

Exocentric compounds in Akan

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Abstract

The purpose of this paper is to investigate exocentric compounds in Akan and to present a Construction Morphology account of their properties. I show that the complex issue of exocentricity is better accounted for if we distinguish between formal and semantic exocentricity. I present Bauer's (2008, 2010) typology of exocentric compounds (*bahuvrihi*, *exocentric synthetic*, *transpositional exocentric*, *exocentric co-compounds* and *metaphorical exocentric compounds*) and test the Akan data against them, showing that all Akan compound types (N-A, N-N, N-V, V-N, and V-V) are either exocentric or have exocentric subtypes which fall into three of the five types identified by Bauer. They are *bahuvrihi compounds* and *exocentric synthetic compounds* (of which I identify two subtypes each) and *transpositional exocentric compounds*. I present the properties of each identified type of Akan exocentric compound using formalisms from Construction Morphology (Booij 2010b) in which compounds are word-level constructions capable of having holistic properties. The unexpressed features of the exocentric compounds are regarded as holistic constructional properties that do not emanate from the constituents per se.

Keywords: Akan, *bahuvrihi*, Construction Morphology, exocentric compounds, synthetic compounds, typology

1. Introduction

One of the main criteria for classifying compounds is the presence of a constituent that shares formal and/or semantic properties with the whole compound. Based on this criterion, two principal types of compounds are identified, as exemplified in (1). A compound that has a head element in it (1a) is called an endocentric compound whilst one that has no head element in it (1b) is called an exocentric compound (Bloomfield 1933). Endocentric compounds are defined as 'compounds which are hyponyms of their head element' (Bauer 2010: 167). Exocentric compounds, on the

other hand, are usually defined as the class that is left after endocentric compounds have been removed (cf. Scalise and Guevara 2006: 192).

- (1) a. *orange juice* from *orange* and *juice*
 b. *pickpocket* from *pick* and *pocket*

Endocentric compounds are very common cross-linguistically and have received a lot of research attention. Exocentric compounds, on the other hand, are not so common. As Dressler (2006) remarks, exocentric compounds are marked relative to endocentric compounds; they are less common cross-linguistically and in individual languages and less common in the word classes in which they occur. They are also marked with regard to the classes of words they form. Bauer (2008: 71) captures the observed general lack of productivity of exocentric compounds succinctly when he remarks that ‘in very few languages is the formation of exocentric compounds a productive method of word-formation’. However, it has been claimed that in some languages, including Turkana (Dimmendaal 1983), Seediq (Holmer 1996) and Kayardild (Evans 1995), exocentric compounds appear to be the most frequent compound type. Again, in Italian, the most productive type of compounding is exocentric (cf. Bauer 2010: 174).

Given this situation, exocentric compounds receive no more than passing mention in the discussion of compounds in individual languages. Indeed, they are severely under-described even in languages where they are clearly attested. Thus, Scalise and Guevara (2006: 185) characterise exocentric compounds as ‘a rather unexplored aspect of compounding phenomena.’

Theoretical and typological studies of exocentric compounds are also rare. Exceptions in this regard are Scalise and Guevara (2006) and Bauer (2008, 2010). This dearth of cross-linguistic studies of exocentric compounding is clear from the fact that one of the aims of Bauer (2008: 51–52) was to ‘provide a (provisional) terminology for discussing them [exocentric compounds].’ Again, Bauer (2010: 168) regards his study as ‘a necessary precursor’ to a more detailed study.

Even these typological studies are severely restricted in the languages they cover. Scalise and Guevara (2006), for example, base their study on data from seventeen languages of which only two (Chinese and Korean) are spoken outside of Europe (cf. Scalise and Guevara 2006: 204, n. 3). Bauer’s (2008, 2010) studies are relatively more extensive, covering data from about fifty typologically diverse languages collected from descriptive grammars.¹

The reasons for the lack of attention to exocentric compounds are varied. For general theoretical studies of compounding, one may suggest that exocentric compounds pose a puzzle because they are not easy to account for within the most popular theoretical models, which assume that the properties of compounds percolate from their constituents, especially the head constituent (cf., *inter alia*, Lieber 1980, 1983, 1992; Scalise 1984). For such models, the absence of a head constituent may be described as a source of embarrassment, leading proponents to posit zero morphs in order to account for missing properties of the compounds.

For descriptive works on compounding, however, one gets the impression, on reading Bauer (2008, 2010), that researchers simply do not pay close enough attention to exocentric compounds because they are not very common anyway or probably because they inadvertently get classified with endocentric compounds. As Bauer (2008: 55) puts it,

potentially exocentric constructions are not necessarily described as such, even in good language-descriptions or in descriptions which focus on word-formation. It is accordingly difficult to be sure that other languages do not also have a wider range of exocentrics than can be determined from reading the grammars of those languages.

The present study, therefore, contributes to an area of contemporary linguistic morphology that is in need of attention, by showing that Akan (Niger Congo, Kwa) has various subclasses of compounds that may be properly classified as exocentric compounds.

We do not know very much about exocentric compounds in Akan and it seems to me that there are two main reasons for this. The first reason, which accords with Bauer's observation above, is that researchers have simply not paid attention to exocentric compounds in Akan. Thus, although we discover instances of exocentric compounds in the oldest grammar of Akan (Christaller 1875), they are not so identified. Christaller (1875: 25, 29) identifies what he calls *spurious compounds*, which he contrasts with *genuine compounds*. About the spurious compounds, he writes:

Spurious compounds are also made up of two or more words, but none of them expresses the genus of the thing of which the whole compound denotes a species; such a compound, as it were, occupies the place of the qualifying word, and the general notion (person or animal, or thing) is left to be supplied (Christaller 1875: 25).

The second reason is that research on Akan compounds has generally focused on issues in the phonology of compounds, mostly on tonal perturbation in compounds (Dolphyne 1988; Anyidoho 1990; Marfo 2004; Abakah 2004, 2005, 2006; Obeng 2009; Anderson 2013) and vowel harmony (Dolphyne 1988), leaving out the grammatical and semantic properties.

In the rest of the paper, I briefly introduce Construction Morphology and the formalism to be employed in the representation of the properties of exocentric compounds (section 2). For a proper understanding of exocentricity, the notion of headedness in compounding is key. I discuss this in section 3, focusing on what will be essential for the issues at hand, since headedness has been thoroughly discussed in the literature (cf., inter alia, Williams 1981; Selkirk 1982; Scalise 1984; Zwicky 1985; Di Sciullo and Williams 1987; Bauer 1990; Scalise 1992; Štekauer 2000; Arcodia 2012).

In section 4, I take a closer look at the literature on exocentricity, noting how it has been defined. Here, I argue, based on the literature (Plag 2003; Scalise and Guevara 2006; Bauer 2008, 2010), that we have to distinguish between formal exocentricity and semantic exocentricity.

Bauer (2008, 2010) provides criteria for exocentricity based on which he identifies five types of exocentric compounds. In section 5, I present Bauer's criteria as well as the properties of the five types of exocentric compounds he identifies (*bahuvrihi*, *exocentric synthetic*, *transpositional exocentric*, *exocentric co-compounds* and *metaphorical exocentric compounds*). I then apply the criteria to Akan compounds, showing which of Bauer's types are attested in Akan and what other types, if any, may be added to Bauer's typology (section 6). This is where I employ Construction Morphology formalism in modelling the properties of Akan exocentric compounds. Section 7 is the conclusion.

Data for this study were collected from a variety of written texts, including a children's reader on fishing, an Akan translation of Plato's *Apology of Socrates* and a wordlist from Christaller's (1933) dictionary. I also elicited data from native speakers at the University of Ghana and also provided some examples, as a native speaker – names of various items/entities, plants, characters in folktales, etc., that, upon careful consideration, sounded exocentric.

2. Construction Morphology

Construction Morphology (CxM) 'aims at a better understanding of the relations between morphology, syntax and the lexicon and of the semantic properties of complex words' (Booij 2010a: 543). The main tenets of CxM are a theory of the notion *construction*, a theory of *word structure* and a theory of the *lexicon*.

In CxM, the notion *construction*, as developed in Construction Grammar (Goldberg 1995, 2006; Michaelis and Lambrecht 1996), is adopted 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: 1). Thus, in CxM, words are morphological constructions – word-level form-meaning pairs that may have holistic properties – and they are formed by schemas that generalize over sets of existing complex words and also serve as recipes for forming new ones. The schema in (2), for example, generalizes over right-headed compounds and also serves as a pattern for forming other right-headed compounds.

$$(2) < [[a]_{Xi} [b]_{Yj}]_{Yk} \leftrightarrow [SEM_i \text{ with relation } R \text{ to } SEM_j]_k >$$

The upper-case variables X and Y stand for the major lexical categories (N, V & 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 says that given any two constituents ($[X]_i$ and $[Y]_j$) the compound so formed will be a type of 'Y' ($[Y]_k$). The variables a and b represent arbitrary phonological strings.

Schemas and the constructions that are formed by them co-exist in the lexicon, a structured repository of connected complexes comparable to a map, where two types of relations hold – 'instantiation' and 'part of' relations. *Instantiation* holds between a schema and a word that is formed by the schema and *part of* obtains between a complex word and its constituents. For example, right-headed compounds may be of any syntactic category. Therefore, 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 syntactic category, in this case noun (N), as shown in (3).

$$(3) \begin{array}{c} < [[a]_{Xi} [b]_{Yj}]_{Nk} \leftrightarrow [SEM_j \text{ with relation R to } SEM_i]_k > \\ | \\ < [[N]_i [N]_j]_{Nk} \leftrightarrow [SEM_j \text{ meant for } SEM_i]_k > \end{array}$$

An even more specific schema with the variables substituted by specific lexical items instantiates the general template for Akan N-N compounds (4), showing what a word formed by the dominating schema looks like. Here, we see the two kinds of relation; the compound *àsǎrédán* instantiates the Akan N-N compound schema while its constituents, *àsǎré* and *dán*, have a *part of* relation with the compound. The more specific schema inherits its non-unique properties from the dominating schema.

$$(4) \begin{array}{c} < [[a]_{Xi} [b]_{Yj}]_{Nk} \leftrightarrow [SEM_j \text{ with relation R to } SEM_i]_k > \\ | \\ < [[N]_i [N]_j]_{Nk} \leftrightarrow [SEM_j \text{ meant for } SEM_i]_k > \\ | \\ [[\textit{àsǎré}]_{Ni} [\textit{dán}]_{Nj}]_{Nk} \text{ 'church building'} \\ / \quad \backslash \\ [\textit{àsǎré}] \text{ 'church'} \quad [\textit{dán}] \text{ 'building'} \end{array}$$

The lexicon in CM is structured hierarchically because complex words bear multiple relations. 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 *àsǎré*, such as *Mètódèsè àsǎré* '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. Headedness in compounding

In syntax, the notion *head* characterises the dominant member in an asymmetrical relationship within a construction (cf. Croft 2001: 241). The notion was explicitly applied to all morphological constructs in the early 1980s by Williams (1981) and

Selkirk (1982) and has been defended strongly (cf. Di Sciullo and Williams 1987; Štekauer 2000). However, not all linguists share the view that the notion extends naturally to all morphological constructions, especially affix-derived words (cf. Zwicky 1985; Bauer 1990). For compounding, though, the notion *head* has existed longer and has had a central role in its study (cf. Scalise and Fábregas 2010).

As discussed in section 1, the classification of compounds may be based on the presence of a head constituent. It may also be based on the word class of the head (yielding nominal compound, verb(al) compound, adjectival compound, etc.) or the position of the head in the compound, (yielding left-headed/right-headed compounds). However, there appears to be a near-universal preference for right-headedness. This motivated Williams (1981: 248) to propose what was initially presented as an absolute universal, the so-called right-hand head rule which he formulated as: '[i]n morphology, we define the head of a morphologically complex word to be the righthand member of that word'.

Later research showed that left-headedness also abounds, especially in the Romance languages which have predominantly left-headed compounds (cf. Scalise 1984). Therefore, it was suggested that the head position could be a parametric feature, so that the morphology of a language is either left-headed or right headed, depending on the language (Selkirk 1982; Lieber 1992; Scalise 1992). However, this idea of parametric variation in headedness has been shown not to be sustainable because in many languages, including Mandarin Chinese and Vietnamese, there are both left-headed and right-headed compounds (Packard 2000; Ceccagno and Scalise 2006; Ceccagno and Basciano 2009). A language like Nizaa (Benue-Congo, Cameroon) even has an almost equal number of right-headed and left-headed N-N compounds (Pepper 2010). Appah (2013a) has shown that Akan endocentric N-N compounds are mostly right-headed, but there are left-headed and dual-headed N-N compounds as well. N-A compounds, however, are all left-headed.

Sometimes, depending on which constituent shares what properties with the compound, a distinction is drawn between a formal head and a semantic head, which may not necessarily be coextensive (cf. Selkirk 1982; Katamba and Stonham 2006; Scalise and Guevara 2006). This is especially the case in constructivist approaches (Lieber 1980, 1989, 1992; Selkirk 1982), where the head determines all properties of the compound through the mechanism of feature percolation (see Blevins (2006) for the distinction between abstractive and constructive models).

The semantic head is the constituent that shares its lexical conceptual information with the whole compound, so that the compound will be a hyponym of the semantic head (Scalise and Guevara 2006: 190). That is, the class of elements denoted by the compound will be a subset of the class of elements denoted by the head of the compound. For example, *table mat*, is a type of *mat*, the head. The formal head is the constituent that shares its formal features (lexical category and subcategorization frame) with the whole compound, so that the whole compound has the same distributional properties as its formal head (Scalise and Guevara 2006: 190). That is, *mat* can occur where *table mat* is expected to occur without a drastic change in the meaning of the construction, but the same cannot be said about the non-head

constituent *table* occurring alone where *table mat* is expected. Booij (2012: 79) sums this up nicely in the observation that ‘headedness of a compound is not only relevant for its formal properties, but also for its semantic interpretation.’

Other scholars distinguish between a semantic head, a syntactic head and a morphological head. Dressler (2006), for example, argues that the compound *pickpocket* has no semantic head because the referent is not named in the compound itself. *Pick* is the syntactic head because it selects *pocket* as its internal argument. The morphological head is *pocket* because when the compound is pluralized, the plural marker attaches to *pocket* (as in, *pickpocket-s* not *pick-s-pocket*). Dressler (2006: 32–33) again argues that even languages that have either predominantly or exclusively left-headed compounds may have the tendency to mark inflectional categories on the right constituent. However, the problem, as discussed in the literature (Bauer 2008, 2010; Booij 2012), is that the position of the inflectional element may be a default in the language and not necessarily identify a morphological head.

4. Characterising exocentricity and exocentric compounds

The property of exocentricity is regarded as an anomaly in language design because its presence implies that we are unable to account for all the properties of some complex unit. However, this aberrant quality is claimed to be a defining property of compoundhood because it is assumed that there are no exocentric derived words (Scalise, Bisetto and Guevara 2005; Scalise and Guevara 2006). This is captured in Bisetto and Scalise’s (2007) formulation of the so-called exocentricity principle, in (5).

(5) *Exocentricity principle*

In morphology, exocentricity is an exclusive property of compounds
(Bisetto and Scalise 2007: 363)

This principle does not capture the whole truth, however, as Bauer (2008: 54–55) has argued that studies have shown that the effect of exocentricity may be realized through both affixation (Haspelmath 1993; Ralli 2013) and conversion (Schönefeld 2005). Booij (2012: 82) also holds the view that the so-called exocentricity is just a special use which ‘is not unique for compounds’. He argues:

When a teacher wants to address a pupil whose name she does not know, she might say: *That red sweater should shut up*, meaning that the pupil with the red sweater should keep his mouth closed. Hence, this use of compounds appears to be a conventionalized use of words, in which the word for a part denotes the whole (pars-pro-toto)

Because of the wide variety in the formal and semantic properties of exocentric compounds, it has to be noted that Booij’s observation holds true for only a subset of exocentric compounds. This will become clear from the discussion of Bauer’s (2008, 2010) typology of exocentric compounds in section 5.

To come up with a characterisation that captures the wide variety of exocentric compounds, both formal and semantic properties of the compounds have to be taken into account. Thus, Scalise and Guevara (2006: 192–193) base their definition of exocentricity on the distinction between formal head and semantic head, arguing that ‘neither the notion of formal head, nor the notion of semantic head, considered separately, suffices to define a compound as endocentric or exocentric.’ They observe that an endocentric compound will have at least one formal head and one semantic head which must be coextensive. If a compound realizes any other possibility, so that, in a compound with one formal head and one semantic head, the two do not coincide, the compound will be exocentric. Hence, Bauer (2010: 174) observes that exocentric compounds have to be defined negatively, as the remnant that is left after a well-defined group (endocentric compounds) has been removed.

Scalise and Guevara’s approach suggests that we have to distinguish between formal exocentricity and semantic exocentricity, based on the distinction between formal head and semantic head respectively (cf. Scalise and Guevara 2006: 194–202). I believe that, if we paid close attention to the literature, we would have to accept this position. For example, Booij argues that:

what have been called exocentric compounds or bahuvrihi compounds are a specific semantic category of endocentric compounds based on metonymy: a part of an entity is used to refer to the whole entity. This is what is at stake with the classical English example of a bahuvrihi compound *redskin*. (Booij 2002: 143)²

There are cases where the constituents of the so-called exocentric compound belong to a completely different word class from the word class of the resultant compound. Here, we can say that even if the putative exocentric compound can be regarded as semantically endocentric, because it can be interpreted metonymically or metaphorically, we still have to accept that the compound is formally exocentric because its syntactic category cannot be shown to emanate from its constituents. Such constructs legitimize the distinction between semantic and formal exocentricity.

Bauer (2008, 2010) characterises exocentric compounds as those which fail the hyponymy test. It would appear, then, that Bauer makes exocentricity a purely semantic matter. However, Bauer’s formulation of the nature of exocentricity shows clearly that the morphosyntactic notion of *word class* has to be taken into consideration. Bauer (2010: 167) observes that exocentric compounds may fail the hyponymy test in a number of ways:

- (a) they may 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;
- (c) they can have a head element of the correct class, but apparently the wrong denotation.

Thus, a proper interpretation of Bauer's approach to exocentricity would include acceptance of the distinction between formal and semantic exocentricity. Various versions of this position exist in the relevant literature, including Plag (2003: 145–246), who mentions semantically exocentric compounds, suggesting the existence of formally exocentric compounds, as well as Ralli and Andreou, who distinguish between formal and semantic exocentricity in their work on Greek compounds (cf., *inter alia*, Ralli and Andreou 2012; Ralli 2013; Andreou and Ralli 2015).

I observe, in this paper, that the distinction between formal exocentricity and semantic exocentricity is crucial for defining the classes of exocentric compounds in Akan. Deconstructing exocentricity this way makes it easy for us to see that certain compounds that are interpretable by means of metonymy and/or metaphor may nevertheless be exocentric because some formal property is not deducible from the constituents. This is the case for Akan [V-V]_N compounds, as will be illustrated in section 6.3.

Based on the above discussion, I will characterise exocentricity as either the situation where no constituent of a complex unit can be designated as the head or the situation where an element of meaning or form is external to the construction.

5. Typology of exocentric compounds

As noted in the introduction, two main strands of research have attempted cross-linguistic characterisation of exocentricity. However, only Bauer (2008, 2010) provides a typology of exocentric compounds and the appropriate terminology for discussing them. Scalise and Guevara (2006) consider whether the three macro-types of compounds – attributive, subordinate and coordinate (Scalise and Bisetto 2009; Bisetto and Scalise 2005) have exocentric versions. They also deal with the syntactic category of the input and of the output as well as their structural types and combinations. However, for our purpose, their approach would not be helpful. Therefore, in this section, I will present Bauer's typology of exocentric compounds, setting the stage for section 6, where I present exocentric compounds in Akan. The types posited by Bauer (2008, 2010) are *bahuvrihi*, exocentric synthetic, transpositional exocentric, exocentric co-compounds and metaphorical exocentric compounds. I discuss each of these in turn.

5.1. Bahuvrihi compounds

In Bauer's typology of exocentric compounds, *bahuvrihi* is a principal type. Indeed, this Sanskrit expression is commonly used as a cover term for exocentric compounds (cf., *inter alia*, Bloomfield 1933; Marchand 1969; Katamba and Stonham 2006). *Bahuvrihi* is the type of compound in which the whole is not a hyponym of either constituent. Rather, it 'expresses some salient facet of the denotatum' (Bauer 2008: 56). The compound *bahu-vrihi* 'much rice' itself exemplifies this type of compound because it may refer to 'one who/which has much rice' although none of the constituents names a person. This is the possessive interpretation of *bahuvrihi* compounds.

Regarding the English example *red-eye*, which does not denote anything that possesses a red eye but means ‘cheap whisky/overnight flight’, Bauer (2010: 167) observes that the compounds refer to that which causes eyes to become red – the cheap whisky or overnight flight. Thus, from Bauer (2008, 2010), we may distinguish at least two types of bahuvrihi compounds – the possessive type and the causer type.

In terms of form, Bauer observes that the bahuvrihi compound par excellence is made up of an adjective and a noun which is the possessed element and often ‘denotes a person or object which has a NOUN which is ADJECTIVE’ (Bauer 2008: 56). A noun, a verb or a quantifier/numeral may replace the modifying adjective in a bahuvrihi compound. For example, in Table 1, we find various instances of bahuvrihi compounds in which a head noun (marked with an asterisk) is followed by a modifier (adjective, quantifier, verb and noun).

Bauer (2008: 58–59), observes that the exocentric analysis of bahuvrihi compounds, suggests that there is an unexpressed head which carries at least some features of the denotatum of the whole. Thus, for the English example *red cap*, which is [–human], we have to assume that the unexpressed feature in the head position is [+human] because the compound refers to a human entity.³

An alternative analysis denies that such compounds are exocentric. Rather, they are regular endocentric compounds which are interpreted according to a figure of speech – synecdoche. The problem I see with this analysis is that it may not be able to account for the full range of bahuvrihi compounds. For example, as indicated in (n.2), it is not clear how such Chinese compounds as *dōngxi* ‘thing (lit. east + west)’ and *jiānghú* ‘vagabond (lit. river + lake)’ may be analysed in this way. The same can be said about the Tzutujil compound *kolwachixik* ‘wake up quickly (lit. basket + face)’, as hinted at in Bauer (2008: 60–61).

Finally, Bauer (2008: 59–61), observes that sometimes the bahuvrihi compound may function adjectivally or verbally. He refers to such compounds respectively as adjectival bahuvrihi and verbal bahuvrihi. Crucially, in the adjectival bahuvrihi, the head is not an adjective and the verbal bahuvrihi does not contain a verb at all. Thus, the terminology is purely inspired by how the relevant compounds are used and so going back to the sense in which a compound may fail the hyponymy test, we see that these compounds are exocentric because ‘they [...] function as a member of a word class which is not the word class of their head element’ (Bauer 2010: 167).

Determining the word class of the Akan bahuvrihi compound will not be an issue in the discussion because compounding in Akan is a noun-forming process and the compounds are, without exception, deployed as nouns (Appah 2013b, 2015).

5.2 Exocentric Synthetic compounds

Next in Bauer’s typology is the exocentric synthetic compound. The term synthetic (sometimes, verbal nexus) is ordinarily reserved for compounds with deverbal nominal heads (marked in English, for example, by *-er* or *-ing*) or deverbal adjectives (marked by *-ed* or *-ing*) which inherit the internal arguments of the underlying verbs. An

Table 1. Examples of bahuvrihi compounds (Bauer 2010: 170)

Language	Form	Element gloss	Translation	Pattern	Source
Koasati	nakeó-baski	ear + long	‘mule’	N* + A	Kimball 1985: 396
Matchez	?a:t-tau:ʔi	foot + many	‘centipede’	N* + Q	Mithun 1999: 468
Apache	cʰis-tèl	body + to be wide	‘terrapin’	N* + V	Hoijer 1946: 76
Turkana	e-wur-ù-mosi	smell + rhinoceros	tree species	N* + N	Dimmendaal 1983:293
Finnish	<i>partasuu</i>	beard + mouth	‘bearded’	N + N*(A)	Sulkala & Karjalainen 1992: 361

Table 2. Examples of exocentric synthetic compound (Bauer 2010: 171)

Language	Form	Element gloss	Translation	Pattern	Source
Babungo	mè-vèlú’	swallow + eggs	snake species	V* + N	Schaub 1985: 249
Japanese	tsume-kiri	nail + cut	‘nail clipper’	N + V*	Hinds 1986: 366
Damana	mənzisa-kuaga	viscous + appear	‘gum’	A + V*	Trillos Amaya 1999: 71
Italian	lascia-passare	permit + to pass	‘a pass’	V* + V	Maiden and Robustelli 2000: 33
Korean	sal-in	kill + person	‘manslaughter’	V* + N	Sohn 1994: 414

example is *shopkeeper* in which *keeper* (the head) contains the verb *keep* and the agentive suffix *-er* and the modifier is *shop*, the object of the underlying verb *keep*.

This type of synthetic compound is endocentric. For example, Katamba and Stonham (2006: 321) begin their discussion of verbal compounds with the words: '[o]ne class of endocentric compounds, which is referred to technically as **verbal compounds**, stands out from the rest in that it exhibits quite consistent semantic readings'.

In the exocentric synthetic compound, there is no morpheme like English *-er*, which corresponds to the external argument of the verb. Rather, the head verb and its internal argument form a noun that denotes the entity that performs the role of the external argument. In the French compound *gratte-ciel* 'skyscraper' (lit. scratch-sky), 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'.

Bauer's examples, which are structurally quite varied, are in Table 2. The first two examples contain head V*s and N internal arguments. The third example contains a head V* and an adjectival subject complement. In the fourth example, the head V* has a verbal direct object. The last example also has a V* head and an N object but the compound is an abstract noun and not an agentive noun, making it similar to English activity-denoting compounds like *whale watching* (Bauer 2010:170).

Interestingly, the constituents designated as the head of the nominal compounds are verbs. This appears inconsistent with the result expected from applying the IS A test (Allen 1978). That is, since the heads are verbs, it would be expected that the compounds would be verbs. This, however, makes sense in the context of the distinction between syntactic and semantic heads; the compounds have formal heads but lack semantic heads because, for example, whereas the Japanese compound *tsume-kiri* [nail+cut] refers to the activity designated by the verb phrase, the compound denotes the instrument for performing the activity 'nail clipper'. This shows that the key consideration in characterising a compound as exocentric, in this case, is semantic, so that, even compounds that are formally/syntactically headed can be exocentric because they fail the hyponymy test (Bauer 2010). This lends support to the argument for a distinction between formal exocentricity and semantic exocentricity.

The exocentric synthetic compound mostly refers to the agent of the denotatum of the compound. However, there are instances where the compound has an activity/action rather than agentive reading. It may also be an abstract noun (Bauer 2010: 170). Thus, an important feature of the exocentric synthetic compound is that, it is only an aspect of the meaning of the compound that is not expressed in the compound – the agent/instrument or the action. So, ultimately, the meaning of the compound 'can be deduced from the meaning of the verb and its argument and the unexpressed agent or action' (Bauer 2010: 171).

5.3 Transpositional exocentric compounds

We have seen from the two types of exocentric compounds described above that usually, only an aspect of the meaning of the compound is not present in the

compound. In the exocentric synthetic compound, for example, it is the agentive or instrumental meaning that is not coded in the compound. In a transpositional exocentric compound it is only the word class of the output compound that is not overt (Bauer 2010: 171). Thus, the meaning of the transpositional exocentric compound is clear, only that it ‘functions as a member of an unexpected word-class’ (Bauer 2008: 64). This makes it an extreme case of formal exocentricity, where there is no relation whatsoever between the word-class of the constituents and that of the output, making the exocentric synthetic compound look like conversion or transposition (Bauer 2008). See Table 3.

As Table 3 shows, typical examples would be ones in which two adjectives are interpreted as a noun, two nouns interpreted as a verb, a sequence of verb and adjective interpreted as a noun and a sequence of verb and noun is interpreted as an adverb (see, Bauer 2010: 172).

5.4 Exocentric co-compounds

Bauer (2008, 2010) identifies a class called exocentric co-compounds. This is the class of coordinate compounds in which two constituents enjoy parity in terms of their importance in the compound. See Table 4.

Bauer (2010: 172) argues that there are virtually no endocentric co-compounds. The few attested ones are the appositional compounds like *singer-songwriter* which refers to a person who is both a singer and a songwriter. The problem with this classification is that such compounds are not endocentric in the regular sense in that the referent is not made up of a ‘singer’ and a ‘songwriter’. Rather, each constituent characterises a separate property of the referent, and enjoys parity in sharing head-like characteristics (Fabb 1998; Katamba and Stonham 2006).

Whilst Haspelmath (2002) treats them as exocentric compounds, Plag (2003: 147) suggests that they are right-headed, based on the fact that the plural inflectional marker attaches to the right constituents – *song-writers*/**songs-writer(s)*. But, as has been previously observed, this position is not totally sustainable ‘since right-edge inflection is a default in English’ (Bauer 2010: 172), as evidenced by plural marking in compounds like *trade-offs*, *pickpockets*, *model Ts*, *mother-in-laws*, etc. in which the constituent that bears the inflection is not the grammatical head.

Finally, some scholars regard such constructs as phrases and not compounds (cf. Adams 2001: 82). However, as Bauer (2010: 172) observes, this view does not tell us anything beyond informing us that the constituents are coordinated, thus, shifting the problem of the characterisation of the compounds from the domain of morphology to the domain of syntax.

5.5 Metaphorical exocentric compounds

The metaphorical exocentric compound is characterised as the most controversial type. According to Bauer (2010) this type arises when a compound fails the hyponymy test because the head element or the compound as a whole has a metaphorical

Table 3. Some examples of transpositional compounds (Bauer 2010: 172)

Language	Form	Element gloss	Translation	Source
Khmer	khoh trəw	wrong + right	'morality'	Ourn & Haiman 2000: 484
Turkana	ŋi-kari-mojɔŋ	thin + old	'the Karimojong tribe'	Dimmendaal 1983: 294
Damana	tua kuaga	to see + to live	'visible'	Trillos Amaya 1999: 72
Vietnamese	°bà con	grandmother + child	'be related'	Thompson 1987: 127
Swahili	ujauzito	come + heavy	'pregnancy'	Maina 1987: 2
Mandarin	zhuān-yǎn	turn + eye	'instantly'	Li & Thompson 1981: 79

Table 4. Some examples of exocentric co-compounds (Bauer 2010:173)

Language	Form	Element gloss	Translation	Classification	Source
Chantyal	Nhe thara	milk buttermilk	'dairy products'	Co-hyponymic	Noonan 2003:328
German	Schleswig-Holstein	job work	'job, business'	additive, names	
Lezgian	kar-k'walax	hair beard		co-synonymic	Haspelmath 1993:108
Sanskrit	keśāśmasurú	big-its little-its	'size'	additive, common N	Burrow 1955:217
Old Uyghur	ulug-i kičig-i			scalar	Walchli 2005:138
English	blue-green			compromise	

interpretation. Examples include *dust bowl* ‘an area with no vegetation’, *catlick* ‘quick wash’. It may also arise when the head has metonymic interpretation (e.g., *phone neck* ‘pain in the neck caused by using a phone’, or the whole compound is metonymic (e.g., *bear skin* ‘hat won by certain soldiers’). For an extensive study of such compounds, see Benczes (2006) and for the appropriateness of the label of exocentricity for these compounds, see Bauer (2010: 174).

6. Exocentric compounds attested in Akan

In this section, I discuss the classes of Akan exocentric compounds, following the characterisation of the types of exocentric compounds in section 5. For the present paper, I adopt Dolphyne’s (1988: 117) characterisation of Akan compounds as words made up of ‘two or more stems’, including reduplicated forms. I should point out that, although Akan compounds may contain more than one stem, they are invariably binary-branching and the usefulness of treating some reduplicated forms as compounds will become clear later when I discuss bahuvrihi compounds.

In the discussion, I distinguish between the relation obtaining between the constituents within the compound and the overall interpretation of the compound which invariably includes some unexpressed semantic feature. I do not discuss exocentric co-compounds because they are rare in Akan (Appah 2015), much in agreement with the fact that co-compounds are generally rare in Africa (Wälchli 2005).

In section 6.1, I discuss bahuvrihi compounds, noting that we may distinguish between possessive and non-possessive types. The second type of bahuvrihi compounds identified by Bauer (2010), the ‘causer type’ is not attested in Akan. This is the type in which the unexpressed semantic feature is the causer of the denotatum of the compound, as exemplified by *red-eye* ‘cheap whisky/overnight flight’, where it is cheap whisky or an overnight flight that causes the ‘red-eye’.

In section 6.2, I deal with exocentric synthetic compounds. I distinguish two subtypes – participant and non-participant exocentric synthetic compounds. The former are nouns which refer to one of the participants in the event designated by either the verb or the denotatum of the compound (because sometimes the event is expressed by the whole compound). The latter refers to the action, state, manner or the fact of the event designated by the predicate.

In section 6.3, I discuss transpositional exocentric compounds, showing that it is exemplified by Akan V-V compounds, since they are invariably nominal.

In the formal representation of the compounds, I suggest that all the compounds ultimately instantiate the schema in (6), which generalizes over all compounds in which a crucial semantic feature of the whole is not present in the constituents. There are extreme cases where the meaning of the compound may not be directly related to the meaning of the individual constituents. That is, the compound pairs a form and a meaning directly, because the meaning is that of the construction and may not necessarily relate to those of the constituents. The parenthesized portion of the

semantic pole expresses this observation that the meaning of the whole may be optionally related to the meanings of the constituents.

$$(6) < [[a]_{Xi} [b]_{Yj}]_{Nk} \leftrightarrow [SEM ([SEM_i | SEM_j])_k] >$$

Where the meaning of the compound can be shown to be related to the meaning of either constituent or to their combined meaning, but the meanings of the constituents do not exhaust the meaning of the whole, the extra-compositional feature is represented as a semantic operator (the unindexed SEM) over the meaning of the compound, or the meaning of the relevant constituent. This is captured by the disjunction ($|$).

6.1 Bahuvrihi compounds in Akan

As noted in section 5.1, bahuvrihi is the type of compound in which the whole is not a hyponym of either constituent. Rather, the compound refers to a salient property of the denotatum, which is not named in the compound (Bauer 2010). The bahuvrihi compounds in my database may be classified in various ways. Following Bauer (2008, 2010), I distinguish a possessive type (Table 5) and a non-possessive type (Table 6), which I discuss in turn.

6.1.1 Possessive bahuvrihi compounds in Akan

The possessive bahuvrihi compound refers to the possessor of its denotatum. For example, the Akan compound *ìsìr̀̀k̀̀s̀̀é* ‘big head’, *k̀̀ǹ̀ts̀̀énts̀̀én* ‘long neck’ and *à̀̀ǹ̀à̀̀ǹ̀t̀̀á* ‘crooked legs’ refers to the entity that possesses a *big head*, *long neck* and *crooked legs* respectively.

In terms of the categories of the constituents and the relation obtaining between them within the compound, we see that the possessive bahuvrihi compounds mostly have N-A structure, where the nouns refer to body parts such as *ìs̀̀í̀r̀̀* ‘head’, *à̀̀s̀̀ó̀á̀̀* ‘ear’, *à̀̀k̀̀ò̀m̀á̀̀* ‘heart’, and *k̀̀ǹ̀* ‘neck’. The adjectives tend to be either dimension adjectives, like *k̀̀s̀̀é* ‘big’, and *ts̀̀énts̀̀én* ‘long’ or physical property adjectives like *h̀̀ỳè̀ẁ* ‘hot’ (Osam 1999; Dixon 2004).

The relation between the constituents within the [N-A]_N compound may be spelt out as ‘having/is’. That is, [N_i & A_j]_{Nk} translates into ‘N_i *having* property A_j’ or ‘A_j predicated of N_i’. See (7).

$$(7) < [[N]_i [A]_j]_{Nk} \leftrightarrow [SEM_i \text{ having/is } PROPERTY_j]_k >$$

$$|$$

$$< [[k̀̀ǹ̀]_i [ts̀̀énts̀̀én]_j]_{Nk} \leftrightarrow [k̀̀ǹ̀_i \text{ which is } ts̀̀énts̀̀én_j]_k >$$

Table 5.

Compound	Constituents	Element gloss	Translation	Pattern
itsirkɛ́sɛ́	itsír + kɛ́sɛ́	head + big	'person with a big head'	N-A
itsirkɛ́lɛ́nkɛ́lɛ́	itsír + kɛ́lɛ́nkɛ́lɛ́	head + big	'person with a big head'	N-A
kɔ́ntsɛ́ntsɛ́n	kɔ́n + tsɛ́ntsɛ́n	neck + long	'person with a long neck'	N-A
hwɛ́nkɛ́sɛ́ɛ́	hwɛ́nɛ́ + kɛ́sɛ́ɛ́	nose + big	'person with a big nose'	N-A
ákɔ́mahyɛ́w	ákɔ́má + hyɛ́w	heart + hot	'quick-tempered person'	N-A
yɛ́fɔ́ndòhwɛ́~dòhwɛ́	yɛ́fɔ́n + dòhwɛ́~dòhwɛ́	belly + bloated	'person with bloated belly'	N-A
náńkɔ́nhwɛ́áá	náń-kɔ́n + hwɛ́áá	ankle + thin	'person with thin legs'	N-A
àńàńtá	à-ńáń + (ń)á	PL-leg + twin	'person with knock knees/genu valgum'	N-N
àsò kɛ́tɛ́	àsó + kɛ́tɛ́	ear + mat	'person with big ears'	N-N
tsír pá	tsír + pá	head + bald	'bald-headed person'	N-V
àsóá	àsóá + á	ear + ear	'rabbit'	RED-N

Table 6.

Compound	Constituents	Element gloss	Translation	Pattern
àbírékírè ábòd̀wèsé	àbírékírè + àbòd̀wèsé	goat + beard	'crab grass (Digitaria Sanguinalis)'	N-N
àbòròkíríábá	àbòròkírí + ábá	oversees + seed	'fruit used as a bait in fishing'	N-N
àkómábóné	àkómá + bóné	heart + bad	'intemperance'	N-A
ànókóró	àno + kóró	mouth + one	'unity'	N-Num
àsòàhyéw	àsóá + hyèw	ear + hot	'difficulty'	N-A
d̀ènkýèmbóó	d̀ènkýém + bóó	crocodile + stone	'diamond'	N-N
ènyíkám	ènyí + àkám	eye + mark	'earmark (lit. eyemark)'	N-N
hwèntéáá	hwéné + téáá	nose + slim	'rosemary, a spice'	N-A
kòd̀wó bèsíá	kòd̀wó + bèsíá	Monday-born male + woman	'effeminate man'	N-N
m̀móá nán	m̀móá + nán	PL-animal + leg	'a lost course'	N-N
̀ǹt̀r̀òbá nám	̀ǹt̀r̀òbá + nám	garden egg + fish	'a weakling'	N-N
òd̀wáńkòkòó	òd̀wáń + kòkòó	sheep + red	'a dog' (for the Kwahu tribe)	N-A

There are a number of N-N structures as well. Here too, the right-hand constituent may describe a property of the left-hand constituent, as in *ànáàntá* ‘crooked legs’, in which *náá* ‘leg’ is said to have the property of being crooked. See (8).

- (8) $\langle [[N]_i [N]_j]_{Nk} \leftrightarrow [SEM_i \text{ having/is } PROPERTY_j]_k \rangle$
 $\quad \quad \quad |$
 $\quad \quad \langle [[\hat{a}n\acute{a}n]_i [\hat{n}t\acute{a}]_j]_{Nk} \leftrightarrow [\hat{a}n\acute{a}n_i \text{ which is } \hat{n}t\acute{a}_j]_k \rangle$

The relation between the constituents of the N-N possessive bahuvrihi compound may also be: ‘Left-hand constituent is like right-hand constituent.’ This is seen in *àsò kèté*, in which the lefthand constituent *àsó* ‘ear’ is likened to *kèté* ‘mat’. Thus the relation between the constituents here may be spelt out as ‘is like’. That is, $[N_i \text{ } \mathfrak{R} \text{ } N_j]_{Nk}$ translates into ‘ N_i is like N_j ’. Thus, *àsò kèté* is *àsó* ‘ear’ which is like *kèté* ‘mat’. See (9).

- (9) $\langle [[\hat{a}s\acute{o}]_i [k\acute{e}t\acute{e}]_j]_{Nk} \leftrightarrow [\hat{a}s\acute{o}_i \text{ which is like } k\acute{e}t\acute{e}_j]_k \rangle$

The only example with an N-V structure (*tsìr̀pá* ‘bald person’) has a stative verb, which is translatable into English by an adjective. In other words, this is a type of compound that may normally be realised as an N-A/A-N compound in some languages. See (10).

- (10) $\langle [[tsìr̀]_i [p\acute{a}]_j]_{Nk} \leftrightarrow [head_i \text{ which is } bald_j]_k \rangle$

The pattern is, however, not unique to Akan because Bauer (2008: 58) lists many examples of verb-noun bahuvrihi compounds from five languages in which the property concepts are expressed by the verb because, in those languages, adjectives either constitute a very small class or are non-existent (Bauer 2008: 56, 58).

Finally, reduplicating *àsóá* ‘ear’ forms the word *àsòásóá* ‘rabbit’. This pattern of forming a word for a rabbit is somewhat comparable to how the word for mule is formed in Koasati (see Table 1), differing only in that Akan reduplicates the word for *ear* to get rabbit, whilst Koasati combines the noun, *ear*, and an adjective. However, this pattern of forming a bahuvrihi compound through reduplication is not yet reported in the literature, probably because there is no consensus on whether reduplication is a compounding process. I suspect, though, that this may not be unique to Akan, since reduplication is employed for various functions in the languages of the world.

With regard to the over all interpretation of the compound, the speaker must look beyond the internal semantic relations to find the extra-compositional semantic feature, what Bauer (2008: 58–59) calls an unexpressed element in the head position which carries some features of the denotatum. For all the compounds in Table 5, except the last one, we have to assume that the unexpressed semantic feature is ‘possessor’. Formally, Bauer (2008: 58–59) represents this as a zero morph that carries the feature [+human]. An alternative analysis posits no zero morph. Rather, the unexpressed

The non-possessive bahuvrihi compounds may be represented formally as shown in (12). The meaning is a constructional property, not related to the meanings of the constituents.

$$(12) < [[N]_i [N]_j]_{Nk} \leftrightarrow [SEM]_k >$$

$$\quad \quad \quad |$$

$$\quad \quad \quad [[\textit{àbòròkyír}]_{Ni} [\textit{ábá}]_{Nj}]_k \quad \text{‘a fruit used as a bait for fishing’}$$

To finish the discussion on bahuvrihi compounds, I should like to mention that Bauer’s (2008: 56) observation that bahuvrihi compounds typically denote people (especially as nicknames), animals and plants, is largely confirmed by the Akan data. For example, all the bahuvrihi compounds in Table 5 refer to humans except one which refers to an animal. A number of bahuvrihi compounds in Akan also refer to plants, including *àbírékyíré ábódwèsé* ‘crab grass’ (Table 6). There are, however, a number of these compounds that are abstract, including *àkòmbábné* ‘intemperance’, *mómóánán* ‘a lost course’ and *àòkóró* ‘unity’.

6.2 Exocentric Synthetic compounds in Akan

There are two constructs in Akan that fit the description of exocentric synthetic compounds as described in section 5.2. The first construct is uniquely exocentric with a characteristic tonal melody. The second is typically analysed as endocentric in the Akan compounding literature (Anyidoho 1990; Anderson 2013). However, Appah (2013b), working with Grimshaw’s (1990) definition of a synthetic compounds as one in which one constituent takes an argument which must be satisfied in the compound, argued that those compounds can be analysed as exocentric synthetic compounds. That position is taken as a point of departure in this paper. In discussing this, I distinguish between the action/event designated by the predicate and the participants involved in the action. The compounds in this class may refer to either the action or the participants (cf. Payne 1997: 225–230). Thus, I isolate two main classes of exocentric synthetic compounds – participant exocentric synthetic compounds and non-participant (action nominal) exocentric synthetic compounds. I discuss them in turn.

6.2.1 Participant exocentric synthetic compounds in Akan

The first class of exocentric synthetic compounds is the participant nominals. There are three types – those that refer to the agent or the patient of the denotatum of the compound and those that refer to the location of the action/event designated by the predicate. The agentive and patient types have $[V-N]_N$ structure, where the noun is the internal argument of the verb. This makes the construction look like straightforward lexicalisation of verb phrases. However, the compounds refer to one of the participants in the action designated by the verb or to some property that is typically associated with a participant.

In the agentive type, the compound refers to the agent of the action/event designated by the compound, as exemplified by the compounds in Table 7. For instance, the literal meanings of the compounds in the first and second rows are 'fetch water' and 'attend funeral' respectively. However, the two refer to the person who fetches water and the person who attends funerals respectively (Dolphyne 1988). Thus, there is a meaning component ('agent/person who ...') that is external to the compound.

This additional meaning component is expressed as an operator over the literal meaning of the compound, as schematized in (13), which states that the compound refers to the agent of the literal meaning of the compound – the person who fetches water.

$$(13) < [[V]_i [N]_j]_{Nk} \leftrightarrow [AGENT [SEM]_k]_k >$$

$$|$$

$$[[k\delta]_{Vi} [\text{̀n}\acute{s}\acute{u}\acute{o}]_{Nj}]_{Nk} \text{ 'person who fetches water'}$$

The second type of participant exocentric synthetic compound is the patient type. It refers to the entity that undergoes the effect of the literal meaning of the compound. For example, the first compound in Table 8 refers to the entity that suffers a misfortune rather than the one that causes the misfortune. The other refers to an animal that is located somewhere, rather than the one 'locating' something somewhere. Again, the meaning, patient, is external to the compound.

To sum up, we observe that generally in these compounds, rather than mention the entity that the compound refers to directly, a characteristic property of the entity is named – a characteristic activity or profession or a typical place of abode in the case of the second example in Table 8, where, although the compound refers to an animal, the animal is not expressly named in the compound. These compounds, therefore, have to be interpreted metonymically in that a characteristic property of the entity is used to represent the whole entity.

The compounds can be assumed to instantiate the schema in (14) which states that the compound refers to an entity typically associated with the literal meaning of the compound, where 'being associated with' may be interpreted to mean 'undergoing the effect of being helmed in' as in *dí àmìá*.

$$(14) < [[V]_i [N]_j]_{Nk} \leftrightarrow [Entity \text{ typically associated with } SEM_k]_k >$$

$$|$$

$$< [[d\acute{i}]_{Vi} [\grave{a}m\grave{i}\acute{a}]_{Nj}]_{Nk} \leftrightarrow [one \text{ who suffers a misfortune}] >$$

The second example in Table 8 is slightly different; it refers to an entity that is associated with some event/process named by the first constituent which occurs at a location named by the second constituent. This may be represented as (15).

$$(15) < [[d\acute{a}]_{Ni} [\grave{a}m\grave{o}n\acute{a}]_{Vj}]_{Nk} \leftrightarrow [ANIMAL \text{ which habitually does } [SEM]_i \text{ at } [SEM]_j]_k >$$

Table 7. Agentive exocentric synthetic compounds in Akan⁴

Compound	Constituents	Element gloss	Translation	Pattern
kànsúó	kó + òsúó	fetch + water	'one who fetches water'	V-N
kààiyé	kó + àyíé	attend + funeral	'one who attends funerals habitually'	V-N
kàányíná	kó + ànyíná	fetch + firewood	'one who fetches firewood'	V-N
bòótiré	bó + etiré	plait + hire	'one who plaits hair/hair dresser'	V-N
bònsúó	bó + òsúó	hit + water	'professional car wash(er) / one who washes cars'	V-N
diawúó	dí + awù	cause + death	'murderer' (this is a surname)	V-N
kúm̀kóm̀	kúm + kóm	kill + hunger	'early-maturing maize variety'	V-N
kyénkwán	kyé + ñkwán	share soup	'one who shares soup'	V-N
hwénkwán	hwé + ñkwán	sweep/collect + soup	'one who likes to eat foods that include soup'	V-N
diàbóró	dí + àbóró	engage in + wickedness	'a malevolent person'	V-N
diàsèmpá	dí + àsèmpá	do + good things	'a benevolent person'	V-N
sò~sò kànéá	só + kànéá	RED~turn on + light	'fire fly'	V-N

Table 8. Patient exocentric synthetic compounds in Akan

Compound	Constituents	Element gloss	Translation	Pattern
diámíá	dí + àmiá	suffer + state of being helmed in	'one who has suffered a misfortune'	V-N
diámòná	dá + àmóná	sleep + hole	'an animal that dwells in holes'	V-N

Table 9. Locative exocentric synthetic compounds in Akan

Compound	Constituents	Element gloss	Translation	Pattern
àfíásé	àfí + àsé	house + under	'prison'	N-N
dùáásé	dùá + àsé	tree + under	name of a town	N-N
mòmòfráásé	m-mòfrá + àsé	PL-child + under	'childhood' (time)	N-N
gáès-àsé ⁷	gáès-àsé	guys + under	'place where guys meet'	N-N
àkómásé	àkóm + àsé	ritual.dance + under	'location of a ritual dance'	N-N
m̀bóádúá dò	m̀bóádúá + dò	fishing net tree + top	'place for keeping fishing nets/location of mboadua'	N-N

As noted above, the class of agentive/patient exocentric synthetic compounds has a characteristic tonal melody [High-Low*-High*(-High)].⁵ This is the case for all the compounds except *sò~sɔ̀ kànéá*⁶ 'fire fly'. Thus, the difference between the compounds in this class and the corresponding verb phrase, as can be seen in (16), is the presence of this tonal melody on the compounds and the absence of the same from the verb phrase. Note that this is not to suggest that the compound has a phrasal provenance.

- (16)
- | | |
|----------------------|---------------------------------------|
| <i>Related VP</i> | <i>Compound</i> |
| (a) <i>kɔ̀ nɛ́sú</i> | <i>kɔ̀-ɛ́súó</i> |
| go water | go-water |
| 'fetch water' | 'a person who fetches water' |
| (b) <i>kɔ̀ àyíé</i> | <i>kɔ̀-à́yíé</i> |
| go funeral | attend-funeral |
| 'attend a funeral' | 'one who attends funerals habitually' |
| (c) <i>dà àmóná</i> | <i>dá-à́móná</i> |
| sleep whole | sleep hole |
| 'sleep in holes' | 'an animal that sleeps in holes' |
| (d) <i>kùm kóm</i> | <i>kúm-kóm</i> |
| kill hunger | kill-hunger |
| 'kill hunger' | 'hunger killer (a species of maize)' |

This characteristic tonal melody has to be interpreted as a holistic constructional property, one that uniquely identifies this class of compounds. In other words, the construction itself imposes this tonal melody, notwithstanding the tones of the individual constituents in isolation.

The third class of participant exocentric synthetic compounds has an N-N structure (see Table 9). In this compound the left-hand constituent mostly names a concrete object such as *àfí(é)* 'house/home', *m-mòfrá* 'children', *dùá* 'tree', etc., and, in one instance, an activity – *àkóm* 'ritual dance (of the traditional priest)'. Note that *àkóm* is an action nominal derived from the verb *kóm* 'to perform the ritual dance' through

the prefixation of *a-*. The right-hand constituent, on the other hand, is always a locative noun like *àsé* ‘underside/bottom’ and *dó* ‘top surface’.

The noun that is formed usually refers to a location in time or space. I found one example where the compound refers to a location in time – *n̄m̄òfráásé* ‘childhood (lit. children under)’. Here the denotatum is not an actual location – the underside of children. There is no such place. The only conceivable physical space will be the soles of the children’s feet. However, that is not even a possible interpretation as far as this compound is concerned. The left-hand constituent names children, but the compound refers to childhood – the period when some humans could be referred to as children. It is in this sense that this compound is exocentric.

Where the compound names a location in space (physical location), it could refer to the space for performing the activity named by the left-hand constituent, as in the case of *àkímásé* which refers to the space where *àkím*, the ritual dance, is happening. Here, the right-hand constituent refers literally to the underside or bottom of the ritual dance. Needless to say that the ritual dance itself cannot have a bottom, although the person performing the dance can conceivably be said to have an underside, which will be the sole of the person’s feet. Thus, *àkímásé* has to be regarded as exocentric because the compound does not refer to just where the feet of the dancer tread but the whole setting, including the people watching the dance. The properties of the compound may be represented as shown in (17).

$$(17) < [[X]_{Ni} [Y]_{Nj}]_{Nk} \leftrightarrow [LOC [SEM]_i]_k >$$

$$|$$

$$< [[àkím]_{Ni} [ásé]_{Nj}]_{Nk} \leftrightarrow [LOCATION \text{ for } àkím_i]_k >$$

Finally, in other cases, the right-hand constituent actually names a part of the left-hand constituent which is a physical location. However, as their meanings show, what the compound actually refers to is outside of the compound. This is the case in *àfíásé* ‘prison (lit. the bottom of a house)’, *dùá-ásé* ‘name of a town (lit. bottom of a tree)’ and *mbóáduá dò* ‘place for keeping fishing nets (lit. fishing-net treetop)’.

6.2.2. Non-participant (action nominal) exocentric synthetic compounds in Akan

As indicated in section 6.2, aside from the subclass of participant exocentric synthetic compounds, there is a class of compounds which previous scholars analysed as endocentric but which Appah (2013b) argued could be analysed as exocentric synthetic compounds. Recounting the whole argument in Appah (2013b) is beyond the scope of this paper. However, for completeness, I include some salient parts of the argument.

This is a very common type of compound in which a verb and its internal argument occur, usually with the linear order inverted. The compounds are usually of varied semantic characterisation, mostly nouns that refer to the action, manner of carrying out the action, the fact of the action occurring, the result of the action, etc. This is

Table 10. Action nominal exocentric synthetic compounds in Akan

Compound	Constituents	Element gloss	Translation	Pattern
m̀-̀b̀ò̀fr̀à k̀úm̀	m̀-̀b̀ò̀fr̀à + k̀úm̀	PL-child + to kill	'infanticide'	N-V
àdzè-séé	àdzé + séé	thing + to destroy	'wastefulness'	N-V
èdzibàndzí	èdzibáń + dzí	food + to eat	'(act of) eating'	N-V
àdzè-t́	àdzé + t́	thing + to buy	'(act of) buying'	N-V
àdzè-t́ń	àdzé + t́ń	thing + to sell	'(act of) selling'	N-V
èdwúma-yé	èdwúma + yé	work + to do	'(act of) working'	N-V
èdzibànnòá	èdzibáń + nòá	food + to cook	'(act of) cooking'	N-V
bàkà-nú	bàká + nú	lagoon + to stir	'fishing in a lagoon'	N-V
àdzè-sùá	àdzé + sùá	thing + to learn	'education, learning'	N-V
asè-kyèré	asè + kyèré	meaning + to show	'interpretation/explanation'	N-V

exemplified by *èdzibàndzí* 'act of eating (lit. food eat)'. Further examples are in Table 10.

In these compounds, the internal argument of the verb assumes a generic non-referential function and the meaning of the whole compound can somehow be worked out from the meaning of the verb and that of its argument. However, it will not be accurate to claim that they are endocentric compounds because they fail the hyponymy test. Whereas the verb is the selecting element in the construction, it cannot be said to be the formal head of the compound because it does not have the category of the whole. In like manner, the left-hand noun member cannot be said to be the semantic head because it does not have the full complement of semantic properties of the whole compound).⁸

Previous accounts of these Akan compounds follow some accounts of English compounds like *shoemaker* in assuming that the right-hand constituent in the Akan compound is nominalized prior to becoming a part of the compound and that the nominal syntactic category and the other properties percolate from the nominalized right-hand constituent. Appah (2013b) argued that, given the fact that in most cases there is no formal marking of the putative prior nominalization of the right-hand constituents, we need not be forced into claiming that such compounds are endocentric and that, following Bauer (2008, 2010), we may still analyse them as synthetic compounds, without committing to defending the prior nominalization of the right-hand constituent.

The definition of synthetic compound in Appah (2013b), following Grimshaw (1990), is not necessarily a compound with a deverbal head constituent. Rather, a synthetic compound, in contradistinction to a root compound, is one in which one of the constituents takes an argument which must be satisfied in the compound. As she puts it, '[t]he essential difference between the root and synthetic compounds, then, is in the argument-taking properties of their heads. The characteristic differences between the two kinds of compounds follows from this difference' (Grimshaw 1990: 70).

Table 11. Transpositional exocentric compound in Akan

Compound	Form	Element gloss	Translation	Pattern
tútá	tú + tá	uproot + fart	'a weed'	V-V
tséká	tsé + ká	hear + say	'hearsay'	V-V
prèhwé	prè + hwé	tap + see	'gossiping'	V-V
gyédzí	gyé + dzí	receive + eat	'faith/belief'	V-V
kámá	ká + má	say + give	'intercession'	V-V
kàsákyéré	kàsà + kyèrè	talk + teach/show	'counselling'	V-V
dzímá	dzí + má	eat + give	'intercession'	V-V
sóhwé	só + hwé	try + see	'tribulation/temptation'	V-V
sòmákó	sòmà + kó	send + go	'faithfulness in going on errands'	V-V
Pùtsí-kyéré	pùtsì + kyèrè	tap + show	'act of gossiping by touching the addressee and pointing at the target'	V-V

Given this definition and the implication that the potential head of the N-V compound has the wrong syntactic category, Appah (2013b) argued that we have to assume that the syntactic category does not come from either constituent. Rather, it is a constructional property. Appah (2015) has subsequently defended this position, arguing that the syntactic category of all Akan compounds is inherited from a constructional meta-schema for compounding which is pre-specified to bear the syntactic category N. Thus, the fact that the compound in question does not have a nominal head is not a problem because the meta-schema supplies the nominal syntactic category.

The action nominal exocentric synthetic compound also has a characteristic tonal melody, where the tones on all the syllables in the first constituent of the compound are low. All the tones in the second constituent are also low except the last, if the second constituent has more than one syllable. Monosyllabic second constituents bear high tones. This tonal melody occurs irrespective of the tonal melodies of the individual constituents in isolation. Thus, the tonal melody may also be properly construed as a constructional property of the action nominal exocentric synthetic compound; the construction imposes this tonal melody.

6.3. Transpositional exocentric compounds in Akan

As noted in section 5.3, the transpositional exocentric compound is the type in which only the word class of the compound is not overt, meaning that the compound functions as a member of a word class that is different from either constituent. Examples of Akan transpositional exocentric compounds are those in which two verbs compounded yield a noun (Table 11).

The two verbs in each such transpositional exocentric compound may be found occurring together as verbs in a serial verb construction but the compound that is formed may never be used as a verb because it is a noun.

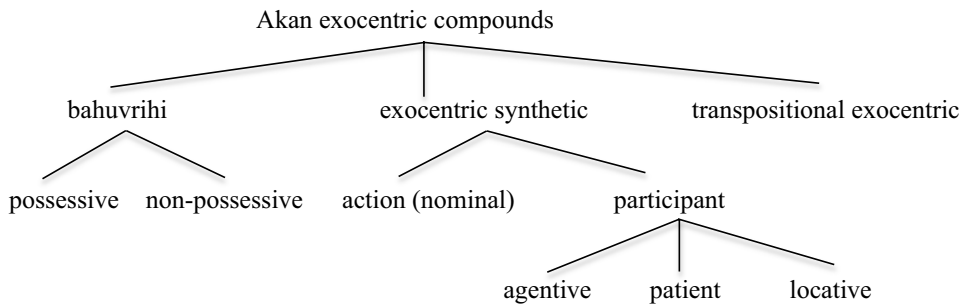


Figure 1. A typology of Akan exocentric compounds

These compounds provide the strongest evidence for the view that the syntactic category of the Akan compound is a holistic constructional property that does not depend on the syntactic category of the constituents. As noted in section 6.2.2, this position is defended in Appah (2015) with the argument that given the fact that the Akan compound is invariably nominal, we are led to assume that there is a meta-schema for compounding in Akan which is pre-specified to bear a nominal syntactic category which all Akan compounds inherit.⁹

In terms of their semantics, we see that, although the constituents mostly designate actions, the compounds tend to be abstract. For example, the compounding of *gye* ‘to receive’ and *dzi* ‘to eat’ yields a compound that means ‘faith/belief’. These compounds, therefore, have to be interpreted metaphorically. For instance, as shown in (18), the semantics of *gyedzi* is rendered as a concept that is metaphorically related to the combined meaning of the constituents because it has to be understood that, for one to believe, one has to metaphorically *take* some message and *eat* it (cf. Balmer and Grant 1929).

- (18) $\langle [[V]_i [V]_j]_{Nk} \leftrightarrow [\text{CONCEPT metaphorically related to } [SEM]_i \text{ and } [SEM]_j]_k \rangle$
 |
 $[[gye]_i [dzi]_j]_{Nk}$ ‘faith/belief’

Finally, as noted in section 4, for this type of compound, we need to distinguish between semantic exocentricity and formal exocentricity because, in reality we can tell the meanings of the compounds. It is only the syntactic category that we cannot predict unless we posit a zero nominalizing morpheme, as has been done in previous analyses (cf. Anderson 2013; Obeng 2009).

6.4. Summary of the typology of exocentric compounds in Akan

From sections 6.1 to 6.3, I have presented the types of exocentric compounds in Akan based on Bauer’s typology. I have shown that three of the types are attested in Akan.

I have also shown that two of these types can have subtypes. The typology of Akan exocentric compounds may be summed up by the taxonomic tree in Figure 1.

It is clear from the discussion that each one of these types has a characteristic feature that clearly identifies the internal coherence of the membership of the class.

7. Conclusion

In this paper, I have discussed exocentric compounds in Akan. I have reviewed the literature on exocentricity, showing that the notion is not easy to characterise. I have argued that we have to distinguish between formal and semantic exocentricity. Reviewing Bauer's (2010, 2008) criteria for exocentricity and the types identified, I have discussed three main types of exocentric compounds with subtypes in Akan. They are the bahuvrihi compounds, exocentric synthetic compounds and the transpositional exocentric compounds. I have posited two subtypes of bahuvrihi compounds – the possessive type and the non-possessive type. I have also posited two broad types of exocentric synthetic compounds – the non-participant exocentric synthetic compound and the participant exocentric synthetic compound. The latter also has three subtypes – the agentive, patient and locative types of participant exocentric synthetic compounds. Finally, the transpositional exocentric compounds do not have any subtypes.

Notes

1. Thus, Scalise and Guevara somehow overstate their potential achievement in the study of exocentricity when they state that they aim 'to survey the distribution of exocentric compounding in the world's languages' (2006: 185, emphasis added).
2. This position is also argued for in cognitive approaches to compounding which indicate that so-called exocentric compounds can be interpreted either metonymically and metaphorically (cf. 2005b, 2005a, 2006b, 2006a, 2010). However, it seems rather strong because we find compounds that are not straightforwardly interpretable by means of metaphor or metonymy. I can immediately think of the Chinese compounds in (1) in which there is quite a semantic distance between the compounds and their constituents. Thus, the view that exocentric compounds can be interpreted metonymically and/or metaphorically can be true for only some classes of exocentric compounds and mostly for those found in the familiar languages of Europe. As Scalise and Guevara (2006: 199) observe, "[i]n the European Languages, exocentricity is generally restricted to metonymic conceptual relations between the constituents and the whole (and even more, a relation of inalienable possession, as in the so-called possessive compounds), very rarely reaching the level of semantic «freedom» observed in Chinese."

- (1) *dōngxi* 'lit. east + west = thing'
jiānghú 'lit. river + lake = vagabond' (Scalise and Guevara 2006: 199).

3. A reviewer points out that there is support for the view that an unexpressed head carries the properties of the denotatum, so that as Ralli (2013: 100, 113) argues based on data from

Modern Greek compounds, the so-called exocentric compounds are not entirely headless because they contain derivational suffixes which are added to the combination of the two lexemes. I would argue, however, that whereas for a language like Modern Greek and even Italian (Bisetto 1999 and Zuffi 1981, reviewer's comment), there may be formal markers that provide evidence for the claim that an unexpressed head carries the features of the denotatum, for Akan, there is no such evidence and proponents of similar accounts have had to accept this fact. Anderson (2013) proposed such an account for Akan verb-internal compounds, but he says in conclusion that exocentric compounds don't conform to the expected pattern.

4. I should point out that, in principle, every Akan noun has a prefix. Thus, we may find these nouns sometimes bearing vowel prefixes.
5. The star is meant to account for the fact that some compounds have more than one contiguous low tone before the final high or more than one high tone at the end of the compound. In the Asante dialect, a noun has an additional final mid vowel, which is said on high tone, if the stem terminates in a high vowel. Thus, whilst the Fante and Akuapem dialects have *nsu* 'water', Asante has *nsu-o* 'water'. The parenthesized high tone accounts for the optional final vowel.
6. Note that this is not the regular name of the insect. I included it because that is how people of my age referred to the insect, when we were little and it has the same structure and semantics as the compounds discussed here.
7. This is the name of a place at the edge of Wesley Methodist Church in Sekondi – Ghana, where, when I was growing, the (strong) guys in the neighborhood met at night to talk.
8. As noted in section 3, ordinarily, various formal tests, would be applied to determine which constituent is the head of the compound, including determining which constituents carries any inflectional marking (cf. Dressler 2006). In Akan the only relevant inflectional marking for nouns is number. However, being abstract nouns, the compounds that fall into this class do not inflect for number. Thus we cannot determine the head of the compound by looking at the pattern of number marking.
9. A reviewer has suggested that the postulation of a meta-schema invalidates the distinction between exocentric and endocentric compounds and that it could have serious repercussions on how to treat compounds in general in a way that goes beyond the simple descriptive issues. I agree that the idea of a meta-schema may be quite a profound claim with potential implications for the analysis of compounding that I cannot appreciate presently. However, I believe that the postulation of the meta-schema does not invalidate the endocentric-exocentric distinction in compounding. The meta-schema is significant in accounting for the nominal syntactic category of the Akan compound and it has been defended in Appah (2013b, 2015). The important point worth making here is that the fact that we recognise the pairing of form and meaning in specific constructions does not prevent us from recognising higher-level generalisations. The meta-schema embodies one such higher-level generalisation in the analysis of compounding in Akan. So to go to the reviewer's point about the neutralization of the distinction between endocentric and exocentric compounds, we can say that one possible interpretation of the existence of the meta-schema is that all Akan compounds are formally exocentric, given that the form class is inherited from the meta-schema. Rehearsing the argument in the present paper will increase the size of the paper.

References

- Abakah, Emmanuel Nicholas 2004. *The segmental and tone melodies of Akan*. Trondheim: Norwegian University of Science and Technology dissertation.
- Abakah, Emmanuel Nicholas 2005. Tone rules in Akan. *Journal of West African languages* XXXII (1–2): 109–134.
- Abakah, Emmanuel Nicholas 2006. The tonology of compounds in Akan. *Languages and Linguistics* 17: 1–33.
- Adams, Valerie 2001. *Complex words in English*. Harlow: Longman.
- Anderson, Jonathan C. 2013. Verb-internal compound formation in Akan. *Journal of West African languages* 40(1): 89–104.
- Andreou, Marios & Angela Ralli 2015. Form and meaning of bahuvrihi compounds: Evidence from Modern Greek and its dialects. In Laurie Bauer, Lívia Körtvélyessy & Pavol Štekauer (eds.), *Semantics of complex words*. Dordrecht: Springer. 163–185.
- Anyidoho, Akosua 1990. On tone in Akan compound nouns. Paper presented at the the 19th West African Languages Congress, University of Ghana, Legon.
- Appah, Clement Kwamina Insaiddoo 2013a. The case against A–N compounding in Akan. *Journal of West African languages* 40(1): 73–87.
- Appah, Clement Kwamina Insaiddoo 2013b. *Construction morphology: Issues in Akan complex nominal morphology*. Lancaster: Lancaster University dissertation.
- Appah, Clement Kwamina Insaiddoo 2015. On the syntactic category of the Akan compound: A product-oriented perspective. *Acta Linguistica Hungarica* 62(4): 361–94.
- Arcodia, Giorgio Francesco 2012. Constructions and headedness in derivation and compounding. *Morphology* 22(3): 365–397.
- Balmer, W. T. & F. C. F. Grant 1929. *A grammar of the Fante-Akan language*. London: Atlantis Press.
- Bauer, Laurie 1990. Be-heading the word. *Journal of Linguistics* 26(1): 1–31.
- Bauer, Laurie 2008. Exocentric compounds. *Morphology* 18: 51–74.
- Bauer, Laurie 2010. The typology of exocentric compounds. In Sergio Scalise & Irene Vogel (eds.), *Cross-disciplinary issues in compounding*. Amsterdam/Philadelphia: Benjamins. 167–175.
- Benczes, Réka 2005a. Creative noun-noun compounds. *Annual Review of Cognitive Linguistics* 3(1): 250–268.
- Benczes, Réka 2005b. Metaphor- and metonymy-based compounds in English: a cognitive linguistic approach. *Acta Linguistica Hungarica* 52(2): 173–198.
- Benczes, Réka 2006a. Analysing metonymical noun-noun compounds: The case of freedom fries. In Réka Benczes & Szilvia Csábi (eds.), *The metaphors of sixty: Papers presented on the occasion of the 60th birthday of Zoltán Kövecses*. Budapest: Eötvös Loránd University. 46–54.
- Benczes, Réka 2006b. *Creative compounding in English: The semantics of metaphorical and metonymical noun-noun combinations*. Amsterdam: Benjamins.
- Benczes, Réka 2010. Setting limits on creativity in the production and use of metaphorical and metonymical compounds. In Alexander Onysko & Sascha Michel (eds.), *Cognitive perspective on word formation*. Berlin/New York: Walter de Gruyter. 219–242.
- Bisetto, Antonietta & Sergio Scalise 2005. The classification of compounds. *Lingue e linguaggio* 2: 319–332.
- Bisetto, Antonietta & Sergio Scalise 2007. Selection is a head property. *Acta Linguistica Hungarica* 54(4): 361–380.

- Blevins, James Peter 2006. Word-based morphology. *Journal of Linguistics* 42(3): 531–573.
- Bloomfield, Leonard 1933. *Language*. New York: Holt, Rinehart and Winston.
- Booij, Geert E. 2002. *The morphology of Dutch*. Oxford: Oxford University Press.
- Booij, Geert E. 2010a. Construction morphology. *Language and Linguistics Compass* 4(7): 543–555.
- Booij, Geert E. 2010b. *Construction morphology*. Oxford: Oxford University Press.
- Booij, Geert E. 2012. *The Grammar of words: An introduction to linguistic morphology*. Oxford: Oxford University Press.
- Ceccagno, Antonella & Bianca Basciano 2009. Sino-Tibetan: Mandarin Chinese. In Rochelle Lieber & Pavol Štekauer *The Oxford handbook of compounding*. Oxford: Oxford University Press. 478–490.
- Ceccagno, Antonella & Sergio Scalise 2006. Classification, structure and headedness of Chinese compounds. *Lingue e linguaggio* 2: 233–260.
- Christaller, Johannes Gottlieb 1875. *A grammar of the Asante and Fante language called Tshi (Chwee, Twi) based on the Akuapem dialect with reference to the other (Akan and Fante) dialects*. Basel: Basel Evangelical Missionary Society.
- Christaller, Johannes Gottlieb 1933. *Dictionary of the Asante and Fante language called Tshi (Chwee, Twi): with a grammatical introduction and appendices on the geography of the Gold Coast and other subjects*. Basel: Basel Evangelical Missionary Society.
- Croft, William 2001. *Radical construction grammar: Syntactic theory in typological perspective*. Oxford: Oxford University Press.
- Di Sciullo, Anna-Maria & Edwin S. Williams 1987. *On the definition of word*. Cambridge, MA: MIT Press.
- Dixon, R. M. W. 2004. Adjective classes in typological perspective. In R.M.W. Dixon & Alexandra Y. Aikhenvald (eds.), *Adjective classes: A cross-linguistic typology*. Oxford: Oxford University Press. 1–49.
- Dolphyne, Florence Abena 1988. *The Akan (Twi-Fante) language: Its sound systems and tonal structure*. Accra: Ghana Universities Press.
- Dressler, Wolfgang U. 2006. Compound types. In Gary Libben & Gonia Jarema (eds.), *The representation and processing of compound words*. Oxford: Oxford University Press. 23–44.
- Fabb, Nigel 1998. Compounding. In Andrew Spencer & Arnold M. Zwicky (eds.), *The handbook of morphology*. Oxford: Basil Blackwell. 66–83.
- Goldberg, Adele E. 1995. *Constructions: A construction grammar approach to argument structure*. Chicago: University of Chicago Press.
- Goldberg, Adele E. 2006. *Constructions at work: The nature of generalization in language*. Oxford: Oxford University Press.
- Grimshaw, Jane 1990. *Argument structure*. Cambridge, MA: MIT press.
- Haspelmath, Martin 2002. *Understanding morphology*. London: Arnold.
- Haspelmath, Martin 1993. *A grammar of Lezgian*. Berlin and New York: Mouton de Gruyter.
- Katamba, Francis X. & John T. Stonham 2006. *Morphology*. Basingstoke: Palgrave Macmillan.
- Lieber, Rochelle 1980. *The organization of the lexicon*. Cambridge, MA: Massachusetts Institute of Technology dissertation.
- Lieber, Rochelle 1983. Argument linking and compounds in English. *Linguistic Inquiry* 14(2): 251–285.
- Lieber, Rochelle 1989. On percolation. In Geert Booij & Jaap van Marle (eds.), *Yearbook of Morphology 1989*. Dordrecht: Foris. 95–138.

- Lieber, Rochelle 1992. *Deconstructing morphology: Word formation in syntactic theory*. Chicago, Illinois: University of Chicago Press.
- Marchand, Hans 1969. *The categories and types of present-day English word-formation: A synchronic-diachronic approach*. Munich: C. H. Beck Verlagsbuchhandlung.
- Marfo, Charles Ofori 2004. On tone and segmental processes in Akan phrasal words: A prosodic account. *Linguistik online* 18: 93–110.
- Michaelis, Laura A. & Knud Lambrecht 1996. Toward a construction-based theory of language function: The case of nominal extraposition. *Language* 72(2): 215–247.
- Obeng, Samuel Gyasi 2009. Akan deverbal nouns. In Samuel Gyasi Obeng (ed.), *Topics in descriptive and African linguistics: Essays in honor of Distinguished Professor Paul Newman*. Munich: LINCOM Europa. 96–110.
- Osam, E. Kweku 1999. Adjectives in Akan. *Afrika und Übersee* 82(2): 189–211.
- Packard, Jerome L. 2000. *The morphology of Chinese*. Cambridge: Cambridge University Press.
- Payne, Thomas E. 1997. *Describing morphosyntax: A guide for field linguists*. Cambridge: Cambridge University Press.
- Pepper, Steve 2010. *Nominal compounding in Nizaa – A cognitive perspective*. London: SOAS, University of London dissertation.
- Plag, Ingo 2003. *Word-formation in English*. Cambridge: Cambridge University Press.
- Ralli, Angela 2013. *Compounding in Modern Greek*. Dordrecht: Springer.
- Ralli, Angela & Marios Andreou 2012. Revisiting exocentricity in compounding: Evidence from Greek and Cypriot. In Ferenc Kiefer, Mária Ladányi & Péter Siptár (eds.), *Current issues in morphological theory: (Ir)regularity, analogy and frequency. Selected papers from the 14th international morphology meeting, Budapest, 13–16 May 2010*. Amsterdam/Philadelphia: Benjamins. 65–81.
- Scalise, Sergio 1984. *Generative morphology*. Dordrecht: Foris Publications.
- Scalise, Sergio 1992. Compounding in Italian. *Rivista di linguistica* 4(1): 175–199.
- Scalise, Sergio & Antonietta Bisetto 2009. The classification of compounds. In Rochelle Lieber & Pavol Štekauer (eds.), *Oxford handbook of compounding*. London: Oxford University Press. 34–53.
- Scalise, Sergio, Antonietta Bisetto & Emiliano Raúl Guevara 2005. Selection in compounding and derivation. In Wolfgang U. Dressler, Franz Rainer, Dieter Kastovsky & Oskar Pfeiffer (eds.), *Morphology and its demarcations*. 133–150. Amsterdam/Philadelphia: Benjamins.
- Scalise, Sergio & Antonio Fábregas 2010. The head in compounding. In Sergio Scalise & Irene Vogel (eds.), *Cross-disciplinary issues in compounding*. Amsterdam/Philadelphia: Benjamins. 109–125.
- Scalise, Sergio & Emiliano Raúl Guevara 2006. Exocentric compounding in a typological framework. *Lingue e linguaggio* 2: 185–206.
- Schönefeld, Doris 2005. Zero-derivation – functional change – metonymy. In Laurie Bauer & Salvador Valera (eds.), *Approaches to conversion/zero-derivation*. Münster: Waxmann. 131–157.
- Selkirk, Elisabeth O. 1982. *The syntax of words*. Cambridge, MA: MIT Press.
- Štekauer, Pavol 2000. Beheading the word? Please, stop the execution. *Folia Linguistica* 34(3–4): 333–356.
- Wälchli, Bernhard 2005. *Co-compounds and natural coordination*. Oxford: Oxford University Press.
- Williams, Edwin S. 1981. ‘On the notions’ ‘lexically related’ and ‘head of a word’. *Linguistic Inquiry* 12(2): 245–274.

- Zager, David 1981. On orientation or, constraining false analogy. *Linguistics* 19(11–12): 1107–1131.
- Zwicky, Arnold M. 1985. Heads. *Journal of Linguistics* 21(1): 1–29.

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