

On Nominalizing the Verbal Complex in Dagaare and English

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Abstract

This paper raises a number of issues that result from the interaction between two widely attested phenomena in the generative linguistic literature: nominalization (e.g. Chomsky 1970) and verb serialization (e.g. Baker 1989, Bodomo 1993, Bowerman 2006, Givón 2006). Based on data from Dagaare, a Gur language of West Africa, this paper analyses a type of complex predicate construction in which all the verbs in a series are nominalized, with only one of the verbs carrying the nominalization affix (Bodomo 2004). Such a rare complex predicate construction is then the basis for renewed questions about the nature of complex predicatehood, diathetic syntactic alternations, and lexical categorial differences involving nouns and verbs across languages. The paper proposes a syntactic representation of these nominalized serial verbal predicates in which they are basically interpreted as VPs headed by a nomP functional projection. Semantically, we propose that nominalized serial verbs, like their purely verbal counterparts, express a complex event. It is thus concluded that while verbal and nominal predicates obtain from the same minimal constructs, the difference between pure serial verbs and nominalized serial verbs is due to the fact that a semantic feature, [+nom], parallel to the syntactic functional projection, nomP, imposes nominal features on the whole complex. This analysis is extended to complex verbal constructions in English.

Key words: Syntax, lexical semantics, complex verbal constructions, nominalization, serial verb constructions, Dagaare, English.

1. Introduction

The issues/questions:

1. Why must the verbal predicates and particles be contiguous under nominalization?
2. Why should there be the syntactic alternation from VP OBJ to SUBJ of nominalized predicates?

The proposed solutions:

1. NomP and [+NOM]: These syntactic and semantic units impose certain restrictions on nominalized VPs, thereby predicting the differences between verbs and nouns.

2. Complex predicate formation: contiguity at the c-structure is only a syndrome for a more substantial conceptual structural formation: complex predicates by predicate integration.

The core data:

- (1)
 - a. *He looks the information up.*
 - b. *He looks up the information.*
- (2)
 - a. **The looking of the information up* (is difficult).
 - b. *The looking up of the information* (is difficult).
- (3)
 - a.

<i>ngmàángà</i>	<i>nà</i>	<i>dé</i>	<i>lá</i>	<i>à</i>	<i>kámáá-nà</i>	<i>òò</i>
monkey	FUT	take	FOC. DEF	corn-PL	chew	

 ‘Monkey will eat the corn.’
 - b.

<i>à</i>	<i>kámáá-nà</i>	<i>dé</i>	<i>óó-ú</i>
DEF	corn-PL	take	chew-NOM

 ‘The eating of the corn.’
 - c.

<i>* dé</i>	<i>à</i>	<i>kámáá-nà</i>	<i>óó-ú</i>
take	DEF	corn-PL	chew-NOM

 ‘The eating of the corn.’

In (1) the verbal predicate and the verbal particle do not have to be contiguous for the sentence to be acceptable.

However, in (2), under nominalization, these two items have to be contiguous for the construction to be acceptable.

- Similar contiguity effects occur under the nominalization of serial verb constructions in Dagaare, as exhibited in (3)¹.
- The consequence of this alternation is that the original SVC, headed by a VP, is now headed by an NP or a determiner phrase (DP).

¹The following are among abbreviations that have been used throughout the paper for interlinear translations. Other abbreviations not listed here have been explained in situ:

1.sg/SG. = First person singular pronoun; 2.sg/SG = Second person singular pronoun; 3.sg/SG = Third person singular pronoun; 1.pl/PL = First person plural pronoun; 2. pl/PL = Second person plural pronoun; 3.pl/PL = Third person plural pronoun; CAUS = Causative; COMP = Complementizer; CON. = connector; CONJ = Conjunction; DEF = Definite article; DEM = Demonstrative item; DET = Determiner; FOC = Focus marker; FUT = Future tense marker; HAB = Habitual tense marker; IMP = Imperfective aspect; IMPER = Imperative; INF = Infinitive; INTR = Intransitive; NOM= nominalization; NEG = Negative marker; PAST/PST = Past tense marker; PERF = Perfective aspect; PERF.TR = Perfective transitive; PERFINTR = Perfective intransitive; POS = Positive marker/particle; PRES = Present tense marker; S/HE , s/he = She or he.

- The Serial Verb Nominalization (SVN) is therefore an interface zone for VP and NP phenomena, bringing issues of serialization and nominalization in focus.

2. Nominalization in Dagaare

2.1. Single predicate nominalization

Nominalization in Dagaare: a process which involves the formation of nouns from verbs and adjectives.

Table below shows how a number of verbs and adjectives are nominalized in Dagaare:

(4)	a.	Verb	Nominalized item
		zò 'run'	zóóú / zóóbú 'the act of running'
		wà 'come'	wááó / wáábó 'the act of coming, arrival'
		tò 'touch'	tóóó / tóóbó 'the act of touching'
		ngmè 'beat'	ngmééó / ngméébó 'beating'
		zèè 'swoop'	zééó / zéébó 'the act of swooping'
		gbè 'grind roughly'	gbíéú / gbíébú 'grinding roughly'
		gàà 'go'	gááó / gáábó 'going/departure'
		sóò 'darken'	sóóó / sóóbó 'darkening'
	b.	Adjective	Nominalized item
		fáá 'bad'	fààlóng 'bad deed, evil'
		vèlàà 'good'	vèèlóní 'goodness, beauty'
		pèlàá 'white'	pèèlóní 'whiteness'
		kpónng 'big'	kpónnúng 'bigness, seniority'
		wógí 'long, tall'	wógrúng 'length, height'
		sógláá 'black, dark'	sòglóng 'blackness, darkness'
		ngmáá 'short'	ngmààlóng 'shortness'

2 informal nominalization rules:

(5) Verb + V (C) U → Noun

(A V (standing for any vowel) may be lengthened or diphthongized; if the vowel of verb is already long or diphthongized, no further lengthening or diphthongization is required; U (standing for high, back vowel) is unspecified for ATR: it takes the ATR of source word)

(6) Adjective + LUN → Noun

(L is meant to be any liquid but note that if the adjective ends in a nasal, the derivation involves a nasal gemination rather than L. Again U is unspecified for ATR: it takes the ATR of vocalic items in the source word.)

Facts:

A verb like *dí* 'eat' can be nominalized by marking it with the ending *-(í)ú*.

If it appears, the direct object stands to the left of the head in these constructions. Compare (7a) to (7b), for example.

- (7) a. *báyòò dí-ré lá à tàńgmà*
 Bayor eat-IMPERF FOC. DEF. shea fruit.PL
 ‘Bayor is eating the shea fruits.’
- b. *à tàńgmà dí-íú wá báárè*
 DEF shea fruits eat-NOM NEG finish.PERF
 ‘The eating of the shea fruits is not finished.’

The construction in (7b) is introduced by the definite article *à*. Instead of this, we could also have an NP in the position of this determiner (8a). This NP would then denote the agent of the action. Finally, the position can also be left empty, as in (8b).

- (8) a. *báyúó tàńgmà dí-íú vèèlé lá*
 Bayuo shea fruit.PL eat-NOM good FOC.
 ‘Bayuo’s eating of shea fruits is good.’
- b. *tàńgmà dí-íú nòmó lá*
 shea fruits eat-NOM sweet FOC.
 ‘Eating shea fruits is nice.’

báyúó in this position could be a genitive or it could be a nominative. We cannot tell because the language lacks overt case marking (cf. (9)):

- (9) *báyúó gánè wá vèèlé*
 Bayuo book.SG NEG good
 ‘Bayuo’s book is not good.’

The direct object can be a bare noun like in (8b), but it can also be an NP of more complexity (10b&c):

- (10) a. *śràà dí-íú nòmó lá*
 berry eat-NOM sweet FOC.
 ‘Eating a berry is nice.’
- b. *à śràà nyè dí-íú nòmó lá*
 DEF berry DEM.SG e eat-NOM sweet FOC.
 ‘The eating of this berry is nice.’
- c. *à śr-ré ámè áyĩ dí-íú nòmó lá*
 DEF berry-PL DEM.PL two eat-NOM sweet FOC.
 ‘Eating these two berries is nice.’

The resulting structure can be modified by an adjective - which is incorporated into the head as in (11a) or by an adverb as in (11b). The variant with the adverb is far more common, however.

- (11) a. *à tàńgmà dǐ-vèlòńg*
 DEF shea fruit.PL eat-good/nice
 ‘The good eating of the shea fruits.’
 (i.e. ‘The nice way of eating the shea fruits’)
- b. *à tàńgmà vèlàà dǐ-íú*
 DEF shea fruit.PL good eat-NOM
 ‘The good eating of the shea fruits.’
 (i.e. ‘The nice way of eating the shea fruits’)

2.2 More Facts of Serial Verb Nominalization

In nominalizing serial verb constructions in Dagaare, the last of the series of verbs gets the nominalized suffix. If there is a direct object to the last verb, it can only occur at the outer left of the verbal cluster:

- (12) *à nén dóg ɔ́ɔ-ó*
 DEF meat boil chew-NOM
 ‘The cook chewing of the meat.’
 (i.e. ‘The cooking of the meat in order to eat’)
- (13) a. *à tàńgmà zò gàà dǐ-íú*
 DEF shea fruit.PL run go eat-NOM
 ‘The run go eating of the shea fruits.’
 (i.e. ‘Running there in order to eat the shea fruits’)
- b. *à zò gàà tàńgmà dǐíú
- c. *à zò tàńgmà gàà dǐíú

- Not just the direct object NP, but also other constituents appear obligatorily to the left of the verbal cluster. This is the case with adverbials such as *wíéwíé* ‘quickly’ as can be seen in (14):

- (14) a. *à tàńgmà wíéwíé zò gàà dǐ-íú*
 DEF shea fruit.PL quickly go eat-NOM
 ‘The run go eating of the shea fruits quickly.’
 (i.e. ‘Running there quickly in order to eat the shea fruits’)
- b. *à wíéwíé zò gàà tàńgmà dǐíú
- c. *à wíéwíé zò tàńgmà gàà dǐíú

It seems that for one reason or another, the verbs have to be obligatorily adjacent in these constructions. This is a first indication by the facts of SVN in support of our theoretical analysis of serial verb constructions as complex predicates which undergo syntactic operations as a single unit.

It is impossible to use the imperfective aspect in these constructions; they all seem to be in the perfective aspect or lack aspectual marking altogether:

- (15) a. *à tàńgmà zò-ró gè-ré dí-íú
DEF shea fruit.PL run-IMP go-IMP eat-NOM
- b. *à nén dúg-rò ɔɔ-ó
DEF meat boil-IMP chew-NOM

Perhaps we can conclude that the nominalized form is inherently in the perfective aspect or that, since the whole construction is now nominal, aspect is not even marked at all.

TENSE can also NOT be expressed in nominalized constructions. Compare the sentences in (16) with the nominalized constructions in (17):

- (16) a. à bíé ná zó gàà dí lá à tàńgmà
DEF child FUT run go eat FOC. DEF shea fruit.PL
'The child will run there (and) eat the shea fruits.'
- b. à bíé dà zó gàà dí lá à tàńgmà
DEF child PAST run go eat FOC. DEF shea fruit.PL
'The child has run there and eaten the shea fruits.'
- (17) a. *à tàńgmà ná zò gàà dí-íú
DEF shea fruits FUT go run eat-NOM
- b. *à tàńgmà dà zò gàà dí-íú
DEF shea fruits PAST run go eat-NOM

Another characteristic feature of these SVN constructions is that it is difficult to get an acceptable reading when two NP objects are involved. This is the case with instrumental SVCs. An example of instrumental serialization is provided in (18a).

- (18) a. ò dà dé lá sòɔ ngmàà nén òò
3.SG PAST take FOC knife cut meat chew
'S/he cut meat with a knife and ate it.'
- b. ? à nén à sòɔ dé ngmàà ɔɔ-ó
DEF meat DEF knife take cut chew-NOM
- c. ?? à nén dé à sòɔ ngmàà ɔɔ-ó
DEF meat take DEF knife cut chew-NOM

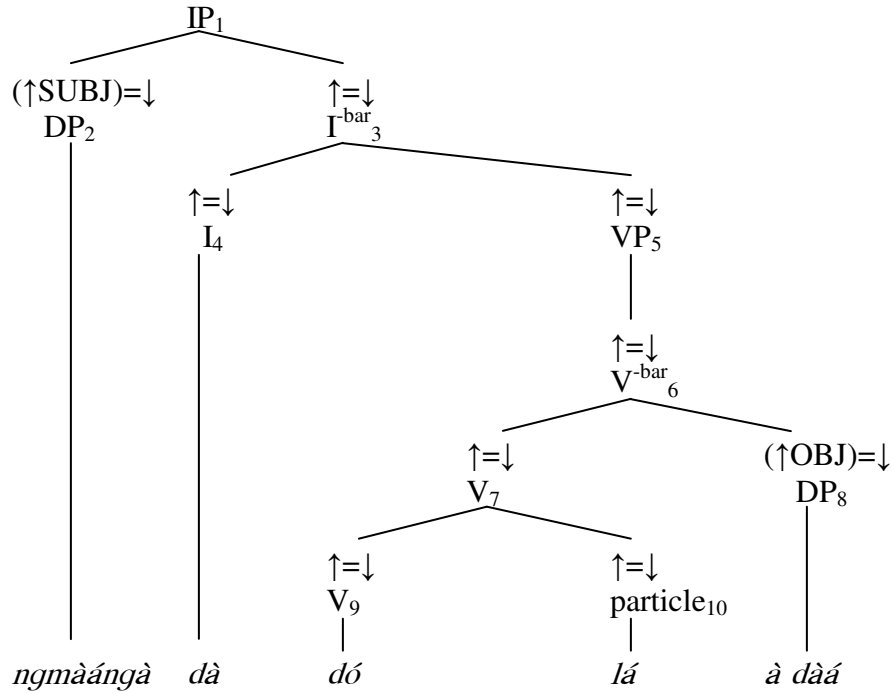
- (20) a. *ngmàá ngà dà dó lá à dàá*
 monkey PAST climb FOC. DEF log/tree
 ‘Monkey climbed up the tree.’
- b. *à* DET ($\uparrow$ DEF)=+
 (NUM)=SG
- dà* PART ($\uparrow$ TENSE)=PAST
- dàá* N (NUM)=SG
 ($\uparrow$ PRED)=‘WOOD’
- dó* V ($\uparrow$ PRED)=‘CLIMB<($\uparrow$ SUBJ)($\uparrow$ OBJ)>’

lá	PART	(↑POLARITY)=FOCUS MARKER
ngmàángà	N	(↑NUM)=SG (↑PRED)= 'MONKEY'

c.

Consem	GLOBAL: tense + past; asp + perf
	PARTICIPANT: e1 conditioned; e2 conditioned
	event [ACTION 1: x moves up y]

d. C-str:



e. F-str:

PRED	'dó <2,8>'		1, 3, 4, 5, 6, 7, 9, 10					
TENSE	past							
SUBJ	<table> <tr> <td>PRED</td> <td>[ngmàángà]</td> </tr> <tr> <td>NUM</td> <td>SG</td> </tr> </table> 2			PRED	[ngmàángà]	NUM	SG	
PRED	[ngmàángà]							
NUM	SG							
OBJ	<table> <tr> <td>PRED</td> <td>[dàá]</td> </tr> <tr> <td>NUM</td> <td>SG</td> </tr> <tr> <td>DEF</td> <td>+</td> </tr> </table>		PRED	[dàá]	NUM	SG	DEF	+
PRED	[dàá]							
NUM	SG							
DEF	+							

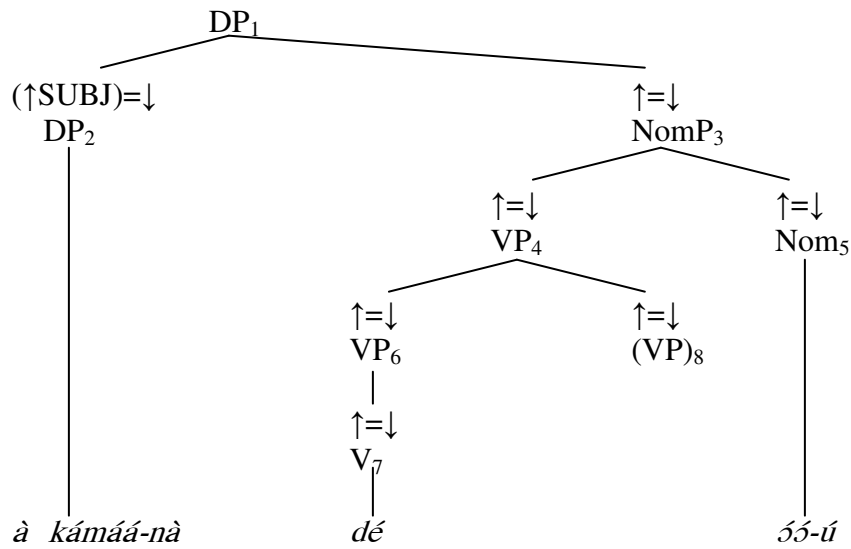
3.1. Functional Structure of SVNs

Here, we provide LFG-type functional structure (f-structure) representations of this type of phenomena.²

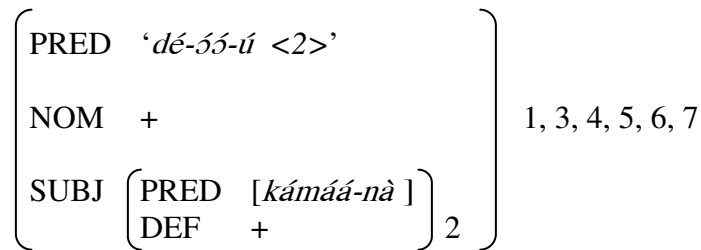
The construction in (21) is the example of SVN to illustrate the various f-structure phenomena of this type of construction.

- (21) a. *à kámáá-nà dé ʒʒ-ú*
 DEF corn-PL take chew-NOM
 ‘The eating up of the corn.’

b.



c.



The f-structure in (21c) is a straightforward representation of SVN. As can be seen, the verb *dé* ‘take’ and the nominalized form of *ʒʒ* — *ʒʒ-ú* ‘chewing’ together form a complex predicate, PRED, which is now monadic, as shown by the one argument slot (detransitivization seems to occur with nominalization). This is filled by the SUBJECT functional argument.

²In this framework, it is in the f-structure that grammatical functions, such as Subject, Object, etc. are stated. They are not defined in terms of phrase structure configurations. These grammatical functions are thus hardly reducible to phrase structure configurations which mostly vary from language to language.

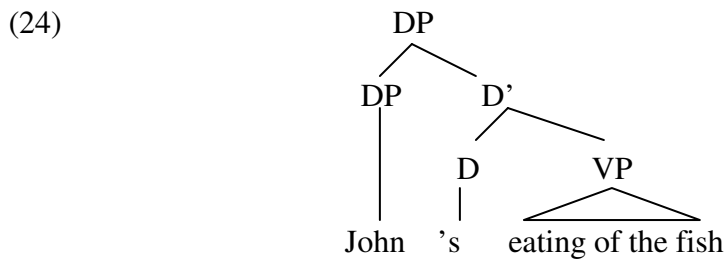
3.2. Phrase structure representation: A DP Analysis of SVNs

We now focus on a representation of these phenomena at the constituent structure (c-structure) level of our parallel grammatical architecture. In terms of X-bar phenomena we shall attempt to extend the DP approach introduced in section 3.1 to the representation of SVN.

We now turn back to the nominalization facts. We assume a nominalization is a VP with a nominal functional projection set on top of it. Some of these functional heads are never realized for semantic reasons. For instance, because nominalizations cannot occur in the plural (cf (22a) for English and (23b) for Dagaare) we also cannot quantify them (cf (22b) for English and (23c) for Dagaare).

- (22) a. *Johns readings these books
b. *After three readings these books
- (23) a. *déré* *gá-mà* *ámè* *sór-òò*
Dery book-PL DEM.PL read-NOM
'Dery's reading of these books.'
- b. **déré* *gá-mà* *ámè* *sór-rè*
Dery books these reading-PL
- c. **à* *gá-mà* *ámè* *sór-rè* *átà*
DEF book-PL DEM.PL reading-PL three

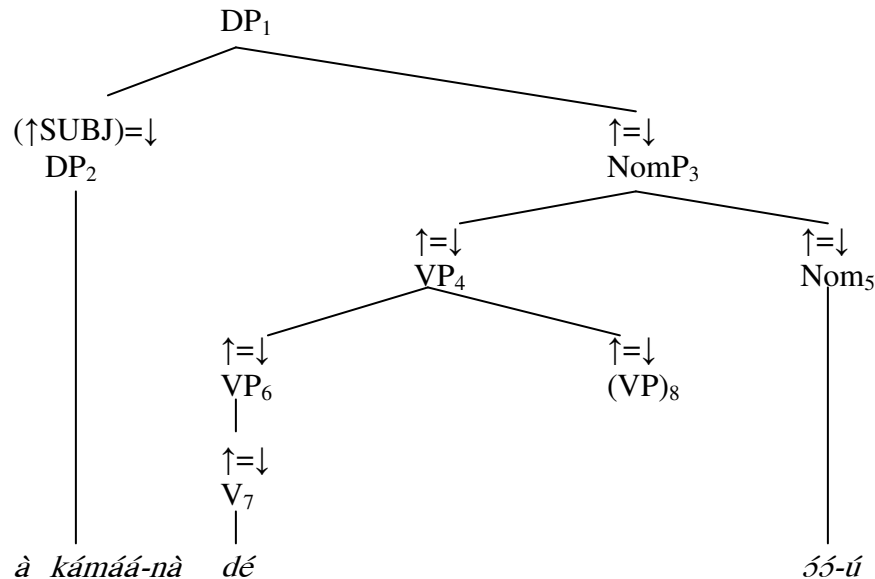
Focusing now on English nominalization, Abney (1987) has proposed that English nominalization constructions have the following structure:



In this view, the nominal gerund constitutes a determiner which exceptionally takes a verbal projection as its complement, instead of a nominal projection. Following this proposal and Bodomo and Oostendorp (1993), we assume that an SVN is a VP with a nominal functional projection set on top of it. This is shown in (25b)

- (25) a. *à* *kámáá-nà* *dé* *śś-ú*
DEF corn-PL take chew-NOM
'The eating up of the corn.'

b.



With this representation we can now predict/explain quite a number of issues concerning the syntax of SVN such as why there is no tense, aspect or other functional categories normally associated with VP.

Explanation:

To license the presence of tense for instance, there must be a TP (tense projection). But TP is normally located outside of the VP. However, as can be seen in the above diagram, the NomP projects on top of VP; i.e., where a TP would have been. There is thus no position for TP outside of the VP. The NP, *à kámáánà*, can now also move to the beginning of the nominal complex (leaving the verbs adjacent to each other) since it is the subject of the whole construction.

Now, cross-linguistically, complex predicates tend to cluster in nominalizations in many languages. Chomsky (1970), for instance, observed the following contrast for (American) English shown in (1 & 2), repeated here as (26 & 27):

- (26) a. He looks the information up.
 b. He looks up the information.
- (27) a. *The looking of the information up (is difficult).
 b. The looking up of the information (is difficult).

Hoekstra (1986) observes a similar contrast for Dutch:

- (28) a. Hij zoekt de informatie op.
 'He looks the information up.'

- b. ...dat hij de informatie op zoekt.
 that he the information up looks.
 ‘...that he looks up the information.’
- (29) a. *Het zoeken van de informatie op (is moeilijk).
 ‘The looking of the information up (is difficult).’
- b. Het op zoeken van de informatie (is moeilijk).
 ‘The up looking of the information (is difficult).’

Hoekstra (1986) argues that we cannot have complex predicates of the type in (29a) in a nominalization construction because “only arguments of the head of the construction can appear, which must be marked for the specific thematic roles they bear.”

Because the particle does not receive a thematic role from the verb (just like the verbs in an SVC do not receive a thematic role from each other), the two elements have to form a *composite function*, which resembles a complex predicate. In order to form a composite function, the particle and the verb have to be adjacent:

- (30) Function composition (Hoekstra 1986:573)
 Syntactically adjacent functions may be combined to form a composite function.

It is a nice consequence of our approach to serial verb nominalizations that it follows from independent arguments that the verbs in the SVN cluster (each of them counting as a *function* in Hoekstra's terms) come out as a string-adjacent at constituent structure. At that level, they can form a composite function. No special stipulations have to be made, everything follows from independently needed principles.

We believe however that function composition is only a surface manifestation of a more substantial process at the conceptual semantic level. As a result we shall look more closely at other levels of analysis.

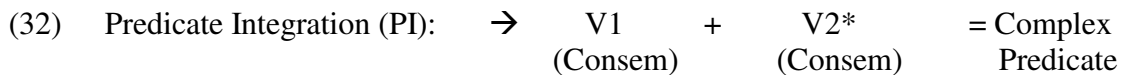
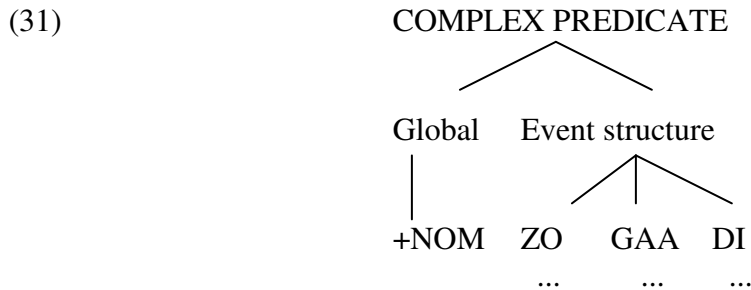
4. The semantics of Serial Verb Nominalization

Our proposal for representing the semantics of SVNs rests on our syntactic assumption that SVNs are nothing but SVCs with a functional categorial projection +NOM over the verbal features.

Pitz (1994) has observed that the main difference between verbs and nouns is that nouns typically *name* or *refer* to entities, including situations, while verbal expressions *express* or *describe* situations. This work, however, also observes that nominalized verbs of the type described throughout this paper express situations, just like their verbal counterparts. It refers to such nouns as situation-expressing nouns.

We believe that this observation supports our approach to the representation of the meaning of these SVN constructions. There is however a noticeable difference between SVCs and SVNs which our treatment of serialization and nominalization brings out.

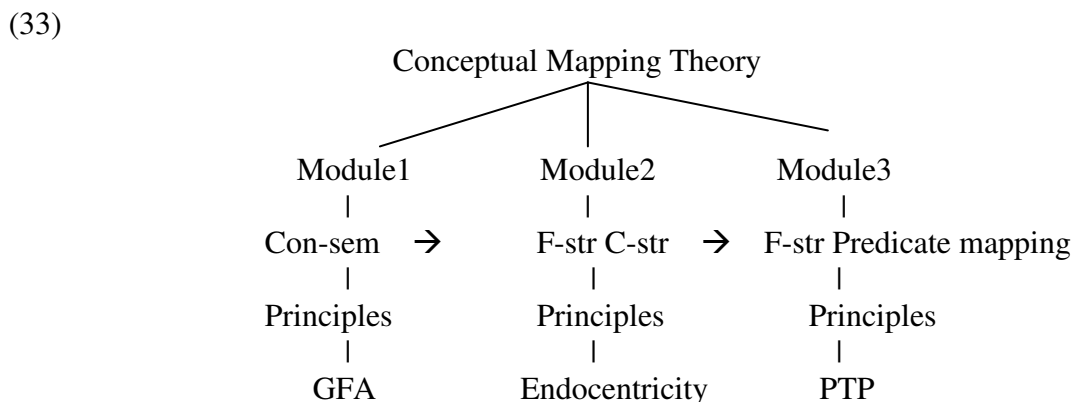
Because of the fact that these verbal items are headed by the functional feature, +NOM, certain functional and semantic categories that are inherently verbal such as aspect, tense and agreement can no more be expressed. This is an important point that has to be considered in the conceptual semantic representation of SVNs as against that of SVCs. Rather than using semantic features such as [$\pm$ tense] and [$\pm$ aspect] as the global features in SVC complex events, we instead use the +NOM as the specification of the global feature of the whole SVN complex event as follows in (31) (the verbs *zo* ‘run’ *gaa* ‘go’ and *di* ‘eat’ are written in capitals to stand as short cuts for the conceptual-semantic structures that will form the complex predicate arising from this SVN construction):



The complex predicate formation rule in (32) licenses predicate formation.

The +nom feature is a semantic category/feature in the sense that it curtails some of the *expression* powers and parameters of these verbs for describing situations and instead gives the whole construction a *referring* semantic feature, just as would be found in pure nouns.

We now briefly address the interface between syntax and semantics. Basically, this section will consist of exploring the applicability potential of a Conceptual Mapping Theory (CMT) developed in Bodomo (1997), a diagrammatic sketch of which is shown in (33).



The CMT proposed here has three components or modules, as shown in (33). Module1 deals with how to realize grammatical functions such as SUBJECT and OBJECT from

conceptual-semantic level participants. The main principle operating in this module is the principle of grammatical function assignment (GFA) as stated in (34).

(34) GFA

In active sentences with realized subjects and objects:

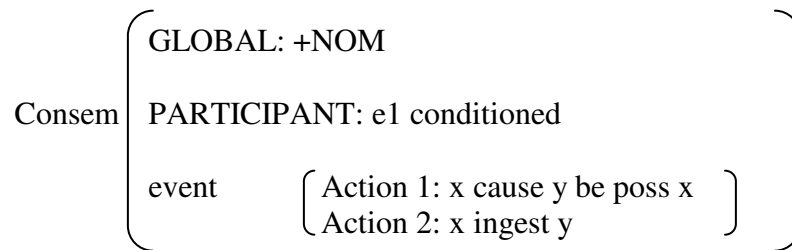
- i. Map *consem érá* onto f-structure SUBJECT
- ii. Map *consem wónó 1* onto f-structure OBJECT
- iii. Map *consem wónó 2* onto f-structure OBJ2 and obliques

Otherwise, map it onto the subject position if only one participant is realized.

The diagrams in (35) show representations of the conceptual semantic structure (*consem*), f- and c- structures of our example SVN construction.³

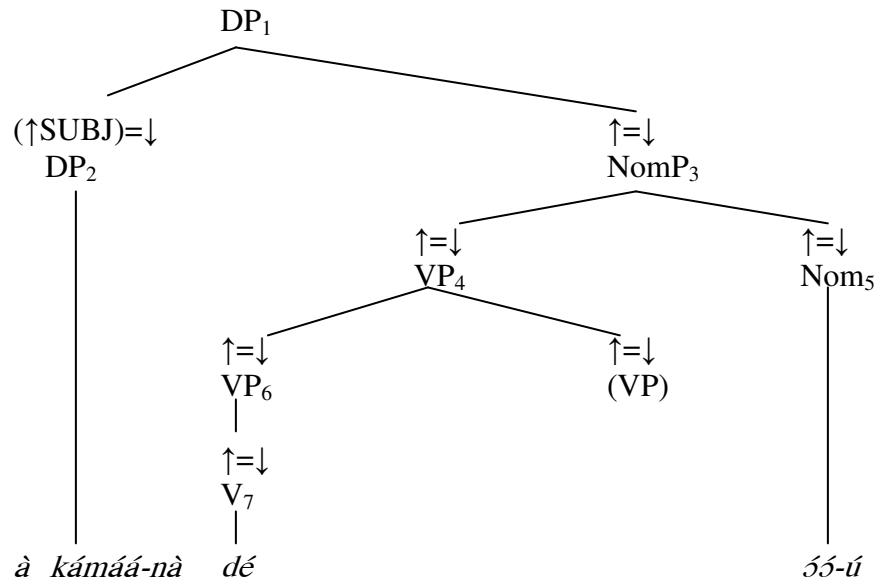
- (35) a. *à kámáá-nà dé ́́-ú*
 DEF corn-PL take chew-NOM
 ‘The eating up of the corn’

- b. Conceptual semantic (*consem*) structure:

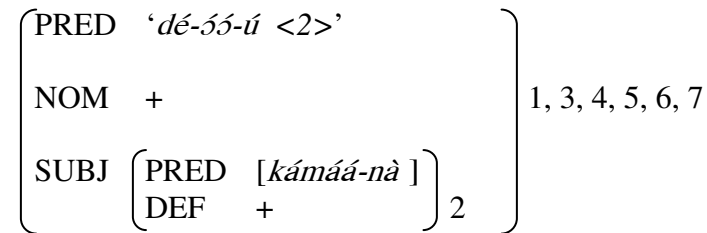


³A brief explanation of the complex event (a conceptual semantic [*consem*] representation of a complex predicate) is necessary here. At this level, there are some conceptual semantic features that affect the entire representation. These are the global semantic features. In this case, a semantic feature [+nom] is imposed over the whole nominalized construction. In addition, there are some features that describe certain aspects/parameters/dimensions of the conceptual semantic representation. First, we have a participant dimension (cf Jackendoff’s thematic tier), where there is a participant (e1) which has as value, *kamaana* ‘corn’. Then we have the event tier (cf Jackendoff’s action tier). At this point an unexpressed participant, *ngmaanga* ‘monkey’, called a conditioner, causes several monotonic changes, such as transfer of possession, and finally involving causing something to be eaten (ingestion). This object of ingestion is e1 which is instantiated with *a kamaana*, ‘the corn’. These values, e1 (and e2 if present), can be given macro-participant values (Dowty 1991) as *era* or proto-agent and *wono* or proto-patient for the purpose of mapping from semantics to syntax. Other dimensions of these finer-grained semantics include various phases/stages/actions (action1, action2, etc.).

c. C-str:



d. F-str:



The second part of the theory deals with correspondence relations within the syntactic level. Correspondence rules are listed below:

- (36)
- a. C-structure heads are f-structure heads
 - b. Specifiers of functional categories are the syntacticized discourse functions or absent
 - c. Complements of functional categories are f-structure co-heads
 - d. Specifiers of lexical categories are the non-discourse argument functions
 - e. Complements of lexical categories are the non-discourse argument functions
 - f. Constituents adjoined to maximal projections are non-argument functions

The third part of CMT checks for the correct ordering of verbal predicates. The main principle here is stated as follows:

- (37) Let $S = SVC$ and $E = \text{Event}$,
Let $v1$ and $v2 = \text{Verbs in } S$ and $e1$ and $e2 = \text{parts of } E$
Suppose S is a grammatical encoding of E and
 $v1$ and $v2$ encode $e1$ and $e2$ respectively,
If $e1$ temporally precedes $e2$
Then $v1$ must structurally precede $v2$.

5. Further on English verb particle nominalization

Our complex predicate analysis and positing of the [+NOM] may further explain obligatory contiguity in the English verb particle nominalization.

Just as [+NOM] curtails so many verbal features, verbal particle mobility is also curtailed under nominalization.

Indeed, this prediction further generalizes onto, and explains, the productivity of discontinuous verb particle complexes in English as against discontinuous noun particle complexes.

6. Summary and Conclusion

The study of purely verbal complex predicates provides important insights into the nature of syntax, semantics, and their interfaces.

But nominalized complex predicates are equally, if not more, interesting in these respects. And more. Specifically, this paper has shown that they can (among others):

- i. address the issue of levels of representation (they are not just argument structure phenomena but cut across other levels of representation)
- ii. explicate the difference between nouns and verbs across languages
- iii. can address the syntactic integrity of complex predicates (contiguity effects)
- iv. address issues of linking and syntactic alternations

These issues have been addressed with mainly data from Dagaare, but it is expected that data from other serialization and other complex predicate languages would illustrate similar phenomena.

In addition, it is hoped that the work presented here would set the agenda for other kinds of interaction with serialization beyond nominalization, such as complex predicate relativization (Bodomo and Hiraiwa 2004) and complex predicate clefting (Hiraiwa and Bodomo 2005)

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