other prefixes like *ga-* and *ba-* which correspond to low transitivity distinction.

4. Conclusion

Eegimaa non-finite verbs are formed using several different noun class markers, which in the nominal domain function as nominal classification devices. In this paper, I have argued, as I did in previous works, that the use of the same linguistics means to classify both nouns and non-finite verbs reflect a semantic categorisation of entities and events (Sagna 2008). The overt classification of non-finite verbs and the event they refer to is a form of overt verb classification where noun class prefixes function as classificatory devices. I briefly discussed some of the semantic categories of the Eegimaa verbal classification system, and also introduced some of the semantic categorisation parallels found between the nominal and verbal domains based on Schultze-Berndt & Sagna (2010). The main goal of this paper however, is to investigate the motivations behind prefix alternation on Eegimaa non-finite verbs. Eegimaa non-finite verbs combine with noun class markers, and such combinations are lexically determined. However, there are non-finite verbs, which allow alternations between the *e-* and the other prefixes attested on non-finite verbs. Following Sagna (2014), I argue that these prefix alternations on non-finite verbs express event delimitation. I showed that the prefix *e-*, which is the default noun class marker with nouns is used in the verbal domain as a marker of event singularity, by expressing features such as telicity, boundedness and individuation of O. These features are associated with high transitivity (Hopper & Thompson 1980; Næss 2007). By contrast prefixes such as *ga-* and *ba-* are used on non-finite verbs to express features like atelicity, unboundedness and non-individuation, which are associated with lower transitivity, in contexts where the activities rather than their instantiations are in focus.

Notes

¹ The idea of nonfinite verbs and events being classified by noun class markers emerged from a conversation I had with Eva SchultzeBerndt in 2004. But I delayed the publication of this paper for a long time to explore further my new ideas and analysis on this topic. This is the first journal article on my research on the Eegimaa verb classification system so far. I thank the Economic and Social Research Council (ESRC) for funding this research – Grant ES/K001922/1, Future Research Leaders scheme. I extend my gratitude to Eva SchultzeBerndt with whom I have had many discussions on this topic over the years, members of the Surrey Morphology Group especially Matthew Baerman, Oliver Bond and Greville Corbett for feedback on some of the ideas presented

here. I would like to also thank Kersti Börjars whose comments have helped me improve the argumentation and presentation of this paper, and Martina Faller for answering some of my questions on aspect. I remain the sole responsible for all the claims made in this paper. Finally, my thanks go to the two anonymous reviewers and the editors of this special issue whose comments helped me improve this paper considerably.

Abbreviations: Arabic numerals = indicate morphological class markers; CAUS = causative; CL = class marker; COP = copular; CPL = completive; DEF = definite; PL = plural; POSS = possessive; PREP = preposition; REAL = realis; REDUP = reduplication; Roman numerals = indicate agreement class markers; SG = singular.

² Noun class markers function as inflectional markers distinguishing singular and plural values of the number features. For example, in *bu-bah* 'baobab tree' and *ubah* 'baobab trees' the prefixes *bu-* and *u-* distinguish singularity and plurality respectively. These prefixes also have derivation functions. For example, the tree versus fruit distinction is made by prefix alternation between *bu-* and *fu-* in the nouns *bu-bah* 'baobab tree' and *fu-bah* 'baobab fruit'.

³ The sources of the examples are indicated after the free translation, with the first two letters (SS) indicating the collector of the example, followed by the Year, month and date of recording, followed by the initials of the language speaker. The other examples are taken from participant observation and my own native speaker intuition.

⁴ The labels A and O are used to refer to the most agentlike and the most patientlike argument of a transitive clause.

⁵ Malchukov 2006 proposes a refinement of Hopper and Thompson's transitivity hypothesis arguing for hierarchized scale of the transitivity parameters. The affinities between transitivity parameters that he proposed are not explored here. They are left for future research.

Bibliographical References

- Aronoff, Mark 1994. *Morphology by itself: stems and inflectional classes*. Cambridge, Mass.: MIT Press.
- Beavers, John 2011. On affectedness. *Natural Language and Linguistic Theory* 29. 335-370.
- Clausner, Timothy C. & Croft, William 1999. Domains and image schemas. *Cognitive Linguistics* 10. 1-31.
- Cobbinah, Alexander Y. 2013. *Nominal classification and verbal nouns in Bãinounk Gubëeher*. PhD Dissertation. University of London, London.
- Corbett, Greville G. 1991. *Gender*. Cambridge: Cambridge University Press.
- Depraetere, Ilse 1995. On the necessity of distinguishing between (Un) Boundedness and (A)Telicity. *Linguistics and Philosophy* 18. 1-19.
- de Swart, Henriëtte 2006. Aspectual implications of the semantics of plural indefinites. In Vogeleer, Svetlana & Tasmowski, Liliane (eds.), *Non-definiteness and plurality*. Amsterdam: John Benjamins. 167-196.
- Haspelmath, Martin 1989. From purposive to infinitive - a universal path of grammaticalization. *Folia Linguistica Historica* 10. 287-310.
- Hopper, Paul J. & Thompson, Sandra A. 1980. Transitivity in grammar and discourse. *Language* 56. 251-299.
- Koptjevskaja-Tamm, Maria 1993. *Nominalizations*. London/New York: Routledge.

- Malchukov, Andrej L. 2006. Transitivity parameters and transitivity alternations: constraining co-variation. In Kulikov, Leonid; Malchukov, Andrej L. & de Swart, Peter (eds.), *Studies on case, valency and transitivity*. Amsterdam: John Benjamins. 329-357
- McGregor, William B. 2002. *Verb classification in Australian languages*. Berlin/ New York: Walter de Gruyter.
- Mithun, Marianne 1988. Lexical Categories and the Evolution of Number Marking. In Hammond, Michael & Noonan, Michael (eds.), *Theoretical Morphology*. New York: Academic Press. 211–234.
- Næss, Åshild 2007. *Prototypical Transitivity*. Amsterdam/Philadelphia: John Benjamins.
- Noonan, Michael 2007. Complementation. In Shopen, Timothy (ed.), *Language typology and syntactic description*. Vol. 2. Cambridge: Cambridge University Press. 52–150.
- Sagna, Serge 2007. Do noun class markers classify verbs in Gújjolaay Eegimaa? The Representation of Actions, States and Events in Classification Systems: Universals and Typological Diversity. Paper presented at the 10th International Cognitive Linguistics Conference, Kraków University, July 15-20, 2007.
- Sagna, Serge 2008. *Formal and semantic properties of the Gújjolaay Eegimaa (A.k.a Banjal) nominal classification system*. PhD Dissertation. University of London, London
- Sagna, Serge 2013. Variations in transitivity hierarchy between nonfinite verbs in classes e- and ba- in Gújjolaay Eegimaa/Banjal. Paper presented at the 43th Colloquium on African Languages and Linguistics, Leiden University, August 26, 2013.
- Sagna, Serge 2014. Related categorisations of entities and events in the Gújjolaay Eegimaa noun class system. Paper presented at the 5th UK Cognitive Linguistics Conference, Lancaster University, July 29-31, 2014.
- Sagna, Serge *under review*. *Cross-categorial classification: nouns and verbs in Gújjolaay Eegimaa*. Monograph proposal accepted by Empirical Approaches to Linguistic Typology. Berlin: De Gruyter Mouton.
- Sapir, David J. 1965. *A grammar of Diola-Fogny : A language spoken in the Basse-Casamance region of Senegal*. Cambridge: Cambridge University Press.
- Schultze-Berndt, Eva & Sagna, Serge 2010. Towards a typology of overt verb classification. Paper presented at the COST Action 31 Final Conference: Categorizing human experience: classification in languages and knowledge systems, Ecole Normale Supérieure, May 15-16, 2010.
- Smith, Carlota S. 1991. *The parameters of aspect*. Dordrecht: Kluwer.
- Tsunoda, Tasaku 1985. Remarks on transitivity. *Journal of Linguistics* 21. 385-396.
- Watson, Rachel 2015. Kujireray: morphosyntax, noun classification and verbal nouns. PhD Dissertation. University of London, London