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Akan noun–verb nominal compounds: The exocentric synthetic view



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ABSTRACT

A synthetic compound is regarded as an endocentric construction in which a deverbal nominal head inherits the internal argument of the underlying verb. The Akan noun–verb nominal compound is analysed as a synthetic noun–noun compound with a deverbal right-hand constituent. This is based on a pattern of downstep observed on the first syllable of the second constituent, triggered by a putative floating low tone of a deleted nominal(-izing) prefix. This approach, which makes the compound endocentric, is needed to account for the nominal syntactic category of the compound, given that the left-hand nominal constituent is not the head. In this paper, we discuss and reject this endocentric analysis, showing that the argument for the nominal status of the right-hand constituent based on tonal melody alone is weak because some constructs which meet the structural requirement fail to exhibit the specified tonal melody. We argue, however, that we can maintain the synthetic compound analysis without committing to defend the view that the right-hand constituent is nominalized. This is the exocentric synthetic compound view. We present a constructionist account in which the syntactic category is a holistic constructional property of the compound, which is inherited from a meta-schema for Akan compounding. We also present a preliminary constructionist account of the tonal melody of the compound.

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1. Introduction

A principal distinction in the literature on the classification of compounds is that between root compounds (English *school bus* and *water pump*) in which no constituent is derived and synthetic compounds (English *fox hunting* and *school teacher*) in which one of the constituents is derived (cf. Marchand, 1969; Allen, 1978; Botha, 1980, 1984; Selkirk, 1982). This paper presents a new perspective on the syntactic category of synthetic compounds. It deals with the class of Akan (Niger–Congo, Kwa) noun–verb nominal (hereafter, [N–V]_N) compounds like those in (1).¹

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¹ Abbreviations: Ak. = Akuapem; As. = Asante; CxM = Construction Morphology; Fa. = Fante; H = high; LCS = lexical conceptual structure; L = low; NMLZ = nominalizer; N = noun; PERF = perfect(tive); V = verb; PR = phonetic representation; RED = reduplicant; SEM = semantics; TBU = tone bearing unit; UR = underlying representation; V = verb.

(1)	Base 1	Gloss	Base 2	Gloss	Compound	Meaning
a.	àdéd	thing	sùà	to learn	àdéd-sùà	education, learning
b.	àsó	ear	twé	to pull	àsó- ^l twé	punishment/penalty
c.	àsé	under	tènà	to sit	àsé-tènà	livelihood
d.	àtár	dress	hyé	to dress	àtár-hyé	act of dressing

Before continuing, it is worth noting that this paper essentially reanalyses a type of compound. Thus, some of the data come from previous studies including; [Christaller \(1875, 1933\)](#), [Boadi \(1966\)](#), [Dolphyne \(1988\)](#), [Anyidoho \(1990\)](#) and [Anderson \(2013\)](#). Additional primary data come from a variety of sources, including the Universal Declaration on Human Rights, a children's reader on fishing, and an Akan translation of Plato's apology of Socrates.

Akan has a number of dialects, including the three major ones (Akuapem, Asante and Fante) from which we draw data. However, the claims we make in this paper hold true for all dialects. Where a particular claim or example is specific to any of the three major dialects, we indicate it as follows: Akuapem (Ak.), Asante (As.) and Fante (Fa.). Again, Akan is a tone language with two level tones – a high tone which is marked with an acute accent, as in [á], and a low tone which is marked with a grave accent, as in [à]. A superscript [^l] before a high-toned syllable (e.g., ^ltwé as in *àsó-^ltwé* (1b)) indicates that the high tone is downstepped. *Downstep(ping)* is the process whereby the second in a series of two high tones is lowered in pitch, as a result of an intervening (floating/overt) low tone ([Stewart, 1965](#); [Dolphyne, 1988](#); [Abakah, 2000, 2004](#)).²

Previous accounts of the compounds in (1) have conflicted in their treatment of the syntactic category of the right-hand constituent. One group (cf. [Dolphyne, 1988](#)) treats it as a verb, characterizing the compounds as object–verb (i.e., [N–V]_N) compounds. The other group (cf. [Christaller, 1875](#); [Anyidoho, 1990](#); [Anderson, 2013](#)) regards the right-hand constituent as a noun (i.e., [N–N]_N). The latter position accords well with the treatment of similar compounds cross-linguistically, especially in Germanic languages like English, where such constructs are analysed as synthetic compounds in which the right-hand constituents are deverbal (cf. [Roeper and Siegel, 1978](#); [Selkirk, 1982](#); [Lieber, 1983](#); [Grimshaw, 1990](#)). This means that for these scholars, N–V compounds do not exist, since the right-hand constituents are deverbal.

For Akan [N–V]_N compounds, [Anyidoho \(1990\)](#) makes the case for the prior nominalization of the right-hand constituents, arguing that a pattern of downstep observed on the first syllable of the right-hand constituents of the compounds, as in (1b), is caused by the floating low tone (henceforth, L-tone) of a deleted nominalizing prefix. Subsequently, [Anderson \(2013\)](#) called them *synthetic compounds* and the prior nominalization of right-hand constituent is needed to account for the nominal form-class of the compound because it does not come from the left-hand nominal constituent. However, we show that the argument for the nominal status of the right-hand constituent based on tonal melody alone, which then motivates the synthetic compound analysis, leaves out constructs that belong in the class but do not have the putative class-defining tonal melody.

Synthetic compounds (e.g. *shoemaker* & *taxi driver*) are traditionally regarded as endocentric constructions, in which a deverbal nominal head (marked in English, for example, by a suffix like *-er*, which refers to the external argument of the verb) inherits the internal argument of the verb ([Roeper and Siegel, 1978](#); [Selkirk, 1982](#); [Lieber, 1983](#); [Di Sciullo and Williams, 1987](#); [Booij, 1988](#); [Haspelmath, 2002](#)).³ However, [Grimshaw \(1990, p. 14\)](#) characterizes synthetic compounds differently, arguing that the real distinction between root compounds and synthetic compounds is not necessarily the presence of a deverbal constituent in synthetic compounds, but the fact that they contain argument-taking heads whose argument structure (AS) must be satisfied by the non-head constituents. As she puts it, “[t]he essential difference between root and synthetic compounds, then, is in the argument-taking properties of their heads” ([Grimshaw, 1990, p. 70](#)).

[Bauer \(2008, 2010\)](#) distinguishes different types of exocentric compounds, one being the *exocentric synthetic* compound, which, unlike an endocentric synthetic compound, has no morpheme like English *-er* which corresponds to the external argument of the verb. Instead, the verb and its internal argument form a noun that denotes the entity that performs the role of the external argument. An example is French *gratte-ciel* ‘skyscraper’ [lit. scratch-sky], in which only the verb and its internal argument are present but the compound as a whole refers to the external argument – that which scratches the sky. Thus, synthetic compounds need not be endocentric nor have a deverbal head.

² Some scholars, including [Katamba \(1989, pp. 199–200\)](#) restrict the use of downstep to cases where “a high tone is lowered [in pitch] in the absence of any preceding low tone in the phonetic representation.” For Katamba, if there is an overt L-tone causing the lowering of the pitch, then it is not downstep; it is *downdrift*. As he puts it, “[d]owndrift is automatic lowering induced by the presence of a low tone immediately before a high tone in the phonetic representation. But downstep is phonetically nonautomatic lowering. The underlying low tone that causes the lowering does not occur in the phonetic representation.” Again, he argues that “[w]hile the phonetic motivation of downdrift is present on the surface, that of downstep is not” ([Katamba, 1989, p. 207](#)). However, we follow [Abakah \(2000, 2004\)](#) in using downstep for both the automatic and the non-automatic lowering in the pitch of a single H-tone. Downdrift, which will not be exemplified/employed here, on the other hand, is reserved for the progressive downstepping of H-tones in a phonological phrase, with the effect that a H-tone at the end of the phrase could be significantly lower than one at the beginning. This use of downdrift fits the description of declination “the gradual, time-dependent downsloping of the fundamental frequency” ([Gussenhoven, 2004, p. 98](#)).

³ [Katamba and Stonham \(2006, p. 321\)](#), for example, lists the following as the characteristics of a synthetic compound:

- (i) a complex head adjective or noun, which is derived from a verb;
- (ii) the nonhead constituent is interpreted as a syntactic argument of the deverbal noun or adjective head;
- (iii) the θ -role of the nonhead is that of agent, patient, etc.;
- (iv) the meaning of the compound is transparent.

In light of this alternative construal of synthetic compounding, we do two things in this paper. First, we argue that we can maintain the synthetic compound characterization of Akan $[N-V]_N$ compounds without being committed to defending the presumed entailment that the right-hand constituents are nominalized. We make the point that the Akan $[N-V]_N$ compounds are exocentric synthetic compounds that are formed from verbs and their arguments, both internal and external. This is the *exocentric synthetic compounding view/hypothesis* and it builds on ideas from the two schools of thought on the properties of the compounds at issue. With Dolphyne (1988), we share the view that the compounds are N–V and with Anyidoho (1990) and Anderson (2013) we share the view that they are synthetic compounds.

Second, we present a Construction Morphology account of the properties of Akan $[N-V]_N$ compounds, stressing the fact that morphological constructions can have holistic properties (Booij, 2012; Jackendoff, 2010, 2013). Having ruled out the deverbal status of the right-hand constituent, we have to regard the nominal form-class as a holistic property of the compound (Appah, 2015), much in agreement with the observation that “systematic properties of compounds need not be derived from the head, but can be seen as holistic properties of the compound construction as such” (Booij, 2012, p. 345).

Zager (1981) posits two types of modifications, noting that in accounting for the properties of complex forms, one may adopt a source-oriented perspective where every property of the whole comes from the parts. Here, a base, called the *source*, is modified through various processes to derive an output form – the *product*. Thus, the purpose of the modification is to categorize the new with the old (Zager, 1981, p. 1124). The alternative perspective is the product-oriented view where the whole can have properties that do not necessarily come from the parts. As Zager (1981, p. op cit.) again observes, “[i]n many instances, the product category has some overt characteristic markers – an ending, a stress pattern, or some such.”

The rest of the paper is structured as follows: Section 2 briefly introduces Construction Morphology and the formalism to be used in the proposed account. Section 3 deals with exocentricity, showing the types of exocentric compounds posited in the literature (Bauer, 2008, 2010) and the ones attested in Akan (Appah, 2016, 2017). In Section 4, we present the data for this study and discuss some of their general properties. Section 5 deals with previous accounts of the properties of Akan $[N-V]_N$ compounds, pointing out some important weaknesses. In Section 6, we present the exocentric synthetic compounding view as well as the proposed Construction Morphology account. The point there is to see the nominal form-class of Akan $[N-V]_N$ compounds as a holistic property which the output-orientedness of constructional schemas makes it possible to account for, where source-oriented rule-based models fail (cf. Appah, 2015). Section 7 presents a first attempt at a constructionist account of the tonal melody of Akan compounds. Section 8 concludes the paper.

2. Construction Morphology

Construction Morphology (CxM) is a theory of linguistic morphology that aims at providing “a better understanding of the relations between morphology, syntax and the lexicon and of the semantic properties of complex words” (Booij, 2010a, p. 543). CxM has three main tenets; a theory of the notion *construction*, a theory of *word structure* and a theory of the *lexicon*. The notion *construction*, as developed in Construction Grammar (Goldberg, 1995, 2006; Michaelis and Lambrecht, 1996), is adopted in CxM to develop “a framework in which both the differences and the commonalities of word-level constructs and phrase-level constructs can be accounted for” (Booij, 2010b, p. 1).

Words, in CxM, are morphological constructions that can have holistic properties and they are formed by means of schemas that generalize over sets of existing complex words and also serve as a recipe for forming new ones. The schema in (2), for example, is an abstraction over right-headed compounds and it serves as a pattern for forming other right-headed compounds. It shows that a compound that is formed from two constituents $[X]_i$ and $[Y]_j$ will be a type of “Y” $([Y]_k)$.

The upper-case variables X and Y stand for the major lexical categories (N, V and A). The lower-case variable *a* and *b*

$$(2) \quad <[[a]_{xi} [b]_{yj}]_{yk} \leftrightarrow v[\text{SEM}_j \text{ with relation } R \text{ to } \text{SEM}_i]_k >$$

stand for arbitrary strings of sound segments, whilst *i*, *j* and *k* are indexes for the matching properties of the constituents of the compound and the compound as a whole.

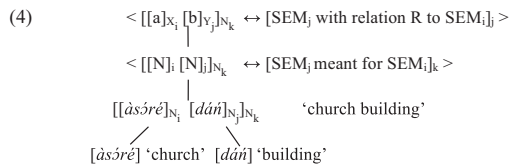
Constructions and the schemas by which they are formed co-exist in the lexicon, which is a structured repository of connected complexes that is comparable to a map (Michaelis and Lambrecht, 1996). Two types of relations hold within the lexicon – “instantiation” and “part of” relations. *Instantiation* obtains between a schema and a word that is formed by the schema and *part of* holds between a complex word and its constituents. For example, the form-class of the constituents of a right-headed compound may be noun, verb, adjective, etc. Thus, in a language with right-headed nominal compounds like Akan, there would be a specific instantiating schema with the variables *a* and *b*, substituted by the appropriate form-class, in this case noun (N), as shown in (3).

$$(3) \quad <[[a]_{xi} [b]_{yj}]_{N_k} \leftrightarrow [\text{SEM}_j \text{ with relation } R \text{ to } \text{SEM}_i]_k >$$

$$\quad \quad \quad |$$

$$\quad <[[N]_i [N]_j]_{N_k} \leftrightarrow [\text{SEM}_j \text{ meant for } \text{SEM}_i]_k >$$

A still more specific schema in which the variables are substituted by specific lexical items instantiates the general schema for Akan N–N compounds, as shown in (4), where we find the two kinds of relations. The compound *àsórédán* instantiates the Akan N–N compound schema, whilst its constituents, *àsóré* and *dán*, have a *part of* relations with the compound. The more specific schema inherits its non-unique properties from the dominating abstract schema.



The lexicon in CxM is structured hierarchically because of the multiple relations that complex words keep. For example, (4) does not stand alone as an abstract word-formation schema. It is connected to other words in the lexicon that contain either *àsóré*, such as *Métódèsè àsóré* ‘Methodist church’ or *dán* such as *dán-wá* ‘cottage’. This creates a network of related words, which is a conceptualisation of the lexical knowledge of the speaker of the language.

3. The exocentricity of Akan [N–V]_N compounds

A principal point in this paper is that the Akan [N–V]_N compounds at issue are exocentric, which is normally interpreted to mean that the compounds do not have head constituents. In mainstream Generative Morphology, it is assumed that complex words are headed constructions and that the head percolates its properties, including the form-class, to the whole compound (Allen, 1978; Lieber, 1980, 1983, 1989; Williams, 1981; Selkirk, 1982; Booij, 2000). This way, the whole compound will be a subtype of the head constituent, as predicted by the hyponymy test, or “IS A” condition (Allen, 1978, p. 11).⁴

When a compound passes the hyponymy test, it is said to be endocentric. For example, the Akan compound in (4) *àsóré-dán* ‘church building’ is endocentric because the whole is a subtype of the right-hand constituent *dán* ‘building’. On the other hand, a compound that fails the hyponymy test is exocentric (Bauer, 2008, 2010). Again, Akan *itsir-késé* [head-big] ‘person with a big head’ (Fa.) is exocentric because it is not a subtype of either constituent.⁵ We will return to the idea of exocentric compounds later.

Given the foregoing, it would be expected that the form-class of the [N–V]_N compound would percolate from the head, if it is indeed endocentric, as previous analyses suggest. However, the possible head in the compound, the right-hand constituent, has the “wrong” form-class because it is a verb whilst the compound is a noun. Therefore, the nominal form-class of the compound cannot be said to come from the possible head. It is also clear that the form-class does not come from the left-hand nominal constituent because the compound is not a hyponym of the left-hand nominal constituent.⁶

We can say, therefore, that the Akan [N–V]_N compound is exocentric, and it fails the hyponymy test because the possible head is a verb whilst the compound is a noun (cf. Nida, 1949, p. 94). This view that [N–V]_N compounds are exocentric is consistent with current thinking on exocentricity (cf. Scalise and Guevara, 2006; Bauer, 2008, 2010; Ralli and Andreou, 2012; Andreou and Ralli, 2015; Appah, 2015, 2016, 2017).

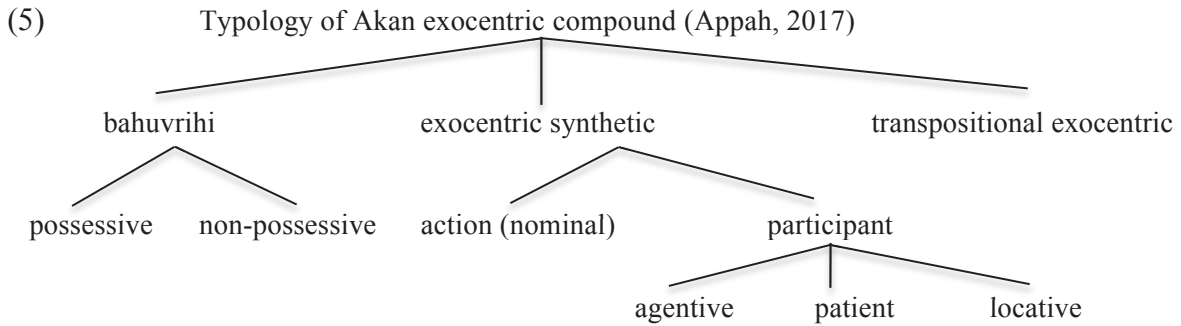
Bauer (2010, p. 167) posits a number of ways in which exocentrics can fail the hyponymy test. He observes that (a) they can fail to display a head element; (b) they can function as a member of a word-class which is not the word-class of their head element; or (c) they can have a head element of the correct word-class but with apparently the wrong denotation (see also, Nida, 1949, p. 94). Based on this, Bauer (2008, 2010) provides a typology of exocentric compounds, drawing data from about fifty typologically diverse languages. He posits five types of exocentric compounds: bahuvrihi, exocentric synthetic, transpositional exocentric, exocentric co-compounds and metaphorical exocentric compounds.

Appah (2017) has shown that three of these compound types, bahuvrihi, exocentric synthetic and transpositional exocentric compounds, are attested in Akan. In addition, bahuvrihi and exocentric synthetic compounds can have subtypes in Akan. Bahuvrihi compounds subdivide into possessive and non-possessive types, whilst exocentric synthetic compounds divide into participant and non-participants (action nominal) exocentric synthetic compounds. The participant exocentric synthetic compounds further divide into agentive, patient and locative subtypes. Thus, the typology of Akan exocentric compounds is as represented on the taxonomic tree in (5). Given that the Akan [N–V]_N compounds mostly refer to actions, they will belong to the class of action (nominal) exocentric synthetic compounds.

⁴ Some studies argue that the idea of a head in morphological constructions should be deconstructed, yielding a formal head and a semantic head (Scalise and Guevara, 2006; Scalise and Fábregas, 2010). The formal head shares its subcategorization frame and lexical category with the compound. Thus, the whole compound shares distributional properties with the formal head. The semantic head shares its lexical conceptual properties with the compound, so that, the compound becomes a hyponym of the semantic head.

⁵ Based on the distinction between formal and semantic heads, some analysts distinguish between *formal exocentricity*, where the compound lacks a formal head and *semantic exocentricity*, where the compound lacks a semantic head (cf. Ralli and Andreou, 2012; Ralli, 2013; Andreou and Ralli, 2015; Appah, 2017).

⁶ Thus, in a sense, they are like the English compound *pickpocket*, which is a noun, but the noun constituent is not the head because the compound is not a hyponym of the noun constituent.



A modification of the current typology of Akan exocentric compounds, which makes the locative type a subtype of the non-possessive bahuvrihi compound, as well as further thoughts on the cross-linguistic typology of exocentric compounds can be found in Appah (2016).

4. The data: [N-V]_N compounds and their properties

The full complement of the Akan [N-V]_N compound data explored in this paper is in (6), besides the four in (1).

(6)	Base 1	Gloss	Base 2 ⁷	Gloss	Compound	Meaning
a.	àbá	ballot	tów	to cast	àbá- ¹ tów	election/voting
b.	àbá-só	arm top	bó	to hit	àbàsò-bó	commendation/promotion
c.	àbùsùá	family	bó	to join	àbùsùá-bó	membership of a family
d.	àdé	thing	dí	to eat	àdé- ¹ díé	succession'
e.	àdé	thing	sèè	to destroy	àdé-sé'é	wastefulness
f.	àdé	thing	sòà	to carry	àdé-sóá	burden
g.	àdé	thing	sùà	to learn	àdé-sùá	education/learning
h.	àdé	thing	tó	to buy	àdé- ¹ tó	act of buying
i.	àní	eye	gyé	to get	àní-gyé	happiness
j.	àní	eye	bèrè	to redden	àní-béré	anger/seriousness
k.	àní	eye	bùè	to open	àní-bùé	civilization
l.	àní	eye	háv	to be weary	àní-háv	laziness
m.	àní	eye	téw	to tear	àní-téw	cunningness
n.	àní	eye	wú	to die	àní-wú	shame
o.	àní	eye	só	to light (fire)	àní-só	pleasing to the eye/ respectful/respectable
p.	ànó	mouth	bàà ~ bàè	to RED ~ open	ànò-bààbá'é	verbal exchanges
q.	ànó	mouth	yí	to remove	ànó- ¹ yí	response/answer
r.	àsé	under	kyèrè	to show	àsé-kyèrè	'explanation'
s.	àsó	ear	twé	to pull	àsó- ¹ twé	punishment
t.	àsú	water	bó	to hit	àsú- ¹ bó	baptism
u.	bàkà	lagoon	nú	to stir	bàkà-nú	fishing in a lagoon
v.	bó	promise	hyé	to give	bó- ¹ hyé	promise
w.	òbó	stone	sóm	to serve	òbó- ¹ sóm	a lesser god
x.	dón	bell	hwèr	to lose	dón-hwéér	hour (lost bell)
y.	mánsó	discord	twé	to pull	mànsótwé	litigation
z.	ntámá	cloth	sí	to wash	ntámá- ¹ sí (Ak.)	laundry

The verb constituents of [N-V]_N compounds usually denote actions and they are mostly transitive, but a few are intransitive. The nouns, on the other hand, are varied in their semantic characteristics. They include: body parts (ànó 'mouth', àní 'eye' & àsó 'ear'), concrete objects (dón 'bell', òbó 'stone', & ntámá 'cloth') and abstract concepts (àbùsùá 'family', bó 'promise' & mánsó 'discord/feud'). However, in terms of the overall semantic of the compounds, we see that they are invariably abstract (e.g. àtâr-hyé 'act of dressing [lit. dress-wear]'), whilst the left-hand nominal constituents usually name concrete entities (e.g. àtâr 'dress').

4.1. Semantic/grammatical relations within Akan [N-V]_N compounds

It is observed in the literature that the left-hand noun constituent of this type of compound is usually an argument of the verb in the right-hand constituent (cf, inter alia, Roeper and Siegel, 1978; Selkirk, 1982; Lieber, 1983; Booij, 1988; Grimshaw,

⁷ Note that contrary to previous studies (Abakah, 2000, 2004, 2005), we regard the tonal melody of the imperative form of the verb as the citation form. This is based on the observation that if one asked linguistically uninitiated speakers of Akan to pronounce any verb in isolation, the tonal melody we get is invariably that of the imperative.

1990; Katamba and Stonham, 2006). As noted above, Dolphyne (1988) calls the Akan constructs under discussion object–verb compounds. However, the object–verb type (7) constitutes the majority of the inventory, but it is by no means the only type of Akan [N–V]_N compound. Some of the noun constituents are subjects of the verb constituent, as shown in (8).

(7) [N–V]_N compounds where N is the internal argument of V

Base 1	Gloss	Base 2	Gloss	Compound	Meaning
a. àdédé	thing	sòà	to carry	àdédé-sòá	burden
b. àdédé	thing	sèè	to destroy	àdédé-sé'édé	wastefulness
c. àdédé	thing	tò	to buy	àdédé-'tò	act of buying
d. àdédé	thing	sùà	to learn	àdédé-sùá	education/learning
e. ntámá	cloth	sí	to wash	ntámá-'sí (Ak.)	laundry
f. àní	eye	gyé	to get	àní-gyé	happiness

(8) [N–V]_N compounds where N is the external argument of V

Base 1	Gloss	Base 2	Gloss	Compound	Meaning
a. àní	eye	bèrè	to redden	àní-béré	anger/seriousness
b. àní	eye	bùè	to open	àní-bùé	civilization
c. àní	eye	háw	to be weary	àní-háw	laziness
d. àní	eye	téw	to tear	àní-téw	cunningness
e. àní	eye	wú	to die	àní-wú	shame
f. àní	eye	só	to light (fire)	àní-só	pleasing to the eye/respectful /respectable

In (9) we provide what native speakers construe as the syntactic constructions corresponding to the compounds in (8), showing that the noun is seen as the possessed element in the possessive phrase in subject position.

(9)	Compound	Analogous syntactic construction			
(a)	àní-béré eye-ripen/redden 'anger/seriousness'	Kòfí	àní	á-béré	(As.)
		Kofí	eye	PERF-ripe	
(b)	àní-háw eye-be_wearied 'laziness'	Kòfí	àní	á-háw	(Ak.)
		Kofí	eye	PERF-weary	
(c)	àní-téw eye-tear 'cunningness'	Kòfí	àní	á-téw	(Ak.)
		Kofí	eye	PERF-tear	
(d)	àní-wú eye-die 'shame'	Kòfí	àní	á-wú	(As.)
		Kofí	eye	PERF-die	
			'Kofi is ashamed'		

This shows that it is not completely accurate to call the whole class object–verb compounds (Dolphyne, 1988) because the nouns in some of these N–V compounds are the subjects of the respective verbs, as shown in (8).

5. Previous accounts of Akan [N–V]_N compounds

Starting with Dolphyne's (1988) remarks on the tonal melody of Akan [N–V]_N compounds, there has been an ongoing debate on the syntactic category and classification of Akan [N–V]_N compounds. Before discussing what the tonal melody of Akan [N–V]_N compounds is supposed to reveal about the syntactic category of the right-hand constituent and of the whole compound, we briefly discuss views on the extent to which the tonal properties of a compound is predictable from the tonal melodies of its constituents.

Dolphyne (1988, p. 120) observed that Akan compounds could be grouped into two, based on their surface tonal melodies. In the first group, all the syllables in the first constituents are L-toned, irrespective of the tone of the stem in isolation. The second constituents, on the other hand, bear varying tonal melodies, as shown in (10).

(10)	Base 1	Gloss	Base 2	Gloss	Compound	Meaning
a.	mánsó	discord	twé	to pull	mánsótwé	litigation
b.	àno	mouth	bàà~bàè	to RED~open	àno-bààbá'édé	verbal exchanges
c.	dóń	bell	hwèr	to lose	dón-hwér	hour (lost bell)
d.	àdédé	thing	sèè	to destroy	àdédé-sé'édé	wastefulness
e.	àbùsùá	family	bó	to join	àbùsùá-bó	membership of a family
f.	bàkà	lagoon	nú	to stir	bàkà-nú	fishing in a lagoon
g.	àdédé	thing	sùà	to learn	àdédé-sùá	education/learning
h.	àní	eye	bùè	to open	àní-bùé	civilization

In the second group, as shown in (11), the first constituents do not have a consistent tonal melody. The two constituents seem to maintain their isolative tonal melodies.

(11)	Base 1	Gloss	Base 2	Gloss	Compound	Meaning
a.	àno	mouth	yí	to remove	àno- ¹ yí	response/answer
b.	àsó	ear	twé	to pull	àsó- ¹ twé	punishment
c.	òbó	stone	sóm	to serve	òbó- ¹ sóm	a lesser god
d.	àbá	ballot	tów	to cast	àbá- ¹ tów	election/voting
e.	àsù	water	bó	to hit	àsù- ¹ bó	baptism
f.	bó	promise	hyé	to give	bó- ¹ hyé	promise
g.	àdé	thing	dí	to eat	àdé- ¹ dí	succession
h.	ntámá	cloth	sí	to wash	ntámá- ¹ sí	laundry
i.	àní	eye	bèrè	to redden	àní- ¹ bèrè	anger/seriousness
j.	àní	eye	háw	to be weary	àní- ¹ háw	laziness
k.	àní	eye	téw	to tear	àní- ¹ téw	cunningness
l.	àní	eye	wú	to die	àní- ¹ wú	shame
m.	àní	eye	gyé	to get	àní- ¹ gyé	happiness

Dolphyne further observed that where tonal changes are recorded in compounds, the changes are “related to the tones of the first stem in the compound, and there is no evidence that the type of tone pattern a compound has is related to the word classes of the stems from which the compound is derived” (Dolphyne, 1988, p. 120). Anyidoho (1990) shares the view that the tonal melody of compounds has nothing to do with the form-classes of their constituents. She writes: “[t]he first group consist of those in which the syllables of the initial stem(s) bear low tone while those of the last stem usually retain the tone they bear when they are pronounced in isolation. This consistency is observed irrespective of the form classes of the stem involved” (Anyidoho, 1990, p. 6, emphasis added).

Abakah (2004, 2006) and Marfo (2004, 2005) do not share this view. Abakah (2004, 2006) claims that it is possible to predict the tonal melodies of compounds from those of their constituents. He posits six classes of nouns and three classes of verbs whose tonal melodies undergo various rules to derive the surface tonal melody of the compounds they occur in. Marfo, whilst agreeing that the tonal melody of the constituents determine that of the whole compound, argues that it is the tonal melody of the first constituent alone that is relevant. For the second constituent, only its morphophonological makeup is relevant for the composition of the compound.⁸

Thus, there is no consensus in recent accounts of the relationship between the tonal melodies of compounds and those of their constituents. However, a discussion of the individual proposals is beyond the scope of this paper. We will concentrate on a specific observed pattern of downstepping and what scholars have said about it in relation to the compounds at issue in Section 5.1 and 5.2. In Section 7, we present a tentative proposal for accounting for the tonal melody of Akan compounds based on Dolphyne’s original classification of Akan compounds into two on the basis of their surface tonal melodies.

5.1. The endocentric synthetic N–N compound view

Concluding her discussion of tonal changes in Akan compounds, Dolphyne (1988) identified a subclass of the group of compounds in (11), those that do not have only L-tone on the first constituents. The members of this subclass have a characteristic downstepped H-tone on the first syllable of the second constituent, which she could not quite explain. As she puts it: “[i]t is not clear why the High tones on the verb in these compounds are downstepped” (Dolphyne, 1988, p. 123). See the examples in (12).

(12)	òsé- ¹ bó	‘jubilation’	from	òsé	‘outry’	bó	‘to make’
	àhá- ¹ yó	‘hunting’	”	èhá	‘hunting’	yé/yó	‘to do’
	ntém- ¹ pé	‘haste’	”	ntém	‘quickly’	pé	‘to want’

Following Dolphyne’s observation, some scholars sought to provide the motivation for what appeared to be a puzzling tonal pattern, where a H-tone borne by the right-hand constituent becomes downstepped when it occurs in the compound. For example, Anyidoho (1990) and recently Anderson (2013) have interpreted the observed pattern of downstepping to mean that the verb is first nominalized, and that it is the floating L-tone of the deleted nominal(izing) prefix which causes the lowering of the pitch of the succeeding H-tone. The absence of downstepping in similar compounds is put down to the fact that there is no H-tone on the final syllable of the first constituent. This final H-tone is required to generate the needed contrast in pitch levels, given the presence of the putative floating L-tone of the deleted nominalizing prefix of the second constituent.

⁸ It is unclear to us what definition of “morphophonological makeup” of the compound excludes the tonal melody of the first constituents.

In support of the point about the deverbal status of the right-hand constituents, both Anyidoho and Anderson present evidence of nominalization through prefixation, arguing that we find nominalized verbs occurring in isolation. Anyidoho (1990), for instance, lists the data in (13) to show the contrast between verbs and their nominalized counterparts and then goes on to give the two constructions in (14) to show the use of such putative deverbal nouns.

(13)	Verb		Noun	
	<i>bó</i>	'to hit'	<i>ébó</i>	'hitting'
	<i>yó</i>	'to do'	<i>éyó</i>	'doing'
	<i>twá</i>	'to cut'	<i>ètzwá</i>	'cutting'
	<i>dáń</i>	'to demand'	<i>édáń</i>	'demanding'
	<i>sú</i>	'to cry'	<i>èsú</i>	'crying'

(14) a.	<i>Esū</i>	<i>ara</i>	<i>na</i>	<i>ɔ-re-sū.</i>		
	crying	only	is	he-pre.-cry		
	'He is crying a lot'					
b.	<i>édan</i>		<i>na</i>	<i>ɔ-re-dan</i>	<i>no</i>	<i>ka</i>
	demanding		is	he-pre.-demand	his	debt
	'He is only asking for his money'					

(Anyidoho, 1990, p. 8)⁹

A corollary of the view that the right-hand constituent is nominalized prior to becoming part of the compound is that the so-called N–V compounds are actually N–N compounds and for that matter, synthetic compounds – traditionally regarded as N–N compounds in which the head is deverbal and the non-head is an argument of the verb in the deverbal noun head. This is the *endocentric synthetic N–N compound view*.

Anderson (2013, p. 93) explores this view, defining synthetic compounding as “the creation of a nominal compound by combining a derived word, which is a verb combined with an affix (usually nominalizing the verb), and a noun which acts as an argument to the verbal predicate” (Anderson, 2013, p. 93). He argues that the structure and derivation of the compounds in Akan is analogous to the pattern of synthetic compound formation in English (Roeper and Siegel, 1978; Selkirk, 1982; Lieber, 1983). However, whilst in English the derivation of the right-hand constituent is obvious (marked by suffixes like *-er*, *-ation*, *-al*, *-ment*, and *-ing*), in Akan the nominalization and subsequent deletion of the nominalizing prefix are only felt through the downstep occasioned by the floating L-tone (Anderson, 2013, p. 95). He illustrates his conception of the derivation of the synthetic compound in (16).

(15)	UR ¹⁰	/è-tírè	bó/
	Nominalization	è-tírè	à-bó
	Vowel Prefix Deletion	è-tírè- ^l bó	
	PR	[è-tírè- ^l bó]	
		'the act of hair braiding'	(Anderson, 2013, p. 94)

For those compounds that do not have the downstep in the second syllable like *mmìrìkàtúó* ‘the act of running’, the derivation will look like (16).

(16)	UR	/mmìrìkà + tú/
	Nominalization	mmìrìkà à-túó
	Vowel Prefix Deletion	mmìrìkàtúó
	PR	[mmìrìkàtúó]
		'the act of running'

⁹ It is worth pointing out that the view that the right-hand constituents in these compounds are deverbal, is not new at all. Christaller (1875, 1933) regarded all verbal constituents of compounds he discussed as nominalized, calling them, in several places, “verbal nouns” which form composites with their subjects or objects. Discussing *enoa* in (1), Boadi (1966, pp. 88, fn. 1) referred to the prefix *ε-* as a nominalizing prefix which is “represented in the transcription ... where they may otherwise not appear in the orthography”. In other words, Boadi regards all such right-hand constituents of compounds as nominalized, even if they do not bear overt prefixes and that his representing them overtly is an aberration enough to warrant an explanation. Thus, the idea of a nominalizing affix occurring on the right-hand constituents of what is otherwise regarded as an N–V compound is not new. However, this is not reported in Dolphyne (1988) and so Anyidoho’s observation, a quarter century later, comes across as a novel explanation for a puzzling pattern of downstepping. In our view, the real novel idea in the accounts of Anyidoho (1990) and Anderson (2013) is the observation that the tonal pattern of the compounds may support the view that the right-hand constituents are nominal, although we don’t quite share the view.

(1) *aduane* *ε-noa* (from *obi noa aduane*)
(food cooking) (Someone cooks food) (Boadi, 1966, p. 88)

¹⁰ Anderson does not explain the abbreviations UR and PR, but we assume that they mean, respectively, underlying representation, the input to the derivation, and phonetic representation, the output thereof.

As noted above, there is no downstepping in the PR form of the compound *mmìrikàtúó* because, although the second constituent *tú* has a H-tone, the first constituent *mmìrikà* terminates in a L-tone. Thus, the needed contrast in pitch levels when the putative floating L-tone nominalizing prefix occurs is missing (cf. Dolphyne, 1988; Abakah, 2000, 2005).

5.2. Issues with the endocentric synthetic N–N compound view

The foregoing argumentation and supporting data may give the impression that the endocentric synthetic N–N compound view accounts well for the data. However, a careful consideration returns issues and data that challenge the view that the observed pattern of downstepping shows that the second constituent of the compound is nominalized. We begin with a little observation about the nominalization of transitive verbs and then move on to the more substantive questions of whether the endocentric synthetic compound view can account for all relevant data and more importantly why we need the prior nominalization of the right-hand constituent. The conclusion we will come to, regarding whether all relevant data can be accounted for, is that the prior nominalization view fails to account for all the data. However it is necessary for the endocentric synthetic compounding view because it is source-oriented, assuming that every property of the whole comes from the parts. Thus, the approach cannot account for the syntactic category of the Akan $[N-V]_N$ compound otherwise.

To begin with, some of the putative instances of nominalized verbs either do not exist in the language or are only marginally acceptable. For instance, *àtúó* in (16) above is impossible to gloss in isolation because it does not exist in Akan as a nominalized form of the inherent complement verb *tú* which occurs in *tù mmìriká* ‘to run’. Also, when Akan speakers hear the form *ètúwá* ‘cutting’ in (13) which is supposed to be the affix-nominalized form of *twá* ‘to cut’ (Anyidoho, 1990), the meaning that comes to mind is not *cutting* but the meaning of a homophonous form *ètúwá* ‘epilepsy’ formed from *twá* ‘to be epileptic’, which is intransitive. This interpretation is due primarily to the absence of an object which is interpreted to mean that the verb is intransitive and that the subject undergoes the event designated by the verb, as is typical of change of state verbs (cf. Osam, 2003, 2004).

It seems to me that transitive verbs in Akan do not usually nominalize exclusively through affixation, but rather obligatorily incorporate their objects, when they undergo nominalization (cf. Appah, 2003, 2009). This is especially true of inherent complement verbs like *tú* in (16), which cannot be nominalized without the inherent complement. Indeed, even regular transitive verbs may behave this way, in that where they appear to be nominalized without their complements, we may find features that suggest that it could be optionally transitive. Thus, we assume, following Booij (2002), that where a transitive verb appears to nominalize without its internal argument, it would be because there is an operation at the level of lexical conceptual structure (LCS) that renders the event atelic and for that matter optionally transitive. For instance, in Fante, a form of the verb *yé* ‘to do’ is nominalized entirely through affixation, as Anyidoho suggests. However, as (17) shows, without the internal argument, a suffixal nominalizer occurs besides the L-toned nasal nominal prefix. We are tempted to believe, therefore, that it is an intransitive use of this verb that permits this nominalization without the internal argument of *yé* ‘to do’.

(17) *yé* ‘to do’ > *n-yé-é*
NMLZ-act-NMLZ
‘acts/actions’

Closely related to the view that the verb is nominalized independently, prior to becoming part of the compound, is the view that the nominal inherits the argument of the verb (cf. Hoekstra, 1986; Booij, 1988; Lieber, 1992). However, it is not clear whether, for Akan, this is not an avoidable complication that only arises from the assumption that the verb is nominalized independently of its internal argument. If we assume that the verb is nominalized together with the internal argument, through compounding, it obviates the need for a separate mechanism of argument inheritance because the presence of the internal argument in the nominal will be explained – the verb and the internal argument together express a concept either in a phrase or in a nominal. Intransitive verbs are not so constrained when they undergo nominalization. For example, in (18), all the intransitive verbs are nominalized entirely through affixation.

(18)	Verb	Gloss	Derived nominal	Meaning
a.	<i>dá</i>	to sleep	<i>ndá</i>	(act of) sleeping
b.	<i>sá</i>	to dance	<i>àsá</i>	(act of) dancing
c.	<i>dīdī</i>	to eat (intr.)	<i>à-dīdī-é</i>	(act of) eating
d.	<i>dwàrè</i>	to bathe	<i>à-dwàrè-é</i>	(act of) bathing

A crucial question to ask in assessing previous analysis, however, is whether we are able to account for the data fully by assuming the endocentric synthetic N–N compounding view. The answer is no, because some data systematically defy the view that the tonal pattern can be relied upon to show that the second constituent is nominalized. We find compounds like those in (19), which meet the structural conditions but fail to show the predicted downstep. Note that those in (19c–d) have the same output tonal melody as those in (19a–b) although the tonal melodies of the constituents in isolation are not alike.

(19)	Base 1	Gloss	Base 2	Gloss	Compound	Meaning
a.	<i>èdwúmá</i>	work	<i>yé</i>	to do	<i>èdwúmá-yé</i>	(act of) working
b.	<i>òmáń</i>	nation	<i>bú</i>	to rule	<i>òmáń-bú</i>	governance
c.	<i>àsé</i>	meaning	<i>kyèrè</i>	to show	<i>àsé-kyèrè</i>	interpretation/explanation
d.	<i>àsé</i>	down	<i>tènà</i>	to sit	<i>àsé-téná</i>	livelihood/standard of living

We see that the first constituents of the compounds in (19) terminate in H-tones, whilst the second constituents begin with H-tones. Thus if it is the case that the verb is indeed L-toned prefix-nominalized and that, with the deletion of the TBU, the L-tone floats, then there should be an HLH tonal melody which will automatically yield the predicted downstep, resulting in an HL¹H melody because of the intervening L. However, that doesn't happen. This weakens the position that the downstep observed in N–V compound is caused by a nominalizing L-toned prefix that occurs on the second constituent.

Some of the compounds that fail to pattern as predicted by the endocentric synthetic N–N compound view constitute well-defined groups. This is the case for the compounds in (8) (repeated here as (20) for convenience) which refer to abstract concepts related to human attitude/disposition.

These compounds contain the body part *àńí* 'eye', which is understood to be the external argument rather than the internal argument of the verb in the compounds. The initial syllables of the second constituents of these compounds are not downstepped even where the structural conditions for downstep are met.

(20) [N–V]_N compounds where N is the external argument of V

	Base 1	Gloss	Base 2	Gloss	Compound	Meaning
a.	<i>àńí</i>	eye	<i>bèrè</i>	to redden	<i>àńí-bèrè</i>	anger/seriousness
b.	<i>àńí</i>	eye	<i>bùè</i>	to open	<i>àńí-bùè</i>	civilization
c.	<i>àńí</i>	eye	<i>háw</i>	to be weary	<i>àńí-háw</i>	laziness
d.	<i>àńí</i>	eye	<i>téw</i>	to tear	<i>àńí-téw</i>	cunningness
e.	<i>àńí</i>	eye	<i>wú</i>	to die	<i>àńí-wú</i>	shame
f.	<i>àńí</i>	eye	<i>só</i>	to light (fire)	<i>àńí-só</i>	pleasing to the eye/respectful /respectable

It may seem that these compounds fail to pattern tonally as predicted because the noun is the external argument rather than the internal argument of the verb. But, that is not entirely the case. In (21), the noun *àńí* is actually construed as the object of the verb, yet, the compounds do not follow the predicted pattern tonally.

(21)	Compound	Analogous phrases
(a)	<i>àńí-gyé</i> eye-get 'happiness'	<i>gyè àńí</i> get eye 'be happy'
(b)	<i>àńí-só</i> eye-please 'pleasing/respectful/respectable'	<i>só àńí</i> please eye 'to be pleasing (to the eye)'

Again, it appears that in some instances, whether the compound will have a particular tonal melody or not will depend on the degree of transparency of the compound. A number of [N–V]_N compounds can have two separate renditions – one lexicalized with all the syllables in the first stem being L-toned and the other relatively transparent and with variable tonal melodies. For example, the form *anibue* in (22) may have two separate renditions, one lexicalized and meaning 'civilization' (22a) and the other more transparent and meaning "the act of opening the eye" (22b). The same relation may be found in (23).¹¹

(22)	Base 1	Gloss	Base 2	Gloss	Compound	Meaning
(a)	<i>àńí</i>	eye	<i>bùè</i>	to open	<i>àńí-bùè</i>	civilization
(b)	<i>àńí</i>	eye	<i>bùè</i>	to open	<i>àńí' búè</i>	act of opening the eye

(23)	Base 1	Gloss	Base 2	Gloss	Compound	Meaning
a.	<i>àsé</i>	down	<i>tènà</i>	to sit	<i>àsé-téná</i>	livelihood/
b.	<i>àsé</i>	down	<i>tènà</i>	to sit	<i>àsé-¹téná</i>	act of sitting under ...

We cannot take the observed downstep in the second constituents of the compounds as sufficient evidence of the nounhood of the right-hand constituent as suggested in the literature (cf. Anyidoho, 1990; Abakah, 2000; Anderson, 2013). It is important to note that all the right-hand constituents of the [N–V]_N compounds are consonant-initial. Therefore, there is no

¹¹ The extent to which specific tonal melodies may correlate with the degree of transparency of the form deserves a detailed study that is beyond the scope of the present paper. However, it is clear that there may be other factors aside phonology influencing or even determining the tonal melody of the compounds.

other evidence of the nounhood of the right-hand constituent except the downstep observed at the boundary between the constituents of some of the compounds. Therefore, where the predicted downstep does not occur, there is no reason to assume that the right-hand constituent is nominalized and is the source of the nominal syntactic category of the compound.

Thus, we can say that even if the endocentric synthetic N–N compound perspective on Dolphyne's (1988) object–verb compounds makes it possible to account for a number of the compounds, it fails to account for all [N–V]_N compounds based on their tonal melodies. There are [N–V]_N compounds which meet the structural description but fail to exhibit the downstep alleged to be occasioned by a floating L-tone. Also, the observed tonal pattern may reflect the degree of transparency of the compound.

Finally, it is worth adding that the analyses in Anyidoho (1990) and Anderson (2013) fail to account for other tonal properties in such compounds because they focus mainly on the tonal perturbation at the boundary between the two constituents. For example, these authors say nothing about the fact that all the compounds terminate in H-tone, no matter the tonal melody of the individual constituents in isolation.

Our view is that the tonal melodies may not depend on those of the constituents. Rather, they may be construed as holistic constructional properties. We explore this fully in a separate paper, but we present some preliminary thoughts on this in section (7).

6. The exocentric synthetic [N–V]_N compound view

In this section, we propose an account in defence of the view that the compounds we are concerned with are N–V compounds, as originally proposed by Dolphyne (1988), although not all of them are object–verb compounds, as shown in (7)–(8) above. We observed in section 3 that denying the prior nominalization of the verbal constituents and maintaining that the constructions are N–V compounds amounts to claiming that they are exocentric constructions which fail the hyponymy test in functioning as members of a word-class which is not the word-class of their head elements because the possible heads are verbs (Nida, 1949; Bauer, 2008, 2010).

For any framework that assumes strict compositionality of the properties of complex constructions, accounting for the nominal form-class of these compounds would be challenging. That is why the prior nominalization of the right-hand constituent is absolutely necessary for previous accounts. It is, however, pretty easy to account for it in CxM due to the foundational assumption that the systematic properties of compounds must not necessarily come from the head because, like all constructionist models, it is acknowledged that constructions can have gestalt properties, including form-class specification, that cannot be derived from their constituents (Goldberg, 2006; Jackendoff, 2009, 2013; Booij, 2012). Thus, the fact that there is no constituent with the matching form-class and other relevant properties is not a big problem.

Akan compounds are invariably nominal (Christaller, 1875; Dolphyne, 1988; Anyidoho, 1990; Marfo, 2004; Anderson, 2013; Appah, 2013, 2015). Appah (2015) argues that this should be interpreted to mean that the nominal form-class of Akan compounds is a holistic property that is inherited from a constructional meta-schema for compounding in Akan which is pre-specified to bear a nominal syntactic category, shown in (24).

- (24) *Meta-schema for Akan Compounds* (Appah, 2015, p. 374)
 $\langle [a]_X, [b]_Y \rangle_{N_k} \leftrightarrow [SEM]_{(i)j|k}$ realizing a relation R between $[a]$ & $[b]$ _k

The upper-case variables X and Y stand for the major lexical categories ($X = N$ and $V \mid Y = N, V$ and A). The lower-case variable a and b stand for arbitrary strings of sound segments, whilst i, j and k are indexes for the matching properties of the constituents of the compound and the compound as a whole.

The schema in (24) shows that any two lexical items, whether from the same or different classes, may form a compound which will be a noun, as captured by the N label on the outer bracket, to the left of the double arrow. Again, through co-indexation, the schema shows that the semantic properties of the compound that is formed could relate to the constituents in various ways or may not be related to them at all.

The abstract schema in (25) generalizes over the shared properties of Akan [N–V]_N compounds. The semantics thereof is rendered as Event/Action/Process V which involves N. Finer distinctions would account for nuances in the meaning of the compounds such as the observed ambiguity between the process and result readings of verb-involved nominals like these (cf. Grimshaw, 1990; Alexiadou and Grimshaw, 2008; Melloni, 2007). Such finer meaning distinctions will be represented as sub-schemas that inherit their non-unique properties from the constructional schema in (25).

- (25) $\langle [N]_i [V]_j \rangle_{N_k} \leftrightarrow [Event/Action/Process V_j \text{ involving/affecting } N_i]_k$

We assume that the nominal form-class of Akan [N–V]_N compounds is inherited from the meta-schema in (24). That is, the schema in (25) instantiates the meta-schema in (24) and inherits its nominal form-class from it. This is captured in (26), where both the meta-schema and the schema it dominates have an output category – N_k.

$$(26) \quad < [[a]_{X_i} [b]_{Y_j}]_{N_k} \leftrightarrow [[SEM]_{(ij)k}] \text{ realizing a relation } R \text{ between } [a] \text{ \& } [b]]_k >$$

$$\quad \quad \quad |$$

$$\quad \quad \quad < [[N]_i [V]_j]_{N_k} \leftrightarrow [\text{Event/Action/Process } V_j \text{ involving/affecting } N_i]_k >$$

The individual $[N-V]_N$ compounds also have a *part of* relation with the compound members, as (27) shows. This means that properties of the individual constituents may also become part of the complex form in which they occur.

$$(27) \quad < [[\acute{a}t\acute{a}r]_i [hy\acute{e}]_j]_{N_k} \leftrightarrow [\text{Act of wearing}_i \text{ a dress}_j]_k >$$

$$\quad \quad \quad \swarrow \quad \quad \searrow$$

$$\quad \quad \quad [\acute{a}t\acute{a}r] \text{ 'dress' } [hy\acute{e}] \text{ 'to wear'}$$

In (28) we see all the possible relations that exist between the meta-schema from which the form-class is inherited, the schema that generalizes over the class of Akan $[N-V]_N$ compounds and the part-of relations obtaining between the compounds and their constituents.

$$(28) \quad < [[a]_{X_i} [b]_{Y_j}]_{N_k} \leftrightarrow [[SEM]_{(ij)k}] \text{ realizing a relation } R \text{ between } [a] \text{ \& } [b]]_k >$$

$$\quad \quad \quad |$$

$$\quad \quad \quad < [[N]_i [V]_j]_{N_k} \leftrightarrow [\text{Event/Action/Process } V_j \text{ involving/affecting } N_i]_k >$$

$$\quad \quad \quad |$$

$$\quad \quad \quad < [[\acute{a}t\acute{a}r]_i [hy\acute{e}]_j]_{N_k} \leftrightarrow [\text{Act of wearing}_i \text{ a dress}_j]_k > \text{ (act of dressing)}$$

$$\quad \quad \quad \swarrow \quad \quad \searrow$$

$$\quad \quad \quad [\acute{a}t\acute{a}r] \text{ 'dress' } [hy\acute{e}] \text{ 'to wear'}$$

There is a final point to be made about how to account for the relation between the constituents of the compound. The underpinning idea of the proposal is not new and so we find support for it in extant literature. To account for the observed relations between the constituents of the compound, we have to assume that the individual constituents have specific lexical properties that are generally retained in any construction in which they occur through the *part of* relation. That is, where lexical items have specific requirements that have to be met in the construction in which they occur, they will ordinarily be met, unless some construction-specific constraint overrides this. One such requirement is that an argument-taking lexical item will have its argument realized in the smallest word-level or phrase-level construction in which it occurs (Grimshaw, 1990, 2000; Selkirk, 1982; Lieber, 1983). Thus, if any compound constituent is argument-taking, that constituent will satisfy that requirement with the other constituent in the compound, unless that other constituent is a semantic argument of the compound, in the sense of Lieber (1983).

By accepting that certain properties of the individual constituents of morphological constructions are not necessarily overridden by the construction, we are able to show that, the semantic structure of a complex form may properly include that of the base. For example, the semantic structure of a compound with a (de-)verbal constituent encompasses that of the base verb, including the AS which is a “projection” from the LCS of the verb (Booij, 2002). Thus, the verbs in Akan $[N-V]_N$ constructs retain and satisfy their AS in the nominal compounds.

7. A proposal for a CxM account of the tonal pattern of Akan compounds

The focus of this paper has been on accounting for the syntactic category of Akan $[N-V]_N$ compounds for which previous analyses assumed the prior nominalization of the right-hand constituent, pointing to a putative deleted nominalizing prefix which leaves behind a floating L-tone that exerts a lowering effect on the H-tone of the first syllable of the second constituent. We have argued that the nominal syntactic category does not really come from either constituent, because it is a constructional property of all Akan compounds. We have also suggested that the tonal melody may also be regarded as holistic property of the compound.

In this section we make a first attempt at a proposal for a constructionist account of the tonal melody of Akan $[N-V]_N$ compounds. The thrust of the constructional account is that the $[N-V]_N$ compound schema has a pre-specified tonal melody as part of its formal properties and that the constituents of the compound are simply mapped on to the pre-specified tonal melody which may be called *constructional tones*.

For this account, we take, as a point of departure, Dolphyne's (1988) original observation that Akan compounds can be grouped into two, based on their surface tonal patterns. In other words, this is a constructionist interpretation of Dolphyne's (1988) observation about the tonal melodies of compounds, as mentioned above, where in the first group all the syllables in the first constituent are L-toned (10) whilst, in the second, the constituents basically maintain their tonal melodies (11).

We assume that these two tonal patterns define two schemas, as shown in (29)¹².

¹² The symbol σ stands for syllable and the superscript ⁽¹⁾ indicates that the final syllable could be downstepped.

- (29) a. $[[\sigma^* \dots]_{N_i} [\dots \overset{(1)}{\sigma'}_{V_j}]_{N_k}]$
 b. $[[\sigma^* \dots]_{N_i} [\dots \overset{(1)}{\sigma'}_{V_j}]_{N_k}]$

Schema (29a) states that the first constituent has L-tone syllables (σ) throughout and that there could potentially be more than one syllable, indicated by the star (*). The other constant tonal feature is the last syllable of the second constituent which is stipulated to be H-toned. Schema (29b), on the other hand, only states that there can be more than one syllable in the first constituent, but that part of the constructional schema is not tone-marked and so by default, the tonal pattern of the individual constituent will be inherited through the *part-of* relation holding between constructions and their constituents. This directly accounts for the observation that the first constituents of such compounds which do not bear what may be called the default constructional L-tone on the first syllable seems to retain the tonal pattern of the lexical item in isolation.

These two tonal melodies unify with the constructional schema yielding two sub-schemas of the schema for $[N-V]_N$ compounds, as shown in (30).¹³ Thus, notwithstanding the tonal melody of the constituents, the compound that instantiate the $[N-V]_N$ schema will bear one or the other of the two constructional tonal melodies, both of which terminate in high tones.

- (30) $\langle [[N]_i [V]_j]_{N_k} \leftrightarrow [\text{Event/Action/Process } V_j \text{ involving/affecting } N_i]_k \rangle$
- a. $[[\sigma^* \dots]_{N_i} [\dots \overset{(1)}{\sigma'}_{V_j}]_{N_k}]$ b. $[[\sigma^* \dots]_{N_i} [\dots \overset{(1)}{\sigma'}_{V_j}]_{N_k}]$

An alternative view will be to posit just one constructional schema with tone pattern (29a). Schema (29b) will only exist as an instantiation of (29a) in which the tonal pattern of the individual noun overrides the constructional tonal pattern as a function of the default inheritance assumed in CxM, as shown in (31).

- (31) a. $\langle [[\sigma^* \dots]_{N_i} [\dots \overset{(1)}{\sigma'}_{V_j}]_{N_k} \leftrightarrow [\text{Event/Action/Process } V_j \text{ involving/affecting } N_i]_k \rangle$
 b. $\langle [[\sigma^* \dots]_{N_i} [\dots \overset{(1)}{\sigma'}_{V_j}]_{N_k} \leftrightarrow [\text{Event/Action/Process } V_j \text{ involving/affecting } N_i]_k \rangle$

On the surface, either view will work fine for the data, with no qualitative difference between the two. It could even be argued that the former (30) employs a bit more machinery than the latter (31), making the latter preferable. A further argument could be that (31) has the added advantage of illustrating the possibility of using subschemas to express various nuances in the form and meaning of constructions, which in turn gives credence to the idea of a hierarchical lexicon (i.e. a hierarchical network of grammatical knowledge) in which constructions of varying degrees of abstraction populate the construction (Jurafsky, 1992, p. 8).

However, the second approach reduces schema in (30b) to a mere exception to schema (30a). But this is not right because compounds with the second tonal pattern are also very productive. Thus, we have reason to choose (30) over (31).

As noted above, this is a proposal that needs to be refined. Further refinement should clearly define the classes of compounds that bear each tonal melody, indicating if there are other formal and semantic properties that are specific to those classes. It should also attempt to account for the observed downstep at the boundary between the two constituents, which previous analysts regarded as the sign of nominalization of the right-hand constituents.

8. Conclusion

Akan $[N-V]_N$ compounds in which there is an observed pattern of downstepping on the first syllable of the second constituent and in which the first constituent terminates in a H-toned syllable have been analysed as N–N compounds with prior nominalization of the right-hand constituent (Anyidoho, 1990; Anderson, 2013). We have argued that this endocentric synthetic N–N compound view does not account for all the compounds in this group. It does not also adequately account for even the tonal melodies of the N–V compounds, because proponents pay attention to only the tonal perturbation at the boundary between the first and the second constituents. They fail to show, for example, that in these compounds the final syllables are invariably H-toned notwithstanding the tonal melody of the individual constituents in isolation.

The alternative constructional view presented here is that these constructs are indeed N–V compounds and that they are exocentric constructions. This is because the possible head of this nominal compound is a verb and not a noun. Thus, the noun category is to be construed as a holistic constructional property that does not emanate from either constituent of the compound, but is inherited from a meta-schema for compounding in Akan (24), which is pre-specified to have a categorial label – N (Appah, 2015). We have also presented a proposal for a constructionist account of the tonal melodies of Akan compounds which treats the tonal melodies as properties of constructional schemas. This needs to be refined.

¹³ We assume that the schema for the constructional tones simply unifies with the instantiating schema, so that the tonal pattern is borne by the individual construction and not that we will have schemas within schemas. This shows that the formal part of the schema conflates morphological and phonological information, although the two are not necessarily isomorphic (Booij and Audring, 2017).

With the understanding that compounds can have holistic properties, including the form-class, we are not forced to claim that the right-hand constituent is nominalized so that it can be regarded as the source of the nominal form-class of the compound. Also, we do not also have to tweak the tones of constituents in order to derive the surface tonal melodies of the compounds. Thus, the properties of Akan exocentric synthetic $[N-V]_N$ compounds receive adequate characterization if we adopt a constructionist perspective.

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