

Akan Noun-Noun Compounds: A Construction Morphology Account

Clement Kwamina Insaidoo Appah

Department of Linguistics,

University of Ghana

Accra – Ghana

cappah@ug.edu.gh

<https://orcid.org/0000-0002-6228-7137>

Levina Nyameye Abunya

Department of Language and Communication Sciences,

Kwame Nkrumah University of Science and Technology,

Kumasi – Ghana

levina.abunya@knust.edu.gh

<https://orcid.org/0000-0002-2016-4219>

Obed Nii Broohm

Department of Language and Communication Sciences,

Kwame Nkrumah University of Science and Technology,

Kumasi – Ghana

obed.broohm@knust.edu.gh

<https://orcid.org/0000-0003-4036-1962>

DOI: 10.53228/k0ard951



This work is licensed under a Creative Commons Attribution 4.0 International License.

Abstract

This paper presents a discussion of Akan noun-noun compounds and a Construction Morphology account of their properties. Noun-noun compounds are the most studied type of compounds cross-linguistically, with studies revealing interesting issues about their nature, including their productivity, the variable semantic relations between the constituents, and the overall interpretation of the compounds. However, there is currently no study dedicated to the morphological and semantic properties of noun-noun compounds in Akan. Existing studies focus mainly on the phonology of Akan compounds and on other features like exocentricity in relation to which aspects of noun-noun compounds are discussed. Based on a dataset of over 200 Akan noun-noun compounds, this paper identifies various classes, including endocentric and exocentric types based on whether or not a head constituent is present. It is shown that the endocentric types are predominantly right-headed, consistent with observed crosslinguistic patterns. The range of possible interpretations of newly formed Akan noun-noun compounds also varies, depending on the semantic relation between the constituents and the pragmatic context, although for established compounds, there seem to be generally recognized fixed relations between the constituents that mediate their conventionalized interpretation. However, even they may be subject to other context-specific interpretations on occasion. Thus, for the Construction Morphology account, the relation between the constituents is specified as R at an abstract level, and spelt out concretely for compounds individually.

Keywords: Akan, Construction Morphology, constructional schema, endocentric, exocentric, noun-noun compound

1 Introduction

Various criteria are employed in the categorization of compounds, including the semantic relations between the constituents and their overall meaning, the grammatical relation between the constituents, the output syntactic category (yielding compounds that are adjectives, verbs, nouns, etc.), and the syntactic category of the constituents. There has not been much interest in using the output syntactic category for classifying and studying compounds in the Kwa language Akan, because compounding is essentially a nominalization strategy in the language. Thus, whatever the syntactic category of the constituents, the resultant compound will be a noun (see Appah 2015). The syntactic category of the constituents, on the other hand, has been employed to categorize Akan compounds with six classes originally identified – noun-noun, noun-verb, verb-noun, verb-verb, noun-adjective, and adjective-noun compounds (see Balmer and Grant 1929; Dolphyne 1988; Anyidoho 1990; Abakah 2006; Appah 2009a). However, Appah (2013a) argued that there is very little evidence for the existence of adjective-noun compounds in Akan because all putative examples of adjective-noun compounds can be shown to belong to other types. The remaining classes have been the subject of various studies – noun-adjective compounds (Appah 2016b), noun-verb compounds (Appah et al. 2017), verb-noun compounds (Appah 2016a, 2019a), and verb-verb compounds (Appah 2017b). The class of Akan noun-noun (henceforth, N-N) compounds like those in Table 1 is yet to receive such attention.

Table 1: Sample N-N compounds in Akan¹

	Base ₁	Gloss	Base ₂	Gloss	Compounds	Meaning
1	<i>animguase</i>	shame	<i>ade</i>	thing	<i>animguasede</i>	disgraceful thing
2	<i>asaase</i>	earth	<i>mfon</i>	photo	<i>asaase mfon</i>	map
3	<i>ɔdodoɔ</i>	many	<i>amammuo</i>	governance	<i>ɔdodoɔ amammuo</i>	democracy
4	<i>soro</i>	up (heaven)	<i>ɔbofo</i>	messenger	<i>ɔsoro-bofo</i>	angel
5	<i>yɛfũn</i>	belly	<i>kòtòkú</i>	sack	<i>yɛfũn-kòtòkú</i>	stomach

Cross-linguistically there is extensive literature on the properties of compounds in general and N-N compounds in particular, which reveals noteworthy features of N-N compounds, including the fact that they are very productive, sometimes allowing extensive levels of embedding that yield rather long constructs, especially in technical contexts in a language like English – *satellite radio link transmitter* (type of *transmitter*), *student union election scandal investigation committee* (type of *committee*), etc. (see Bloomfield 1933; Allen 1978; Bauer 1978; Spencer 1991; Jones 1995; Marchand 1955, 1967, 1969). Also, N-N compounds tend to be amenable to varied interpretation, usually mediated by pragmatic considerations (see Bauer 1979; Downing 1977; Benczes 2005; Kavka 2009; Spencer 2011; Jackendoff 2010; Jackendoff and Audring 2020), which, according to Jones (1983), proves challenging for automatic language-processing programmes.

Notwithstanding the general interest in N-N compounds, however, there is no dedicated comprehensive study of the morphological and semantic properties of Akan N-N compounds. Existing studies of Akan compounds which mention N-N compounds have been mainly concerned with the phonology (see Dolphyne 1988; Abakah 2004, 2005a, 2005b, 2006; Marfo 2004, 2005; Ofori 2008) or have focused on issues like exocentricity, for which discussing

¹ All claims in this paper hold true for the major dialects of Akan – Akuapem (Ak.), Asante (As.), and Fante (Fa.). Dialect-specific claims (and examples) are indicated with the relevant abbreviation.

aspects of N-N compounding becomes incidental (see Appah 2016c, 2017a, 2019d). Thus, a detailed investigation of issues such as the possible typology of Akan N-N compounds, their productivity, and the purported flexibility in interpreting such compounds remains pending. Hence, it is not known whether Akan N-N compounds can be interpreted with the same flexibility as those in English, for example. This paper, therefore, is a modest attempt to fill a gap in the study of Akan compounds based on a collection of over 200 N-N compounds drawn from a variety of sources, including primary sources like the Akan translation of the Universal Declaration on Human Rights, an Akan translation of Plato's *Apology of Socrates*, and a children's reader on fishing, as well as secondary sources like the published works on compounding in Akan variously cited above. Of the N-N compounds, 208 were part of the dataset for the PhD dissertation of the first author (Appah 2013b). The statistics in Section 4 are based on this set of 208 N-N compounds.

In Section 2, we introduce Construction Morphology, the framework for the formal presentation. Section 3 discusses core issues in the literature on compounding, ending with N-N compounds in Section 4. In Section 5, we show how data from Akan allow us to answer the questions that come up in the discussion of relevant issues. We first identify types of N-N compounds based on the presence of a head element in the compound, yielding the major groups of endocentric and exocentric N-N compounds. Here, the relative productivity of the two groups becomes obvious as, consistent with crosslinguistic observations, most of the compounds are endocentric (Appah 2017a, 2019d; Bauer 2008b; Scalise and Guevara 2006; Dressler 2006). The endocentric compounds are subclassified into left-headed and right-headed types, and their formal and semantic properties are discussed, highlighting the semantic relations between the constituents of the compounds. It is shown that N-N compounding is very productive in Akan and that the interpretation of the compounds too can vary, given the flexibility of the relationship between the head and the modifier, although established compounds may be conventionalized and less prone to variation in interpretation. These are consistent with observed cross-linguistic patterns of productivity and variation in the interpretation of N-N compounds. Section 6 concludes the paper.

2 Construction Morphology

For this study, we employ formalism from Construction Morphology (CxM), a theory of linguistic morphology, which draws on insights from Construction Grammar (see Goldberg 2006; Michaelis and Lambrecht 1996) to develop a framework that offers "a better understanding of the relation between morphology, syntax and the lexicon and of the semantic properties of complex words" (Booij 2010a, 543). The main ingredients are "a theory of word structure, a theory of the notion 'construction', and a theory of the lexicon" (Booij 2010b, 1).

Being constructionist, the minimal unit of analysis in CxM is the 'construction', characterized as a systematic pairing of form and meaning (see Booij 2012a, 343). Complex words are constructions assumed to be formed by means of schemas extracted from sets of existing complex forms, which can serve as patterns for forming comparable new forms.

This pattern-finding orientation means that the form-meaning correspondence observed in the set of words in (1), for example, may be captured as the schema in (2), which indicates that the referent of a binary-branching compound could be a subtype of the referent of the right-hand constituent, which has a certain kind of relation with the referent of the left-hand constituent. For example, a *metal chair* is a *chair*, which is MADE-OF *metal*.

- (1) doorknob ‘knob of a door’
 metal chair ‘chair made of metal’
 armchair ‘chair which has arms’
- (2) $\langle [[a]_{X_i} [b]_{Y_i}]_{N_k} \leftrightarrow [SEM_i \text{ with relation } R \text{ to } SEM_i]_k \rangle$ (Appah 2015, 363)

Here, the upper-case variables X and Y stand for the major lexical categories (N, V, & A). The lower-case variables *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 (see Booij 2010b, 17).

Complex words and the schemas by which they are formed co-exist in a hierarchically structured lexicon where two kinds of relations hold – ‘instantiation’ and ‘part-of’. A complex word ‘instantiates’ the schema by which it is formed, while its constituents are ‘part-of’ that complex word (see Booij 2010a).

Each instantiation of the schema occurs as a subschema together with its idiosyncratic properties, although it inherits its non-unique properties from the dominating abstract schema so that “the only difference between a schema and its instantiations lies in degrees of specificity” (Lampert and Lampert 2010, 38). For example, the form class of the constituents of a right-headed compound may be noun, verb, adjective, etc. Thus, languages with right-headed nominal compounds like Akan would have specific instantiating schema with the variables *a* and *b*, substituted by the appropriate form class (N), as in (3).

- (3) $\langle [[a]_{X_i} [b]_{Y_j}]_{N_k} \leftrightarrow [\text{SEM}_j \text{ with relation R to SEM}_i]_k \rangle$
 $\quad \quad \quad |$
 $\langle [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow [\text{SEM}_i \text{ with relation MEANT-FOR to SEM}_j]_k \rangle$

A more specific schema with the variables substituted by specific lexical items instantiates the general schema for Akan N-N compounds, as shown in (4), where the two relations, instantiation and part-of, are displayed. The compound *àsórédán* ‘church building’ instantiates the Akan N-N compound schema, while its constituents, *àsóré* ‘church’ and *dán* ‘building’, have a part-of relation with the compound.

- (4) $\langle [[a]_{X_i} [b]_{Y_j}]_{N_k} \leftrightarrow [\text{SEM}_j \text{ with relation R to SEM}_i]_k \rangle$
 $\quad \quad \quad |$
 $\langle [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow [\text{SEM}_j \text{ with a relation MEANT-FOR to SEM}_i]_k \rangle$
 $\quad \quad \quad |$
 $\langle [[\text{\textit{àsóre}}]_{N_i} [\text{\textit{dán}}]_{N_j}]_{N_k} \leftrightarrow [\text{building}_j \text{ MEANT-FOR church}_i]_k \rangle$
 $\quad \quad \quad / \quad \quad \quad \backslash$
 $\quad \quad \quad [\text{\textit{àsóre}}] \text{ 'church'} [\text{\textit{dán}}] \text{ 'building'}$

The hierarchical structure of the lexicon in CxM results from the multiple relations between complex words. For instance, (4) does not stand alone as an abstract word-formation schema. Rather, it is connected to other Akan words that contain either *àsóré*, (e.g. *Métódèsè àsóré* ‘Methodist church’) or *dán* (e.g. *dàn-wá* ‘cottage’). This network of related words makes the lexicon look like a map (Michaelis and Lambrecht 1996), and is a conceptualization of the lexical knowledge of the speaker of the language (Appah et al. 2017).

In the presentation, we may skip some of the higher-level schemas. Thus, (4) may be represented simply as (5).

- (5) < [[*àsóré*]_{N_i} [*dán*]_{N_j}]_{N_k} ↔ [building_{MEANT-FOR} church_i]_k >

3 Compounding

Compounding is the word-formation process by which new lexemes are formed by combining two or more already existing lexemes of the same or different word classes (Katamba and Stonham 2006; Appah 2016b, 2017b; Bauer 2017; Lawer and Appah 2020). This apparently simple characterization masks both descriptive and theoretical questions that have engaged the attention of researchers, including the following: What counts as a compound? What counts as a compound constituent – root, stem, or word? How are compounds classified? How do compounds differ from derived words? How do compounds differ from phrases, given that both compounds and phrases combine ‘words’? Are compounds headed constructions just like phrases? How are compound meanings constructed? These questions have been addressed from different perspectives across languages and frameworks (see Montermini 2010), and are relevant to any study of compounding. We will therefore discuss them for their relevance to the aims of this paper, although space will not allow detailed discussion of them all.

Regarding what counts as a compound and what kind of unit it is, Montermini (2010, 78) observed that “[i]f there is one thing on which most definitions of compounding agree, it is that a compound is a word (whatever meaning one gives to this term).” For example, Appah (2013a, 73) defines compounding as “the process by which *a word is formed* [emphasis added] by concatenating two or more bases each of which potentially occurs alone elsewhere in the grammar as a syntactic atom.” Montermini argues, however, that regarding compounds as words is not uncontroversial for various reasons, including the fact that the notion ‘word’ itself is a relative one, so that what counts as a word for morphology might not necessarily be identical to what counts as a word for phonology or syntax. As he puts it, “a compound might happen to be a word for morphology but not for phonology and syntax, and vice-versa” (Montermini 2010, 78). This observation is consistent with the distinction between phonological word and grammatical word and the widely accepted view that what the relevant defining criteria pick out may not coincide (see Dixon and Aikhenvald 2002). However, discussions of the wordhood of compounds typically approach the issue from the view of the compound as a syntactic atom, a fairly uncontroversial issue, given that the constituents of compounds typically occur together, not allowing the insertion of extraneous material between the elements as this would be in violation of its lexical integrity (Lieber and Scalise 2006).

Similarly, although the characterization of compounds as words formed by combining already existing words appears simple and intuitive, the question of what counts as a compound constituent divides linguists (see Bauer 2005, 2006; Lieber and Štekauer 2009; Montermini 2010; Ralli 2013; Scalise and Vogel 2010). This is important because compound constituents differ across languages, ranging from bare bound roots, through bound or free stems, to fully inflected words. Thus, in defining compound constituents, we find the terms ‘roots’ (Harley 2009), ‘stems’ (Lieber 2004; Plag 2003; Ralli 2013), ‘bases’ (Katamba and Stonham 2006; Appah 2013b; Lawer and Appah 2020), ‘words’ (Spencer 1991; Fabb 1998), and ‘lexemes’ (Bauer 2003; Haspelmath and Sims 2010). This is not a trivial matter, as there may be significant differences in the nature of compound constituents and not just terminological differences. For languages like English that have roots that are free standing words, which could also be

the stems for inflectional affixation, defining compound constituents as roots or stems or even words will not make any difference. For other languages, like Spanish and Greek, stems, roots, and words do not ordinarily coincide. Therefore, it is important that the right term is used to define compound constituents in these languages (Kornfeld 2009; Ralli 2013). The varied nature of compound constituents prompted the suggestion that compounds be defined on the basis of language-specific criteria (Aikhenvald 2007), a view that, it has been argued, would lead to ad-hocness and undermine the attempt to develop a general theory of language (see Appah 2013b, 152).

We use the term ‘base’, a cover term for ‘root’ and ‘stem’, to characterize compound constituents. However, an approach that defines compounding in categorial terms is proposed as follows: $[X \text{ r } Y]_Z$, where X, Y, and Z stand for lexical categories and ‘r’ stands for an unexpressed relation between the constituents X and Y (Guevara and Scalise 2009). Underpinning the idea of the unexpressed ‘r’ is the observation that the grammatical relations observed within compounds are comparable to those found within phrases (Jackendoff 2009b, 2010; Scalise and Vogel 2010). Thus, for every compound (see Scalise and Vogel 2010, 2), one can read an invisible syntactic relation exemplified by the italicized functional items between the constituents – *hard ball* (a ball *that is* hard), *taxi driver* (driver *of a* taxi), *poet painter* (poet *and* painter). This is what underpins the classification of compounds into the three principal types – subordinate, attributive, and coordinate compounds (Bisetto and Scalise 2005; Scalise and Bisetto 2009; Scalise and Vogel 2010; Packard 2000).²

Sometimes compounds are classified into endocentric compounds and exocentric compounds based on the presence or absence of a head constituent (Scalise and Guevara 2006; Bauer 2008b, 2010b, 2016, 2017; Appah 2016c, 2017a, 2019d). In syntax, the head is the privileged member of a composite in which an asymmetrical relation obtains between at least two constituents (Croft 2001, 241) or, as Hudson (1987, 109) puts it, “the element in some construction to which all the other parts of that construction are (in some sense) subordinate.” Phrases and sentences are generally accepted as being headed constructions. However, whether morphological constructs are headed in the same way as syntactic constructions are has been intensely debated for decades (see Williams 1981; Selkirk 1982; Zwicky 1985; Hudson 1987; Scalise 1988; Bauer 1990; Štekauer 2000; Andreou 2014).

The place of heads in derived words is still considered debatable because, as Booij (2002, 88) observes, affixes do not have “independently given specification of [...] categorial value, and hence we have to encode the categorial properties on affix[es], which are then percolated [...] to the dominating node of the whole complex word”. However, the usefulness of the notion to the discussion of compounding is not in doubt (see Scalise and Fábregas 2010). Thus, compounds are considered either headless (exocentric) or headed (endocentric), with the head occurring on the right or the left, or on either side, as in the case of coordinate compounds, which are seen as either dual-headed or not headed at all (Bauer 2008a, 2010a; Wälchli 2005).

Regarding head position, previous studies on English morphology (Bloomfield 1933; Marchand 1967; Williams 1981; Selkirk 1982) predicted that, given a binary-branching compound (e.g., N_1 - N_2), the N_2 will be the head. Consider the following:

All morphologic composites are based on the same syntagmatic pattern “determinatum determined by determinant.” This linguistic principle will equally apply to other

²Packard (2000, 85) observes that given a complex nominal of the structure $[N_1 \text{ } N_2]_N$, the relation between N_1 and N_2 can be either a hierarchical modifier-modified relation or a non-hierarchical parallel relation.

languages. The structural order of English compounds is that of “determinant/determinatum”. [...]. The determinatum is always that part which can represent the whole combination. If the determinatum is called B, then AB must be B. This restricts the possibilities of analysis considerably. (Marchand 1967, 380)

The above suggests that the order of the elements in a morphological construction is important in determining the properties of the whole, as the *determinatum* shares so much with the whole combination that it can represent the whole. Thus, from the late 1970s and throughout the 1980s, the position of the head constituent was prominent in the debates on morphological headedness (see Allen 1978; Bauer 1978; Lieber 1980; Williams 1981; Selkirk 1982; Scalise 1984), with the dominant view being that the right-hand constituent of a complex word is the head, crystalizing in the Right-hand Head Rule (RHR), which states that “[i]n morphology, we define the head of a complex word to be the righthand member of the word” (Williams 1981, 248). This defines headship positionally, in contrast to what obtains in syntax where the head of an XP is an X⁰.³

The formulation of the RHR made it appear as a language universal, although it is believed that it was intended for English. Further studies showed that there are languages with predominantly left-headed compounds (see Guevara and Scalise 2009; Scalise 1984, 1988; Scalise and Fábregas 2010). Therefore, it was suggested that the head position must be a parameter. Thus, for example, while the Germanic languages are predominantly right-headed, the Romance languages are left-headed (Scalise 1984, 1988; Fradin 2009; Kornfeld 2009; Schapansky 2023). However, the parametric view of head position could not be sustained because the same language could have heads occurring on either periphery of the word. For example, while Akan N-N compounds are predominantly right-headed, as the discussion below will show, Akan noun-adjective compounds are exclusively left-headed (Appah 2016b). Moreover, Nizaa, spoken in Cameroon, is reported to have both left-headed and right-headed compounds in equal measure (see Pepper 2010).⁴

The head shares its formal and semantic properties with the whole compound. Therefore, given the potential mismatch between the formal and semantic properties of compounds and those of their head constituents, it is proposed that the notion of head be deconstructed so that compounds may have different kinds of head, potentially represented by different constituents of the compound depending on which properties a constituent shares with the compound.

The main distinction is usually between a semantic head and a formal head. A semantic head shares its lexical conceptual information with the compound, making the compound a hyponym of the semantic head (Scalise and Guevara 2006, 190). That is, the class of elements denoted by the compound is a subset of the class of elements denoted by the head, so *doorbell* is a type of *bell*, the head. A formal head, on the other hand, shares its lexical category and subcategorization frame with the compound, such that the compound has the same distributional properties as its formal head (Scalise and Guevara 2006, 190). In this way, *bell* can occur where *doorbell* is expected without a drastic change in the meaning of the construction, but the same cannot be said about the non-head constituent *door* occurring alone where *doorbell* is expected.

Finer distinctions are made in the characterization of the formal head, dividing it into a syntactic head and a morphological head, yielding a three-way distinction: a semantic head, a

³ A critical assessment of the applicability of the notion of head to words is found in Bauer (1990), with a response in Štekauer (2000).

⁴ Indeed, English *attorney general*, *editor-in-chief*, *passer-by*, etc. are left-headed, although they are either borrowed nor fossilized and are generally limited in number.

syntactic head, and a morphological head. Exemplifying this, Dressler (2006) argued that the compound *pickpocket* has no semantic head because the referent is not named in the compound itself. *Pick* is the syntactic head since it selects *pocket* as its internal argument. The morphological head is *pocket* because when the compound is pluralized, the plural marker attaches to *pocket* (i.e., *pickpocket-s*/**pick-s-pocket*). Again, Dressler (2006, 32–33) argues that even languages with either predominantly or exclusively left-headed compounds may have the tendency to mark inflectional categories on the right constituent. However, it has been observed that the position of the inflectional marker may be a default in the language and may not necessarily identify a morphological head (see Bauer 2010b, 2008b; Booij 2012b).

In the next section we focus on N-N compounds, the subject of this paper, especially with regard to their semantics.

4 Studies on N-N compounding

Defined as “the simple concatenation of two nouns to form a third noun” (Downing 1977, 810), N-N compounds are the most studied compound type cross-linguistically, with noteworthy properties. For example, it has been shown that N-N compounds are the most productive type, and the majority of them are endocentric (see Bauer 1983, 2009a, 2009b; Booij 2002; Braun 2009; Dressler 2006; Gagné 2002; Gagné and Spalding 2006; Gagné et al. 2010; Jackendoff 2009a; Lieber 2009a, 2009b; Lawer and Appah 2020; Appah et al. 2025). Again, concerning the meaning of compounds, no other type of compound has received as much research attention as N-N compounds. They have been the subject of major descriptive and theoretical studies (Lees 1960; Li 1971; Downing 1977; Levi 1978; Allen 1978; Bauer 1978, 1998; Rainer and Varela 1992; Scalise 1992; Lieber 1992, 2009b; Libben et al. 2003; Plag 2003; Giegerich 2004; Pepper 2010; Pepper and Arnaud 2020; Rosenberg and Mellenius 2018). The semantics of N-N compounds has also been of interest in experimental studies (Gagné 2002; Gagné et al. 2010; Gagné and Spalding 2006, 2010, 2015; Plag 2006; Plag et al. 2007; Plag et al. 2008; Libben 2006; Libben et al. 2003).

Descriptive and theoretical studies, mostly on English, have shown that the interpretation of N-N compounds tends to be very flexible. This, according to Spencer (2011), enhances the productivity of N-N compounds, strengthening the general usefulness of compounding as a word-formation strategy. However, languages differ in how much the meanings of N-N compounds can vary. For example, comparing Romance languages to Germanic languages, Delfitto and Melloni (2009, 80) note that the latter tend to permit significant breadth in interpretation because “the semantics of compounds only depends on context-related encyclopedic information.” This is why the compound *fugu man* can refer to ‘a man who sells *fugu*’, ‘a man who sews *fugu*’, ‘a man who usually wears *fugu*’, ‘a man who ordered *fugu* from a vendor’ etc., as discussed further below.

Spencer (2011) observes that there are two discernible approaches to accounting for the semantics of N-N compounds, which he calls ‘Lees’ solution’ and ‘Downing’s solution’, after the approaches adopted in Lees (1960) and Downing (1977), respectively. Proponents of Lees’

solution assume a small(-ish) fixed set of general semantic relations in N-N compounds. The approach involves enumerating a set of semantic properties that are associated with the head noun and finding some appropriate corresponding property in the non-head. From this, a paraphrase is constructed which defines the compound. As Spencer (2011) observes, in Lee's solution, the set of semantic properties is assumed to be finite and may include broad-based categories like location (*garden chair*), appearance (*catfish*), purpose (*writing desk*), event participant like agent (*flower seller*), patient (*swan song*), etc. From this point of view, a compound like *tree house* is easy to interpret because 'a house' must have a location, so the first constituent names the location of the referent of the second constituent (see Spencer 2011, 490).

As observed in the literature (Spencer 2011; Appah 2013b; Appah et al. 2017), Lees' solution works quite well for lexicalized compounds, which can indeed be paraphrased with a small-ish set of concepts, especially for cases where a subcategorized complement or argument of a predicate seems to be obligatorily denoted by a non-head, as in synthetic compounding (or noun incorporation). However, Lees' solution is not completely useful because there appears to be no restriction on the semantic relation that may obtain between the constituents of a compound. It is one's knowledge of the world that makes one aware that a compound like *flower seller* is one who sells flowers whilst *street seller* is one who engages in selling on the street and not one who sells streets. However, even a conventionalized compound like *street seller* may have varied interpretations in an appropriate setting. For instance, given a world where streets are constructed and owned by private individuals, *street seller* could refer to *one who sells streets* (see Spencer 2011). What is needed in interpreting N-N compounds, therefore, is the existence of some pragmatically definable relation between the constituents of the compound. This is the view in Downing's solution.

The point of departure for Downing's solution is that the relation between the constituents of any N-N compound is specified pragmatically (Bauer 1979). Proponents believe that there is some arbitrary, pragmatically, and contextually determined relation 'R' (Allen 1978), potentially some kind of semantically definable relationship (e.g., 'N2 is located at N1'). However, it need not necessarily involve any semantic predicate associated with any lexeme in the compound. Downing's solution to the analysis of a compound like *fugu man* assumes that on a given occasion of use, the hearer would be expected to construct some plausible (although not necessarily unique) relation between the modifier and the head. Hence, the compound *fugu man* denotes a *man* with some relation to the item *fugu* (like, he wears a *fugu* to work/official ceremonies, he sells *fugu* for a living, he has just left his *fugu* in the driveway, he was caught stealing *fugu*, etc.). The view is that the semantic relation between the constituents of N-N compounds is usually un(der)specified, characterized simply as **R** and spelt out differently, depending on the pragmatic context (see Bauer 1979; Booij 2002; Spencer 2011).

Downing's solution has been argued to have a clear advantage over Lees' solution because the set of accessible interpretations available in Downing's solution will at any time properly include those that may be postulated in Lees' solution (see Appah 2013b).

In accounting for the meaning of Akan N-N compounds in this paper, we follow previous constructionist studies on N-N compounds in other languages by adopting an approach based on Downing's solution (Booij 2009; Jackendoff 2009a; Appah 2013b; Lawer and Appah 2020; Broohm and Marfo 2023; Appah et al. 2025). The meaning of the compound, at an abstract level, is rendered simply as an unspecified relation **R** holding between the constituents, which must be spelt out in context, considering the meanings of the constituents, as captured in the semantic pole of the schema in (2), repeated here as (6) for convenience. However, because many

of the compounds have conventionalized meanings, we attempted to group all the compounds based on shared semantic relations.

$$(6) \quad < [[a]_{X_i} [b]_{Y_j}]_{N_k} \leftrightarrow [SEM_i \text{ with relation } R \text{ to } SEM_j]_k > \quad (\text{Booij 2009, 201})$$

5 Classes of Akan N-N compounds

A good classification offers a useful plan for studying a phenomenon, and the cross-linguistic literature provides diverse means of classifying compounds, as discussed above. In this section, we classify the dataset of 208 Akan N-N compounds based on the presence and position of head constituents. Of the 208 N-N compounds, 42 (20.6%) are exocentric, while 166 (79.8%) are endocentric. The numerical difference between endocentric and exocentric compounds is statistically significant ($p < .0001$ ($df = 1$, $\chi^2 = 73.9231$)), and is consistent with the observed cross-linguistic productivity of the two types of compounds, clearly reflecting the view that exocentric compounds are marked in being fewer and more limited in distribution (Dressler 2006; Bauer 2008b; Appah 2017a). The endocentric N-N compounds are distributed as follows: 139 (83.7%) are right-headed, 21 (10.1%) are left-headed, and 6 (2.9%) seem to be dual-headed, as shown in Figure 1. Thus, this paper confirms a universal preference for right-headedness, though not necessarily the universality of the RHR (see Hoeksema 1992).

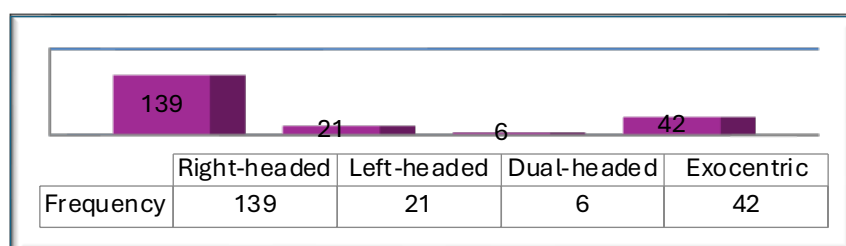


Figure 1: N-N compound types

In Section 5.1, the endocentric compounds are sub-classified based on the position of the head constituents. In Section 5.2 we briefly touch on the class of exocentric N-N compounds.

5.1 Subclasses of Akan endocentric N-N compounds

In terms of form, we observe that the endocentric N-N compounds in our dataset are binary-branching without exception. Here we discuss the various subtypes, pointing out the nature of the semantic relation between the constituents and the overall meaning of the compounds, and presenting CxM accounts of their properties. Section 5.1.1 deals with right-headed N-N compounds. Left-headed ones are discussed in Section 5.1.2. The small set of potential dual-headed compounds is discussed in Section 5.1.3, pointing out their controversial status but showing how they may nonetheless be accounted for in CxM.

5.1.1 Right-headed N-N compounds

This group of N-N compounds is the commonest subtype (Figure 1 above). They are mostly compositional, but some exhibit conventionalized idiosyncratic properties. See a sample in Table 2.

Table 2: Right-headed N-N Compounds

	Base 1	Gloss	Base 2	Gloss	Compound	Interpretation
1	<i>agoru</i>	play	<i>ahyiae</i>	meeting place	<i>agoru ahyiae</i>	theatre/sport stadium
2	<i>anibere</i>	seriousness	<i>asem</i>	matter	<i>anibere-<i>sem</i></i>	serious matter
3	<i>Apaa</i>	Apam (a town)	<i>m-boa</i>	PL-net	<i>apaa m-boa</i>	fishing net (Apam)
4	<i>asaase</i>	earth	<i>mfon</i>	photo	<i>asaase-mfon</i>	map (photo of the earth)
5	<i>asetena-mu</i>	life-in	<i>ahiadee</i>	need	<i>asetenam ahiadee</i>	necessities of life
6	<i>aso-mu</i>	ear-in	<i>a-de</i>	SG-thing	<i>asom-ade</i>	earring
7	<i>asomdwoee</i>	peace	<i>kuo</i>	organization	<i>asomdwoee kuo</i>	the UN Peace Council
8	<i>ɔ-baa</i>	SG-woman	<i>ɔ-tan</i>	SG-parent	<i>ɔ-baa-tan</i>	mother/parent
9	<i>bɔn</i>	sin	<i>fakye</i>	forgiveness	<i>bɔn-fakye</i>	forgiveness (of sin)
10	<i>baguafo</i>	counsellors	<i>atrae</i>	seat	<i>baguafo atrae</i>	seat of councillors / council
11	<i>baka</i>	lagoon	<i>enufo</i>	stirrers	<i>baka enufo</i>	those who fish in lagoons
12	<i>baka</i>	lagoon	<i>nam</i>	fish	<i>baka-nam</i>	fish caught in a lagoon
13	<i>baka</i>	lagoon	<i>nsu</i>	water	<i>baka-nsu</i>	lagoon water
14	<i>ho</i>	self/exterior	<i>nam</i>	meat/flesh	<i>ho-nam</i>	the skin
15	<i>a-hu</i>	NMLZ-fear	<i>epoo</i>	intimidation	<i>ahu-poo</i>	oppression

In terms of form, either constituent may be complex, derived, or compound, but the right-hand constituents are mostly non-compounds. The right-hand constituent may carry a prefixal inflectional marker in isolation, which may not appear in the compound, especially if it is a vowel and the first constituent also terminates in a vowel. For example, the constituent *ɔ-tan* ‘parent’ bears a singular inflectional marker in isolation, which gets deleted in the compound (Table 1, row 8). The same can be said about *asem* ‘matter’ (row 2), but not *ade* ‘thing’ (row 6), because the first constituent has a final consonant.⁵ In the compound *apaa m-boa* ‘fishing nets from Apam’ (row 3), the nasal plural prefix [m-] in *m-boa* ‘PL-net’ again remains in the compound.⁶

The form-meaning correspondence amongst the compounds may be represented as shown in the schema in (7), but the actual interpretation of each compound depends on the constituents and the encyclopedic knowledge that one brings to the interpretation process, as discussed in Section 3. In keeping with this, the relation *R* is spelled out separately for each instantiating compound, as shown with *asomdwoee kuo* (Table 1, row 9), where the relation is spelt out as “FOR”. That is, *asomdwoee kuo* is a *kuo* ‘organization’ with a relation FOR to *asomdwoee* ‘peace’.

$$\begin{aligned}
 (7) \quad & \langle [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow [SEM_j \text{ with relation } R \text{ to } SEM_i]_k \rangle \\
 & \quad | \\
 & \langle [[asomdwoee]_{N_i} [kuo]_{N_j}]_{N_k} \leftrightarrow [organization_j \text{ with relation FOR to peace}_i]_k \rangle
 \end{aligned}$$

⁵ The relevant phonological issues have been discussed extensively in the literature (see Dolphyne 1988; Ofori 2008).

⁶ While this may raise the question of whether we may not regard *apaa m-boa* as a phrase rather than a compound, it seems to us that the nasal plural prefix indicates that the referent of the nouns is to be construed generically, referring to a kind of net from Apam, not a specific item. A detailed discussion of criteria for distinguishing compounds from phrases in Akan is beyond the scope of this paper. It is, therefore, the subject of a separate study which takes into account ideas first presented in Appah (2009b).

This relation is one of ten semantic relation types identified as underpinning the interpretation of both new and conventionalized right-headed N-N compounds in our data set. In the following, we capture each relation in a subschema of the abstract schema for N-N compounds and provide examples.

Type I: PURPOSE/FUNCTION

Here, the left-hand constituent specifies the purpose, function, or intended use of the referent of the right-hand constituent.

- (8) $\langle [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow [SEM_j \text{ INTENDED/DESIGNED FOR } SEM_i]_{N_k} \rangle$
 $\quad \quad \quad |$
 $\quad \quad \quad \langle [[agoru]_{N_i} [ahyiae]_{N_j}]_{N_k} \leftrightarrow [organization_j \text{ with relation FOR to peace}_i]_{N_k} \rangle$

Table 3: Type I: PURPOSE/FUNCTION

	Compound	Gloss	Interpretation
1	<i>agoru ahyiae</i>	play meeting-place	theatre/sport stadium
2	<i>ayaresa bea</i>	healing place	infirmary/hospital
3	<i>sikakora-bea</i>	money-keeping place	bank, vault
4	<i>sikakorafo atrae</i>	treasurer seat	treasury/office of a banker
5	<i>mbarahye bagua</i>	legislation council	Parliament/Legislature

Type II: CONTENT/THEME

For these compounds, the left-hand constituent specifies the content, theme, or subject matter of the right-hand constituent.

- (9) $\langle [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow [SEM_j \text{ IS ABOUT/HAS AS ITS CONTENT } SEM_i]_{N_k} \rangle$
 $\quad \quad \quad |$
 $\quad \quad \quad \langle [[amumɔyɛ]_{N_i} [ade]_{N_j}]_{N_k} \leftrightarrow [Matter_j \text{ which IS ABOUT iniquity}_i]_{N_k} \rangle$ evil deed

Table 4: Type II: CONTENT/THEME

	Compound	Gloss	Interpretation
1	<i>anodi-sem</i>	contract matter	declaration (contents of an agreement)
2	<i>bɔn-fakyɛ</i>	sin forgiveness	forgiveness of sin
3	<i>adanse-sem</i>	testimony matter	testimony/evidence
4	<i>akô-de</i>	fight thing	arms/war equipment
5	<i>abɔdeɛmu-nyansape</i>	creation-in wisdom-search	science/search for wisdom in creation

Type III: SOURCE/ORIGIN

For this class, the left-hand constituent indicates the source, origin, or provenance of the referent of the right-hand constituent.

- (10) $\langle [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow [SEM_j \text{ ORIGINATING FROM/ASSOCIATED WITH } SEM_i]_{N_k} \rangle$

Table 5: Type III: SOURCE/ORIGIN

	Compound	Gloss	Interpretation
1	<i>apaa m-boa</i>	Apam PL-net	fishing nets from Apam
2	<i>baka-nam</i>	lagoon fish	fish caught in a lagoon

	Compound	Gloss	Interpretation
3	<i>baka-nsu</i>	lagoon water	lagoon water
4	<i>twuwii nam</i>	dragnet fish	fish caught by dragnet
5	<i>nsuadze nam</i>	seabed fish	deepwater fish (from the seabed)
6	<i>nsuenyi nam</i>	water-surface fish	shallow water fish

Type IV: PROPERTY/ATTRIBUTE

Here, the left-hand constituent denotes a property or attribute that characterizes the referent of the right-hand constituent.

$$(11) \quad < [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow [SEM_j \text{ characterized by the property } SEM_i]_k >$$

Table 6: Type IV: PROPERTY/ATTRIBUTE

	Compound	Gloss	Interpretation
1	<i>akwansi-dee</i>	blockage thing	hindrance/impediment
2	<i>abote-sem</i>	exasperation matter	exasperating matter
3	<i>ahuhu bra</i>	vanity life	life of vanity
4	<i>nkwisea-sem</i>	fool matter	foolish matter
5	<i>nyansa-kwan</i>	wisdom way	cunning way

Type V: EVENT/PHENOMENON

Here, the compound denotes an event, phenomenon, or state resulting from or related to the modifier, the left constituent.

$$(12) \quad < [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow [\text{event/phenomenon related to } SEM_i]_k >$$

Table 7: Type V: EVENT/PHENOMENON

	Compound	Gloss	Interpretation
1	<i>ɔdodoɔ amammuo</i>	many governance	democracy
2	<i>po mpemee</i>	sea pushing	sea surge/push/movement
3	<i>po nkam</i>	sea shouting	the shouting of the sea
4	<i>mogya danse</i>	blood witness	martyrdom (bloodwitness)
5	<i>nankom</i>	fish hunger	fish famine (scarcity of fish)

Type VI: LOCATION/PLACE

In the compounds here, the left-hand constituent specifies the location or place associated with the referent of the right-hand constituent.

$$(13) \quad < [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow [SEM_j \text{ LOCATED AT/ASSOCIATED WITH } SEM_i]_k >$$

Table 8: Type VI: LOCATION/PLACE

	Compound	Gloss	Interpretation
1	<i>asetenam ahiadee</i>	life-in need	necessities of life
2	<i>asom-ade</i>	ear-in thing	earring
3	<i>nsu-adze</i>	water bottom	seabed
4	<i>nanti/nantini</i>	foot head/root	heel (head/root of the foot)
5	<i>posor nkoree</i>	high seas going	going to high seas

Type VII: AGENT/ROLE

Here, the right-hand constituent denotes a person or entity defined by a role or function relative to the left-hand modifier. Unsurprisingly, the right-hand constituents bear the agentive suffixes *-ni*_[SG] and *-fo*_[SG/PL].

(14) $\langle [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow [SEM_i \text{ which is a person/entity associated with } SEM_j]_k \rangle$

Table 9: Type VII: AGENT/ROLE

	Compound	Gloss	Interpretation
1	<i>ɔmansenkyerewni</i>	SG-nation secretary	secretary of state
2	<i>ɔsɔfobafo</i>	pastor helper	helper of a minister of the gospel
3	<i>owubɔfo</i>	death angel	angel of death
4	<i>mansinsoafo</i>	district minister	district chief executive/commissioner
5	<i>nyansa dwumfo</i>	wisdom craftsman	philosopher (wisdom craftsman)

Type VIII: TEMPORAL

Here, the right-hand constituent, realized in Fante as *ber* ‘time’, denotes a time period, season, or moment associated with the left-hand modifier.

(15) $\langle [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow \text{time period associated with } SEM_i]_k \rangle$

Table 10: Type VIII: TEMPORAL

	Compound	Gloss	Interpretation
1	<i>adɔwber</i>	weeding time	farming season
2	<i>ahanamantaber</i>	harmattan time	harmattan season
3	<i>anafuaber</i>	evening time	eventide
4	<i>apokɔ ber</i>	sea-going time	sea-going time (fishing season)
5	<i>esusowber</i>	rain time	rainy season
6	<i>nankɔmber</i>	fish farming time	fishing off-season

Type IX: CONSTITUENCY/MATERIAL

These are compounds where the left-hand constituent specifies what the referent of the right-hand constituent is made of or consists of. The left hand constituent can also name a property of the head

(16) $\langle [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow [SEM_i \text{ MADE OF/CONSISTING OF } SEM_j]_k \rangle$

Table 11: Type IX: CONSTITUENCY/MATERIAL/PROPERTY

	Compound	Gloss	Interpretation
1	<i>ho-nam</i>	exterior meat/flesh	the skin
2	<i>eburo-ntsew</i>	maize chaff	maize husk/chaff
3	<i>yɛfɔ̀n-kòtòkú</i>	belly sack	stomach (belly sack)
4	<i>ɔbo-tan</i>	stone parent	rock
5	<i>asen-tɔw</i>	matter compact	sentence (compact form of a matter)
6	<i>mbrɔ-nsa</i>	intoxicating drink	intoxicating drink/liquor

Type X: ASSOCIATIVE

Here, the conventional meaning is a general, noncategorical association between the referent of the head and the modifier (not captured by other specific types).

$$(17) < [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow [SEM_j \text{ associated with } SEM_i]_k >$$

Table 12: Type X: ASSOCIATIVE

	Compound	Gloss	Interpretation
	<i>afekuo</i>	equals group	group of equals/fellowship
	<i>amammuo nnyinasoɔ</i>	governance foundation	foundation of governance
	<i>ekyirmba</i>	back-PL-child	posterity
	<i>mmɔfraberem nwomasua</i>	childhood education	childhood education
	<i>kwasafoman</i>	servant-army nation	communal nation/society

The above types indicate the range of meaning relations that may be found in Akan right-headed N-N compounds. The types need to be further refined and their membership scrutinized. Again, some of the compounds can fit into more than one type, and the relations are potentially reversible, further increasing the range of interpretations. Thus, there are yet unexplored areas in the semantics of this class of compounds that merit further studies.

5.1.2 Left-headed noun-noun compounds

There are 21 (10.1%) N-N compounds for which the whole is a hyponym of the left-hand constituent (Tables 13 and 17). They pattern after Akan N-A compounds in terms of the distribution of the head and the modifier (see Appah 2016b), and unsurprisingly, nouns of the type that occur as the right-hand constituents in the compounds in Table 13 (e.g., *tenenee* ‘righteousness’ (row 2), *tsinstimii* ‘printed’ (row 5), and *fonee* ‘muddied X’ (row 11)) have been treated as adjectives in some studies (see Osam 1999). We regard them as nouns that are pressed into service for the expression of property concepts whose meanings are realized by adjectives in other languages. For example, *tenenee* is a noun, ‘righteousness’. However, being a modifier in the compound *àtèn-ténènéé* (row 2), it can only be properly rendered in English as *righteous*, hence the meaning ‘righteous judgement’.

Table 13: Left-headed N-N compounds

	Base 1	Gloss	Base 2	Gloss	Compound	Meaning
1	<i>asem</i>	saying/matter	<i>trenee</i>	righteousness	<i>asen-trenee</i>	a just saying
2	<i>aten</i>	judgement	<i>tenenee</i>	righteousness	<i>aten-tenenee</i>	righteous judgement
3	<i>asorekye</i>	waves	<i>m-ba</i>	PL-child	<i>asorekye-mba</i>	little/minor waves
4	<i>ɔ-bo</i>	SG-stone	<i>ɔ-tan</i>	parent	<i>ɔbo-tan</i>	rock
5	<i>mfonyin</i>	picture	<i>ntsintsim-ii</i>	print-NMLZ	<i>mfonyin ntsintsimii</i>	drawing
6	<i>man</i>	nation	<i>tan</i>	parent	<i>man-tan</i>	region of a country
7	<i>m-mere</i>	PL-time	<i>santen</i>	line/queue	<i>mmere-santen</i>	eternity
8	<i>nam</i>	fish	<i>m-ba</i>	PL-child	<i>nam mba</i>	fingerlings
9	<i>a-pofɔ</i>	PL-fisherman	<i>m-ba</i>	PL-member	<i>apofɔ-mba</i>	(group of) fishermen
10	<i>asen</i>	matter	<i>tɔw</i>	compact	<i>asen-tɔw</i>	sentence
11	<i>nsu</i>	water	<i>fon-ee</i>	make_muddy-NMLZ	<i>nsu fonee</i>	muddying water/muddied water

In these compounds, either constituent may be formally complex, but none of the constituents of the compounds in our dataset is itself a compound. We assume that they instantiate the schema in (18), which states that the compound is a subtype of the left-hand constituent that has some kind of modifying relation with the right-hand constituent. The relation **R** is spelled out for the individual compounds, as illustrated in (19) with the compound *aten-tenenee*.

(18) $\langle [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow [SEM_i \text{ with relation } R \text{ to } SEM_j]_{N_k} \rangle$

(19) $\langle [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow [SEM_i \text{ with relation } R \text{ to } SEM_j]_{N_k} \rangle$
 $\quad \quad \quad |$
 $\quad \quad \quad \langle [[aten]_{N_i} [tenenee]_{N_j}]_{N_k} \leftrightarrow [judgement_i \text{ with a PROPERTY-OF righteousness}_j]_{N_k} \rangle$

The members of this set have been grouped below according to three semantic relations identified as holding between their constituents.

Type I: PROPERTY-OF (Modified by Property Concept)

The first group has compounds where the right-hand constituent specifies a property that characterizes the referent of the left-hand head.

Table 14: Type I: PROPERTY-OF

	Compound	Gloss	Interpretation
1	<i>asen-trenee</i>	saying righteousness	a just saying
2	<i>aten-tenenee</i>	judgement righteousness	righteous judgement
4	<i>nsu fonee</i>	water make_muddied	muddying water/muddied water
5	<i>mfonyin ntsintsimii</i>	picture printed/drawn	drawing

Type II: CONSTITUENT-OF (Part-Whole Relations)

In this group, the right-hand constituent denotes a part or member of the referent of the left-hand head.

Table 15: Type II: CONSTITUENT-OF

	Compound	Gloss	Interpretation
1	<i>nam m-ba</i>	fish PL-child	fingerlings
2	<i>a-pofo m-ba</i>	PL-fisherman PL-member	(group of) fishermen
3	<i>asorekye-m-ba</i>	waves-PL-child	little/minor waves
4	<i>a-sikafo m-ma</i>	PL-rich people PL-child	children of rich people

Type III: DIMINUTIVE (Right Constituent as Child/Offspring)

In the third group, the right-hand constituent (*-ba* ‘child’) denotes a smaller or younger version of the left-hand head constituent.

Table 16: Type III: DIMINUTIVE

	Compound	Gloss	Interpretation
1	<i>asorekye-mba</i>	waves PL-child	little/minor waves
2	<i>nam mba</i>	fish PL-child	fingerlings
3	<i>apofo-mba</i>	PL-fisherman PL-member	(group of) fishermen
4	<i>a-sikafo m-ma</i>	PL-rich people PL-child	children of rich people

Obviously, Types II and III have a lot in common, and their membership is virtually coextensive. This is not surprising because it has been shown that the Akan diminutive marker *-ba*, which derives from the word *ɔba* ‘child’, invokes multiple meanings, including CHILD, OFFSPRING, MEMBER-OF, SMALLER-VERSION-OF, PART-OF, etc. (see Appah and Amfo 2011; Amfo and Appah 2019).

The second group of left-headed N-N compounds (Table 17) has numerals as right-hand constituents, either cardinal numerals, as in *nda-ansa* ‘three days’, or frequentative numerals, as in *owu-prenu* ‘double death’ (see Appah et al. 2019). Thus, they are noun-numeral (N-Num) compounds. Note, however, that the categorial status of numerals is a contested issue, with four positions variously argued for: one, numerals are adjectives (Corver and Zwarts 2006); two, numerals are nouns (Hurford 1987, 192); three, lower numerals behave like adjectives and higher numerals like nouns (Jespersen 1969, 119; Corbett 1978a, 1978b); four, numerals constitute a separate syntactic category (von Mengden 2010). We assume position two, working with a naïve understanding of the notion NOUN, defined as the NAME of a thing, place, person, etc. Thus, we regard a numeral as a type of noun – a NUMBER NAME (Brainerd 1966; Brandt Corstius 1968; Appah et al. 2023). This view of numerals as nouns finds support in Langacker’s (1987, 189) characterization of NOUN as a linguistic unit which profiles a thing, where a thing is defined as a “region in some domain”, and REGION is characterized in terms of the interconnectedness of entities within a domain. Here, the spatial domain has no priority; hence, *red* can be seen as profiling a region in the domain of colour, *week* as profiling a region in the domain of time, and *C-sharp* as profiling a region in the domain of pitch. Given this, we assume that numerals (number names) are nouns in the sense that they profile specific regions in the domain of number. This view is consistent with Wiese’s (1987, 189) argument that numerals refer to specific positions or items (e.g., with cardinality) in the domain of number. We consider Wiese’s ‘number assignment’ as the profiling of a region in the domain of numbers.

Table 17: Left-headed N-N compounds with numeral right-hand constituents

	Base 1	Gloss	Base 2	Gloss	Compound	Meaning
1	<i>owu</i>	death	<i>pre-nu</i>	time-two/twice	<i>owu-prenu</i>	double death
2	<i>n-da</i>	PL-day	<i>ansa</i>	three	<i>nda-ansa</i>	three days
3	<i>n-da</i>	PL-day	<i>anan</i>	four	<i>nda-anan</i>	four days
4	<i>n-da</i>	PL-day	<i>enum</i>	five	<i>nda-enum</i>	five days
5	<i>n-da</i>	PL-day	<i>awɔtwe</i>	eight	<i>ndaawɔtwe</i>	eight days (8 th day)
6	<i>n-dɔn</i>	PL-watch	<i>ebiasa</i>	three	<i>ndɔn-ebiasa</i>	three o’clock
7	<i>n-dɔn</i>	PL-watch	<i>anan</i>	four	<i>ndɔn-nan</i>	four o’clock
8	<i>n-dɔn</i>	PL-bell	<i>enum</i>	five	<i>ndɔn-num</i>	five o’clock
9	<i>da</i>	day	<i>du</i>	ten	<i>da-du</i>	10 th day

In terms of their overall meaning, the compounds may refer to:

- i. the multiplicity of the referent of the head, as in *òwù-prènù* ‘double death’ (row 1)
- ii. a period, measured in number of days (rows 2, 3, 4, 5, & 9), or
- iii. time within a day, as in *ndɔn-ebiasa* ‘three o’clock’ (row 6).

The semantic relation between the constituents of the compounds is equally varied. We can identify three main semantic types, all of which instantiate subschemas of the schema for left-headed N-N compounds in (18), in which the right-hand constituent is specified as a numeral, as

shown in (20). The relation **R** is spelled out as NUMBER/COUNT/FREQUENCY/POSITION/RANK OF what the left-hand constituents express.

$$(20) \begin{array}{l} < [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow [SEM_i \text{ with relation } R \text{ to } SEM_j]_{j_k} > \\ | \\ < [[a]_{N_i} [Num]_{j_k}]_{N_k} \leftrightarrow [SEM_i \text{ occurring } SEM_j \text{ times}]_{j_k} > \end{array}$$

Three main types of semantic relations have been identified in this class of compounds – FREQUENCY-OF, COUNT-OF, and POSITION/RANK-OF. For Type I, the second constituent marks the frequency of the occurrence of the first constituent, as in *òwù-prènu* ‘double death’ (Table 17, row 1).⁷ The relation **R** in these constructs is realized as ‘number of times/frequency of’, showing that the right-hand constituents express the number/frequency of occurrence of the concept expressed by the left-hand constituents, as shown in (21).

$$(21) \begin{array}{l} < [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow [SEM_i \text{ with relation } R \text{ to } SEM_j]_{j_k} > \\ | \\ < [[a]_{N_i} [b]_{Num_j}]_{N_k} \leftrightarrow [SEM_i \text{ with relation FREQUENCY-OF to } SEM_j]_{j_k} > \\ | \\ < [[owu]_{N_i} [prenu]_{Num_j}]_{N_k} \leftrightarrow [death_i \text{ with relation FREQUENCY-OF to TWICE}_j]_{j_k} > \end{array}$$

For Type II, the second constituent indicates the cardinality (‘howmanyness’) of the referent of the first constituents (Pishro-Nik 2014), as in *nda ansa* ‘three days’ *nda anan* ‘four days’ *nda enum* ‘five days’ *nda awɔtwe* ‘eight days’.⁸ The relation **R** is realized as NUMBER/COUNT-OF, showing that the right-hand constituent expresses the quantity or cardinality of the referent of the left-hand constituent. See (22) for the CxM representation of *nda-anan* (Table 17, row 3). We skip the higher levels in the presentation.

$$(22) \begin{array}{l} < [[a]_{N_i} [b]_{Num_j}]_{N_k} \leftrightarrow [SEM_i \text{ with a relation COUNT-OF to } SEM_j]_{j_k} > \\ | \\ < [[nda]_{N_i} [anan]_{Num_j}]_{N_k} \leftrightarrow [day_i \text{ with a relation COUNT-OF to four}]_{j_k} > \end{array}$$

In Type III, the second constituent marks the ordinality (relative rank/position) of the referent of the first constituents, as in *da-du* ‘tenth day’ (Table 17, row 9), where the referent of the head constituent is the tenth in some series of days, and the form of the left-hand constituent is different in not bearing a plural prefix like the others, because the number does not indicate the count (cardinality), but the position in the series of days. This construction is also used to name the tenth child of a woman/couple: *ba-du* [child-ten] ‘tenth child’.⁹ See the CxM representation in (23).

⁷Frequentatives in Akan are discussed in Christaller (1875, 53), Balmer and Grant (1929, 143), and Appah et al. (2019, 17–19).

⁸See Christaller (1875), Balmer and Grant (1929), and Appah et al. (2023) for discussions of Akan cardinal numerals.

⁹This form of ordinal marking is not usual in Akan and has, therefore, not been discussed in the literature (see Appah 2019b, 2019c; Appah et al. 2023).

$$(23) \begin{array}{c} < [[a]_{N_i} [b]_{Num_j}]_{N_k} \leftrightarrow [SEM_i \text{ with a relation POSITION-OF to } SEM_j]_{N_k} > \\ | \\ < [[da]_{N_i} [du]_{Num_j}]_{N_k} \leftrightarrow [day_i \text{ with a relation POSITION-OF to } ten_j]_{N_k} > \end{array}$$

Finally, *nda awɔtwe* (row 5), is potentially interpretable either as *nda awɔtwe* ‘eight days’ (cardinal reading) or as *nda awɔtwe* ‘eighth day’ (ordinal reading), differentiated by the tonal melodies, coupled with dialectal variations. The examples are the Fante dialect renditions of the constructions, where the melody for the cardinal reading is low-high on the first constituent and low-low-high on the second constituent, while the ordinal reading has low tones on the first constituent and high tones only on the second constituent.¹⁰

The data discussed in Section 5.1.2 raise interesting issues. The first concerns how to distinguish between compounds and phrases, given that we find instances where numerals appear to be modifying nouns in what could pass for noun phrases, yet we see, for example, that the form of the numerals is usually not the form that we expect to occur in phrases because they tend to be truncated. For example, the form of the numeral in Table 17, row 1 is *prenu* without the nasal prefix, as is typical of compound constituents, and not *mprenu*. Similarly, for the time expressions in Table 17, rows 6–8 (*ndɔn-ebiasa* ‘three o’clock’, *ndɔn-nan* ‘four o’clock’, and *ndɔn-num* ‘five o’clock’), the numerals are without their prefixes. The exception is *ebiasa* ‘three’ in row 6. However, even that was written together (hyphenated) in the source with the preceding noun, as is typical of compounds, showing that originators of the data see the complex as one word. However, there are others for which there is no such straightforward formal evidence of compoundhood, but the semantics gives us the inkling that we are dealing with a compound. As indicated, these issues merit a detailed discussion as the subject of a separate study.

5.1.3 Dual-headed/coordinate N-N compounds

Consistent with Dressler’s (2006, 34) description of this type of compounds as “universally dis-preferred” and the observation that co-compounds are rare in African languages (Bauer 2009b; Wälchli 2005), only 6 (2.9%) of the 208 N-N compounds could be considered potentially coordinate/dual-headed. See Table 18.

Table 18: N-N coordinate compounds in Akan

	Base 1	Gloss	Base 2	Gloss	Compound	Meaning
1	<i>bòká</i>	east	<i>dàádzé</i>	down	<i>bòká-dàádzé</i>	south-east
2	<i>ànéè</i>	west	<i>sórè</i>	up	<i>ànéè-sórè</i>	north-west
3	<i>ànéè</i>	west	<i>dàádzé</i>	down	<i>ànéè-dàádzé</i>	south-west
4	<i>ò-héné</i>	SG-king	<i>ò-báá</i>	SG-woman	<i>ò-hém-máá</i>	queen (mother)
5	<i>ònyàmè</i>	deity	<i>ò-béá</i>	SG-woman	<i>ònyàmè-béá</i>	goddess
6	<i>ò-nùà-</i>	SG-sibling	<i>ò-bárí!má</i>	SG-male	<i>nùà-bárí!má</i>	brother

We suspect that their limited number reflects their doubtful status as a standalone class rather than belonging to the class of left-headed/right-headed or exocentric compounds. Bauer (2008a) posits ten types of coordinated compound nouns. Of the six constructs in Table 18, three (1–3) are coordinate compounds exemplifying the *compromise* type, “where the compound as a whole denotes not the sum of the two parts but a compromise between the two parts, a half-way point

¹⁰ The ordinal reading is also the standard Akan expression for ‘one week’.

between them” (Bauer 2008a, 10). That is, *ànéè-sòr* ‘north-west’ is neither completely ‘north’ nor completely ‘west’, but some position between the two.

The CxM representation of this class of compounds is shown in (24). It captures the fact that the meaning of the compound is intermediate between the meanings of the two constituents.

$$(24) \begin{array}{c} < [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow [SEM_k \text{ is INTERMEDIATE between } SEM_i \text{ and } SEM_j]_k > \\ | \\ < [[boka]_{N_i} [daadze]_{N_j}]_{N_k} \leftrightarrow [southwest_k \text{ is INTERMEDIATE between } south_i \text{ \& west}_j]_k > \end{array}$$

The status of the other three constructs in Table 18 as coordinate compounds is doubtful because we reckon that whether they will receive a determinative or coordinative reading is a matter of construal, “the perspective that speakers impose on the scene [concept] to be described” (Dirven and Ruiz de Mendoza Ibáñez 2010, 20). The coordinate compound reading is premised on the view that, for example, *ɔhem-maa* ‘queen’ is both *ɔhene* ‘king’ and *ɔbaa* ‘woman’. In this view, the three compounds may be classified as coordinate compounds of the appositional type in which the two constituents are referentially intersective, both referring to the same entity (Wälchli 2005). For the determinative reading, the compounds are left-headed N-N compounds (e.g., *ɔ-hém-máá* ‘queen’ is *ɔhéné* ‘king’ that is *ɔbáá* ‘woman’).

The CxM representation of the appositive coordinate reading is as shown in (25). For the determinative reading, however, the CxM representation would be just like the left-headed compounds in Table 13 (see (10)).

$$(25) \begin{array}{c} < [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow [an \text{ entity which is both } SEM_i \text{ and } SEM_j]_k > \\ | \\ [[nyame]_{N_i} [bea]_{N_j}]_{N_k} \text{ ‘goddess’} \end{array}$$

Given the limited dataset, any emphatic statement about the nature and degree of productivity of these constructs must await a study with a larger sample. However, if indeed both coordinative and determinative readings are possible for these constructs, then we must consider what qualifies a compound as coordinate; there are varied views on this, which we cannot discuss here for want of space (see Wälchli 2005; Arcodia 2010; Arcodia et al. 2010).

5.2 Exocentric N-N compounds in Akan

This section deals with exocentric Akan N-N compounds based on the dataset in Table 19, and it is deliberately brief because exocentric compounds in Akan have been extensively discussed in previous studies (Appah 2016c, 2017a, 2017b, 2019d; Appah et al. 2017). The N-N compounds in this group are exocentric because they violate the IS A condition (Allen 1978) or the hyponymy test (Bauer 2008b). That is, for endocentric compounds like *baka-nam* [lagoon-fish] ‘fish caught in a lagoon’ (Table 2, row 12), the whole is a type of one of the constituents (i.e., *baka-nam* is a type of *nam* ‘fish’). This is not the case for exocentric compounds. For example, the constituents of *anokorɔ* (Table 19, row 1) are *ano* ‘mouth’ and *korɔ* ‘one’, but the idiomatic meaning of the compounds is ‘unity’, which is neither a type of ‘mouth’ nor a type of ‘one’. Again, the literal meaning of *akɔm* ‘ritual dance’ and *ase* ‘under/bottom’ (Table 19, row 9) is ‘under the ritual dance’, but the compound refers to the location of the ritual dance rather than the ‘underside/bottom’ of the dance. Thus, the meanings of these constructs must be read from their literal meanings by some figure of speech – metaphor, metonymy, etc. (Bauer 2008b).

Table 19: Inventory of Akan exocentric N-N compounds

	Base 1	Gloss	Base 2	Gloss	Compound	Interpretation
1	<i>ano</i>	mouth	<i>korɔ</i>	one	<i>anokorɔ</i>	unity
2	<i>wim</i>	sky	<i>ade</i>	thing	<i>wimde</i>	esoteric/abstract matters
3	<i>aborɔkyir</i>	oversees	<i>aba</i>	seed	<i>aborɔkyir-aba</i>	substance used as a bait for fishing
4	<i>enyi</i>	eye	<i>akam</i>	mark	<i>enyikam</i>	earmark (lit. eyemark)
5	<i>mboadua</i>	place for keeping fishing nets	<i>do</i>	top	<i>mboadua do</i>	location of “mboadua”
6	<i>dua</i>	tree	<i>ase</i>	under	<i>duase</i>	name of a town
7	<i>a-fie</i>	PL-house	<i>ase</i>	under	<i>afiase</i>	prison
8	<i>honam</i>	skin	<i>ase</i>	under	<i>honamase</i>	feelings/condition in the flesh/self
9	<i>akɔm</i>	ritual dance	<i>ase</i>	under	<i>akɔmase</i>	location of a ritual dance
10	<i>m-mofra</i>	PL-child	<i>ase</i>	under	<i>mmofraase</i>	childhood (time)’
11	<i>nan</i>	leg/foot	<i>ti/tini</i>	head/root	<i>nanti/nantini</i>	heel (head/root of the foot)
12	<i>wim</i>	sky	<i>ade</i>	thing	<i>wim-dé</i>	esoteric/abstract matter
13	<i>nsu</i>	water	<i>ano</i>	mouth	<i>nsu-ano</i>	shoreline/edge of water body
14	<i>nsu</i>	water	<i>enyi</i>	eye	<i>nsu-enyi</i>	the surface of water

Based on Bauer’s (2010b) typology of exocentric compounds, Appah (2019d) posited various types of exocentric compounds for Akan, including bahuvrihi compounds (with subtypes that refer to POSSESSOR and LOCATION), metaphorical compounds, synthetic compounds, and transpositional compounds. Our dataset shows two of the types – metaphorical compounds (rows 1–4) and location bahuvrihi (rows 5–10).

Following the account of exocentric compounds in Akan (Appah 2017a) and analyses of N-N compounds in related languages, including Dangme (Lawer and Appah 2020), Esahie (Broohm and Marfo 2023), Ewe (Appah et al. 2025), and Dagaare (Babakyirenaa and Appah to appear), we assume that these compounds instantiate the schema in (26), where the meaning is specified simply as $[SEM]_k$, and is meant to be spelt out individually for each instantiating compound, because the meanings of the compounds are varied and not necessarily related to their constituents.

$$(26) \quad < [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow [SEM]_k >$$

Extra-compositional meaning components are seen as idiosyncratic properties of the instantiating construction. In this way, we take care of cases where the meaning of the compound cannot be shown to be related to the meaning of either constituent or to their combined meaning. An example of this scenario is *aborɔkyir-aba* [lit. oversees-seed] (Table 19, row 3), represented as (26). $[SEM]_k$ is spelled out as the idiomatic meaning of the construction, but no direct link can be established between the idiomatic meaning and the compositional meaning of the constituents combined, which would be something like $[[aba]_{N_j}]$ with relation SOURCE to $[aborɔkyir]_{N_i}]_{N_k}$. Thus, there is no way to tell that the two constituents combined refer to a particular substance used as a bait during fishing because, while the non-head specifies the provenance of the head constituent, what is needed to interpret the compound is its function, but that is not in the compound.

$$(27) \quad < [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow [SEM]_k >$$

|

$[[aborɔkyir]_{N_i} [aba]_{N_j}]_{N_k}$ ‘substance used as a bait for fishing’

Where the meaning of the compound can 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 compound, the extra-compositional meaning is represented as a semantic operator (the unindexed SEM) over the meaning of the compound, or the meaning of the relevant constituent, as in (28).

$$(28) < [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow [SEM [SEM]_k]_q >$$

We noted above that LOCATION is not directly encoded in either constituent of *akɔm-ase* (Table 19, row 9). Hence, it must be treated as a constructional property and represented as an operator over the meaning of *akɔm*, the head of the construction, as in (29).

$$(29) < [[a]_{N_i} [b]_{N_j}]_{N_k} \leftrightarrow [SEM [SEM]_k]_q >$$

$$\begin{array}{c} | \\ [[akɔm]_{N_i} [ase]_{N_j}]_k \leftrightarrow [LOC [SEM_j \text{ with a relation PART-OF to } SEM_i]_k]_q \end{array}$$

The alternative to positing the constructional meaning contribution would be to assume that *ase* has this LOCATION meaning when it occurs in compounds with deverbal nouns like *akɔm*, derived from *kɔm* ‘to perform the ritual dance’. If that worked, we would have accounted for the source of the LOCATION meaning as well as explained the difference between compounds like *akɔm ase*, with deverbal constituents, and others like *mbɔfrase* ‘childhood’ and *honam ase* ‘condition of health’, without deverbal nouns (Table 19, rows 10 and 8). The problem with this approach, however, is that *ase* occurs in other compounds like *dua ase* ‘name of a town’ and *afiase* ‘prison’ (rows 4 and 6) which have no deverbal constituents but still carry the LOCATION meaning, albeit indirectly (see Appah 2013b, 2017a). We believe that ascribing the extra-compositional meaning to the constructions offers the best approach to accounting for the properties of exocentric N-N compounds. The alternative approach forces us to posit meanings for compound constituents that are otherwise unmotivated.

6 Conclusion

The present paper has provided the first dedicated account of Akan noun-noun compounds within Construction Morphology, based on a dataset of more than 200 tokens. The paper has offered a systematic classification of Akan N-N compounds according to headedness, identifying endocentric (right-headed, left-headed, and dual-headed) and exocentric types. It has demonstrated that Akan N-N compounds, like their cross-linguistic counterparts, exhibit flexible interpretations mediated by pragmatic considerations. Furthermore, it has been shown that even predominantly regular compounds may harbour construction-specific idiosyncrasies, which are best captured by positing abstract schemas with underspecified semantic relations (R) that are spelt out concretely for individual compounds and their types. Thus, the Construction Morphology framework allows us to account for both regular and idiosyncratic properties of Akan N-N compounds. Finally, a dominant pattern of right-headedness confirms a universal preference for right-headedness (Booij 2010b; Hoeksema 1992), but not the universality of the Right-hand Head Rule, as left-headed compounds (e.g., *aten-tenenee* ‘righteous judgement’) constitute a non-negligible subclass.

Several questions have been raised that should serve as avenues for further research. First, the status of coordinate (dual-headed) compounds in Akan remains unsettled, as only six examples

were found, and their interpretation vacillates between coordinative and determinative readings. A larger, corpus-based study should determine whether they form a genuine productive class, or whether they should be added to other headed types. Second, we noted the need for further refinement of the classes of right-headed endocentric N-N compounds, given the potential reversibility of the relations between the nouns, which results in different interpretations. This may be explored to establish the limits of the flexibility of interpretation of Akan N-N compounds. Third, we noted the need for clear criteria for distinguishing N-N compounds from noun phrases, especially when the second constituent retains inflectional markers (e.g., *apaa m-boa*) or when numerals appear in truncated forms. A dedicated phonological, morphosyntactic, and prosodic investigation is required to establish reliable criteria for compound-phrase demarcation in Akan, further refining our understanding of the syntax-morphology interface in the language. Fourth, the observation that inflectional marking occurs on the left periphery even in right-headed compounds challenges the claim that the head is the *locus inflectionis*. This mismatch deserves deeper exploration. Fifth, the role of tonal melody in disambiguating compound interpretations (e.g., cardinal vs. ordinal readings of *nda awɔtwe*) needs to be explored as it can reveal potential systematic phonological correlates of semantic relations.

Acknowledgements

The bulk of the research reported here was originally part of the PhD research of the first author, which was funded by a scholarship (CSC reference: GHCS-2008-94) from the Commonwealth Scholarship Commission in the UK under the Commonwealth Scholarship and Fellowship Plan (CSFP). The first author gratefully acknowledges this generous support. The authors would like to thank the editors and two anonymous reviewers for their detailed and insightful comments that have helped improve the paper. We are responsible for any remaining weakness.

References

- Abakah, Emmanuel Nicholas. 2004. "The Segmental and Tone Melodies of Akan." PhD diss., Norwegian University of Science and Technology.
- Abakah, Emmanuel Nicholas. 2005a. "Tone in Akan Nominals." In *Studies in the Languages of the Volta Basin: Proceedings of the Annual Colloquium of the Legon-Trondheim Linguistics Project*, edited by M. E. Kropp Dakubu and E. Kweku Osam, 193–218. University of Ghana.
- Abakah, Emmanuel Nicholas. 2005b. "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.
- Aikhenvald, Alexandra Y. 2007. "Typological Distinctions in Word-Formation." In *Language Typology and Syntactic Description Vol. III: Grammatical Categories and the Lexicon*, edited by Timothy Shopen, 1–65. Cambridge University Press.
- Allen, Margaret R. 1978. "Morphological Investigations." PhD diss., University of Connecticut.
- Amfo, Nana Aba Appiah, and Clement Kwamina Insaadoo Appah. 2019. "Lexicalization of Akan Diminutives: Form, Meaning and Motivation." *Linguistik Online* 94 (1): 3–18.
- Andreou, Marios. 2014. "Headedness in Word Formation and Lexical Semantics: Evidence from Italian and Cypriot." PhD diss., University of Patras.

- Anyidoho, Akosua. 1990. "On Tone in Akan Compound Nouns." Paper presented at the 19th West African Languages Congress, University of Ghana, Legon, April 2–6, 1990.
- Appah, Clement Kwamina Insaiddoo. 2009a. "Compounding in Akan." Paper presented at Universals and Typology in Word-Formation, Košice-Slovakia, August 16–18, 2009.
- Appah, Clement Kwamina Insaiddoo. 2009b. "On the Distinction between Compounds and Phrases in Akan: Is There a Reliable Phonological Criterion?" Paper presented at the Phonetics, Phonology and Variation (SPEECH) research group meeting, Lancaster University November 5, 2009.
- Appah, Clement Kwamina Insaiddoo. 2013a. "The Case against A-N Compounding in Akan." *Journal of West African Languages* XL (1): 73–87.
- Appah, Clement Kwamina Insaiddoo. 2013b. "Construction Morphology: Issues in Akan Complex Nominal Morphology." PhD diss., Department of Linguistics and English Language, Lancaster University.
- Appah, Clement Kwamina Insaiddoo. 2015. "On the Syntactic Category of Akan Compounds: A Product-Oriented Perspective." *Acta Linguistica Hungarica* 62 (4): 361–394.
- Appah, Clement Kwamina Insaiddoo. 2016a. "Akan Verb-Noun Compounds." *Italian Journal of Linguistics* 28 (2): 3–24.
- Appah, Clement Kwamina Insaiddoo. 2016b. "Noun-Adjective Compounds in Akan." *Lingue e linguaggio* XV (2): 259–284.
- Appah, Clement Kwamina Insaiddoo. 2016c. "A Short Note on the Typology of Exocentric Compounds." *SKASE Journal of Theoretical Linguistics* 13 (1): 107–113.
- Appah, Clement Kwamina Insaiddoo. 2017a. "Exocentric Compounds in Akan." *Word Structure* 10 (2): 139–172.
- Appah, Clement Kwamina Insaiddoo. 2017b. "On Holistic Properties of Morphological Constructions: The Case of Akan Verb-Verb Nominal Compounds." *Acta Linguistica Hafniensia* 49 (1): 12–36.
- Appah, Clement Kwamina Insaiddoo. 2019a. "Analytical Issues in the Study of Verb-Noun Compounds: How Does Akan Fit in?" *Acta Linguistica Academica* 66 (1): 1–29.
- Appah, Clement Kwamina Insaiddoo. 2019b. "On Rank and Successor Relations: Numerical and Non-Numerical Expression of Relative Position in Akan." *SKASE Journal of Theoretical Linguistics* 16 (4): 2–21.
- Appah, Clement Kwamina Insaiddoo. 2019c. "Ordinal Numeral Constructions in Akan." *Constructions* 1: 1–12.
- Appah, Clement Kwamina Insaiddoo. 2019d. "A Survey of Exocentric Compounds in Three Kwa Languages: Akan, Ewe and Ga." *Ghana Journal of Linguistics* 8 (2): 1–26.
- Appah, Clement Kwamina Insaiddoo, Anthony Kofi Agbadah, and Levina Nyameye Abunya. 2025. "Noun-Noun Compounds in Ewe." *SKASE Journal of Theoretical Linguistics* 22 (1): 62–88.

- Appah, Clement Kwamina Insaïdoo, and Nana Aba Appiah Amfo. 2011. "The Morphopragmatics of the Diminutive Morpheme (-ba/-wa) in Akan." *Diminutives and Augmentatives in the Languages of the World* [Special issue]. *Lexis [Online]* 6:: 85–103.
- Appah, Clement Kwamina Insaïdoo, Obed Nii Broohm, and Richard Ayertey Lawer. 2019. "Beyond Cardinals and Ordinals: A Constructionist Account of Other Numerals in Akan." *Nordic Journal of African Studies* 28 (2): 1–27.
- Appah, Clement Kwamina Insaïdoo, Reginald Akuoko Duah, and Obadele Bakari Kambon. 2017. "Akan Noun-Verb Compounds: The Exocentric Synthetic View." *Language Sciences* 64: 1–15.
- Appah, Clement Kwamina Insaïdoo, Obadele Bakari Kambon, and Reginald Akuoko Duah. 2023. "Cardinal Numeral Constructions in Akan: A Construction Morphology Account." *Ghana Journal of Linguistics* 12 (1): 48–72.
- Arcodia, Giorgio Francesco. 2010. "Coordinating Compounds." *Language and Linguistics Compass* 4 (9): 863–873.
- Arcodia, Giorgio Francesco, Nicola Grandi, and Bernhard Wälchli. 2010. "Coordination in Compounding." In *Cross-Disciplinary Issues in Compounding*, edited by Sergio Scalise and Irene Vogel, 177–198. John Benjamins.
- Babakyirenaa, Felicia, and Clement Kwamina Insaïdoo Appah. To appear. "Noun-Noun Compounds in Dagaare." *Ghana Journal of Linguistics*.
- Balmer, W. T., and F. C. F. Grant. 1929. *A Grammar of the Fante-Akan Language*. Atlantis Press.
- Bauer, Laurie. 1978. *The Grammar of Nominal Compounding with Special Reference to Danish, English, and French (Odense University Studies in Linguistics, vol. 4)*. Odense University Press.
- Bauer, Laurie. 1979. "On the Need for Pragmatics in the Study of Nominal Compounding." *Journal of Pragmatics* 3 (1): 45–50.
- Bauer, Laurie. 1983. *English Word-Formation*. Cambridge University Press.
- Bauer, Laurie. 1990. "Be-heading the Word." *Journal of Linguistics* 26 (1): 1–31.
- Bauer, Laurie. 1998. "When is a Sequence of Two Nouns a Compound in English?" *English Language and Linguistics* 2 (1): 65–86.
- Bauer, Laurie. 2003. *Introducing Linguistic Morphology*. 2nd ed. Georgetown University Press.
- Bauer, Laurie. 2005. "The Borderline between Derivation and Compounding." In *Morphology and its Demarcations: Selected Papers from the 11th Morphology Meeting, Vienna, February 2004*, edited by Wolfgang U. Dressler, Franz Rainer, Dieter Kastovsky and Oskar Pfeiffer, 97–108. John Benjamins.
- Bauer, Laurie. 2006. "Compound." In *The Encyclopedia of Language and Linguistics*, edited by Keith Brown, 719–726. Elsevier.
- Bauer, Laurie. 2008a. "Dvandva." *Word Structure* 1 (1): 1–20.
- Bauer, Laurie. 2008b. "Exocentric Compounds." *Morphology* 18: 51–74.

- Bauer, Laurie. 2009a. "IE, Germanic: Danish." In *The Oxford Handbook of Compounding*, edited by Rochelle Lieber and Pavol Štekauer, 400–416. Oxford University Press.
- Bauer, Laurie. 2009b. "Typology of Compounds." In *The Oxford Handbook of Compounding*, edited by Rochelle Lieber and Pavol Štekauer, 343–356. Oxford University Press.
- Bauer, Laurie. 2010a. "Co-Compounds in Germanic." *Journal of Germanic Linguistics* 22 (3): 201–219.
- Bauer, Laurie. 2010b. "The Typology of Exocentric Compounds." In *Cross-Disciplinary Issues in Compounding*, edited by Sergio Scalise and Irene Vogel, 167–175. John Benjamins.
- Bauer, Laurie. 2016. "Re-evaluating Exocentricity in Word-Formation." In *Morphological Metatheory*, edited by Daniel Siddiqi and Heidi Harley, 461–478. John Benjamins.
- Bauer, Laurie. 2017. *Compounds and Compounding*. Cambridge University Press.
- Benczes, Réka. 2005. "Creative Noun-Noun Compounds." *Annual Review of Cognitive Linguistics* 3 (1): 250–268.
- Bisetto, Antonietta, and Sergio Scalise. 2005. "The Classification of Compounds." *Lingue e Linguaggio* (2):319-332.
- Bloomfield, Leonard. 1933. *Language*. Holt, Rinehart and Winston.
- Booij, Geert E. 2002. *The Morphology of Dutch*. Oxford University Press.
- Booij, Geert E. 2009. "Construction Morphology and Compounding." In *The Oxford Handbook of Compounding*, edited by Pavol Štekauer and Rochelle Lieber, 201–216. 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. 2012a. "Construction Morphology, a brief introduction." *Morphology* 22 (3):343-346. doi: <http://dx.doi.org/10.1007/s11525-012-9209-x>.
- Booij, Geert E. 2012b. *The Grammar of words: an introduction to linguistic morphology*. 3rd ed. Oxford: Oxford University Press.
- Brainerd, Barron. 1966. "Grammars for Number Names." *Foundations of Language* 2 (2): 109–133.
- Brandt Corstius, Hugo. 1968. *Grammars for Number Names (Foundations of Language. Supplementary series, vol. 7)*. D Reidel Publishing Company.
- Braun, Maria. 2009. *Word-Formation and Creolisation: The Case of Early Sranan*. Vol. 517. Walter de Gruyter.
- Broohm, Obed Nii, and Charles Ofori Marfo. 2023. "Noun-Noun Compounding in Esahie." *Ghana Journal of Linguistics* 12 (3): 18–43.
- 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 Evangelical Missionary Society.

- Corbett, Greville G. 1978a. "Problems in the Syntax of Slavonic Numerals." *The Slavonic and East European Review* 56 (1): 1–12.
- Corbett, Greville G. 1978b. "Universals in the Syntax of Cardinal Numerals." *Lingua* 46 (4): 355–368.
- Corver, Norbert, and Joost Zwarts. 2006. "Prepositional Numerals." *Lingua* 116 (6): 811–835.
- Croft, William. 2001. *Radical Construction Grammar: Syntactic Theory in Typological Perspective*. Oxford University Press.
- Delfitto, Denis, and Chiara Melloni. 2009. "Compounds Don't Come Easy." *Lingue e Linguaggio* 7: 75–104.
- Dirven, René, and Francisco José Ruiz de Mendoza Ibáñez. 2010. "Looking Back at 30 Years of Cognitive Linguistics." In *Cognitive Linguistics in Action: From Theory to Application and Back*, edited by Elżbieta Tabakowska, Michał Choński, and Łukasz Wiraszka, 13–70. Mouton de Gruyter.
- Dixon, R. M. W., and Alexandra Y. Aikhenvald. 2002. "Word: A Typological Framework." In *Word: A Cross-Linguistic Typology*, edited by R. M. W. Dixon and Alexandra Y. Aikhenvald, 1–42. Cambridge University Press.
- Dolphyne, Florence Abena. 1988. *The Akan (Twi-Fante) Language: Its Sound Systems and Tonal Structure*. Ghana Universities Press.
- Downing, Pamela. 1977. "On the Creation and Use of English Compound Nouns." *Language* 53 (4): 810–842.
- Dressler, Wolfgang U. 2006. "Compound Types." In *The Representation and Processing of Compound Words*, edited by Gary Libben and Gonia Jarema, 23–44. Oxford University Press.
- Fabb, Nigel. 1998. "Compounding." In *The Handbook of Morphology*, edited by Andrew Spencer and Arnold M. Zwicky, 66–83. Basil Blackwell.
- Fradin, Bernard. 2009. "IE, Romance: French." In *The Oxford Handbook of Compounding*, edited by Pavol Štekauer and Rochelle Lieber, 417–435. Oxford University Press.
- Gagné, Christina L. 2002. "Lexical and Relational Influences on the Processing of Novel Compounds." *Brain and Language* 81 (1–3): 723–735.
- Gagné, Christina L., Kristan A. Marchak, and Thomas L. Spalding. 2010. "Meaning Predictability and Compound Interpretation: A Psycholinguistic Investigation." *Word Structure* 3 (2): 234–251.
- Gagné, Christina L., and Thomas L. Spalding. 2006. "Conceptual Combination: Implications for the Mental Lexicon." In *The Representation and Processing of Compound Words*, edited by Gary Libben and Gonia Jerema, 145–168. Oxford: Oxford University Press.
- Gagné, Christina L., and Thomas L. Spalding. 2010. "Relational Competition During Compound Interpretation." In *Cross-Disciplinary Issues in Compounding*, edited by Sergio Scalise and Irene Vogel, 287–300. John Benjamins.
- Gagné, Christina L., and Thomas L. Spalding. 2015. "Semantics, Concept, and Meta-cognition: Attributing Properties and Meaning to Complex Words." In *Semantics of Complex Words*, edited by Laurie Bauer, Livia Körtvelyessy, and Pavol Štekauer, 9–25. Springer.

- Giegerich, Heinz J. 2004. "Compound or Phrase? English Noun-Plus-Noun Constructions and the Stress Criterion." *English Language and Linguistics* 8 (1): 1–24.
- Goldberg, Adele E. 2006. *Constructions at Work: The Nature of Generalization in Language*. Oxford University Press.
- Guevara, Emiliano Raúl, and Sergio Scalise. 2009. "Searching for Universals in Compounding." In *Universals of Language Today*, edited by Sergio Scalise and Antonietta Bisetto, 101–128. Springer.
- Harley, Heidi. 2009. "Compounding in Distributed Morphology." In *The Oxford Handbook of Compounding*, edited by Rochelle Lieber and Pavol Štekauer, 129–144. Oxford University Press.
- Haspelmath, Martin, and Andrea D. Sims. 2010. *Understanding Morphology*. 2nd ed. Routledge.
- Hoeksema, Jack. 1992. "The Head Parameter in Morphology and Syntax." In *Language and Cognition 2: Yearbook 1992 of the Research Group for Linguistic Theory and Knowledge Representation of the University of Groningen*, edited by D.G. Gilbers and S. Looyenga, 119–132. De Passage.
- Hudson, Richard A. 1987. "Zwicky on Heads." *Journal of Linguistics* 23 (1): 109–132.
- Hurford, James R. 1987. *Language and Number: The Emergence of a Cognitive System*. Basil Blackwell.
- Jackendoff, Ray S. 2009a. "Compounding in the Parallel Architecture and Conceptual Semantics." In *The Oxford Handbook of Compounding*, edited by Rochelle Lieber and Pavol Štekauer, 105–128. Oxford University Press.
- Jackendoff, Ray S. 2009b. *Language, Consciousness, Culture: Essays on Mental Structure*. MIT Press.
- Jackendoff, Ray S. 2010. *Meaning and the Lexicon: The Parallel Architecture, 1975–2010*. Oxford University Press.
- Jackendoff, Ray S., and Jenny Audring. 2020. *The Texture of the Lexicon: Relational Morphology and the Parallel Architecture*. Oxford University Press.
- Jespersen, Otto. 1969. *Analytic Syntax*. Holt, Rinehart and Winston.
- Jones, Bernard. 1995. Nominal Compounds and Lexical Rules. In *Working Notes of the Acquilex Workshop on Lexical Rules, Cambridge, England, August 1995*.
- Jones, Karen Spärck. 1983. *Compound Noun Interpretation Problems*. University of Cambridge Computer Laboratory.
- Katamba, Francis X., and John T. Stonham. 2006. *Morphology (Modern Linguistics series)*. 2nd ed. Palgrave Macmillan.
- Kavka, Stanislav. 2009. "Compounding and Idiomatology." In *The Oxford Handbook of Compounding*, edited by Rochelle Lieber and Pavol Štekauer, 19–33. Oxford University Press.
- Kornfeld, Laura Malena. 2009. "IE, Romance: Spanish." In *The Oxford Handbook of Compounding*, edited by Pavol Štekauer and Rochelle Lieber, 436–452. Oxford University Press.

- Lampert, Martina, and Günther Lampert. 2010. "Word-Formation or Word Formation? The Formation of Complex Words in Cognitive Linguistics." In *Cognitive Perspectives on Word Formation*, edited by Alexander Onysko and Sascha Michel, 29–73. De Gruyter Mouton.
- Langacker, Ronald W. 1987. *Foundations of Cognitive Grammar, Vol I: Theoretical Prerequisites*. Stanford University Press.
- Lawer, Richard Ayertey, and Clement Kwamina Insaïdoo Appah. 2020. "Noun-Noun Compounds in Dangme." *SKASE Journal for Theoretical Linguistics* 17 (2): 2–22.
- Lees, Robert B. 1960. *The Grammar of English Nominalizations*. Indiana University.
- Levi, Judith N. 1978. *The Syntax and Semantics of Complex Nominals*. Academic Press.
- Li, Charles N. 1971. "Semantics and the Structure of Compounds in Chinese." PhD diss., University of California.
- Libben, Gary. 2006. "Why Study Compound Processing? A Overview of The Issues." In *The Representation and Processing of Compound Words*, edited by Gary Libben and Gonia Jarema, 1–22. Oxford University Press.
- Libben, Gary, Martha Gibson, Yeo Bom Yoon, and Dominiek Sandra. 2003. "Compound Fracture: The Role of Semantic Transparency and Morphological Headedness." *Brain and Language* 84 (1): 50–64.
- Lieber, Rochelle. 1980. "The Organization of the Lexicon." PhD diss., Massachusetts Institute of Technology.
- Lieber, Rochelle. 1992. "Compounding in English." *Rivista di linguistica* 4 (1): 79–96.
- Lieber, Rochelle. 2004. *Morphology and Lexical Semantics*. Cambridge University Press.
- Lieber, Rochelle. 2009a. "IE, Germanic: English." In *The Oxford Handbook of Compounding*, edited by Pavol Štekauer and Rochelle Lieber, 357–369. Oxford University Press.
- Lieber, Rochelle. 2009b. "A Lexical Semantic Approach to Compounding." In *The Oxford Handbook of Compounding*, edited by Rochelle Lieber and Pavol Štekauer, 78–105. Oxford University Press.
- Lieber, Rochelle, and Sergio Scalise. 2006. "The Lexical Integrity Hypothesis in a New Theoretical Universe." *Lingue e linguaggio* 1: 7–32.
- Lieber, Rochelle, and Pavol Štekauer. 2009. "Introduction: Status and Definition of Compounding." In *The Oxford Handbook of Compounding*, edited by Rochelle Lieber and Pavol Štekauer, 3–18. Oxford University Press.
- Marchand, Hans. 1955. "Notes on Nominal Compounds in Present-Day English." *Word* 11 (2): 216–227.
- Marchand, Hans. 1967. "On the Description of Compounds." *Word* 23 (1–3): 379–387.
- Marchand, Hans. 1969. *The Categories and Types of Present-Day English Word-Formation: A Synchronic-Diachronic Approach*. 2nd ed. C. H. Beck Verlagsbuchhandlung.
- Marfo, Charles Ofosu. 2004. "On Tone and Segmental Processes in Akan Phrasal Words: A Prosodic Account." *Linguistik Online* 18: 93–110.

- Marfo, Charles Ofori. 2005. "Aspects of Akan Grammar and the Phonology-Syntax Interface." PhD diss., University of Hong Kong.
- Michaelis, Laura A., and Knud Lambrecht. 1996. "Toward a Construction-Based Theory of Language Function: The Case of Nominal Extraposition." *Language* 72 (2): 215–247.
- Montermini, Fabio. 2010. "Units in Compounding." In *Cross-Disciplinary Issues in Compounding*, edited by Sergio Scalise and Irene Vogel, 77–92. John Benjamins.
- Ofori, Seth Antwi. 2008. "Numeral Compounding in Akan (Twi): A Multi-tiered Account." *Journal of West African Languages* XXXV (1–2): 79–99.
- Osam, E. Kweku. 1999. "Adjectives in Akan." *Afrika und Übersee* 82 (2): 189–211.
- Packard, Jerome L. 2000. *The Morphology of Chinese*. Cambridge University Press.
- Pepper, Steve. 2010. "Nominal Compounding in Nizaa – a Cognitive Perspective." MA diss., SOAS, University of London.
- Pepper, Steve, and Pierre J. L. Arnaud. 2020. "Absolutely PHAB: Towards a General Model of Associative Relations." *The Mental Lexicon* 15 (1): 101–122.
- Pishro-Nik, Hossein. 2014. *Introduction to Probability, Statistics, and Random Processes*. Kappa Research LLC.
- Plag, I., G. Kunter, and S. Lappe. 2007. "Testing Hypotheses about Compound Stress Assignment in English: A Corpus-Based Investigation." *Corpus Linguistics and Linguistic Theory* 3 (2): 199–232.
- Plag, Ingo. 2003. *Word-Formation in English*. Cambridge University Press.
- Plag, Ingo. 2006. "The Variability of Compound Stress in English: Structural, Semantic, and Analogical Factors." *English Language and Linguistics* 10 (1): 143–172.
- Plag, Ingo, Gero Kunter, Sabine Lappe, and Maria Braun. 2008. "The Role of Semantics, Argument Structure, and Lexicalization in Compound Stress Assignment in English." *Language* 84 (4): 760–794.
- Rainer, Franz, and Salvador Varela. 1992. "Compounding in Spanish." *Rivista di linguistica* 4: 117–142.
- Ralli, Angela. 2013. *Compounding in Modern Greek*. Springer.
- Rosenberg, Maria, and Ingmarie Mellenius. 2018. "Children's Novel NN Compounding in Swedish Diary Data: Function and Form." *Morphology* 28 (3): 229–252.
- Scalise, Sergio. 1984. *Generative Morphology*. Foris Publications.
- Scalise, Sergio. 1988. "The Notion of 'Head' in Morphology." *Yearbook of Morphology* 1: 229–246.
- Scalise, Sergio. 1992. "Compounding in Italian." *Rivista di linguistica* 4 (1): 175–199.
- Scalise, Sergio, and Antonietta Bisetto. 2009. "The Classification of Compounds." In *Oxford Handbook of Compounding*, edited by Rochelle Lieber and Pavol Štekauer, 34–53. Oxford University Press.

- Scalise, Sergio, and Antonio Fábregas. 2010. "The Head in Compounding." In *Cross-Disciplinary Issues in Compounding*, edited by Sergio Scalise and Irene Vogel, 109–125. John Benjamins.
- Scalise, Sergio, and Emiliano Raúl Guevara. 2006. "Exocentric Compounding in a Typological Framework." *Lingue e linguaggio* 2: 185–206.
- Scalise, Sergio, and Irene Vogel. 2010. "Why Compounding?" In *Cross-Disciplinary Issues in Compounding*, edited by Sergio Scalise and Irene Vogel, 1–18. John Benjamins.
- Schapansky, Nathalie. 2023. "French V-N Compounds: Plural Marking, Headedness Endocentricity/Exocentricity Continuum." *Lingua* 288: 103521.
- Selkirk, Elisabeth O. 1982. *The Syntax of Words*. MIT Press.
- Spencer, Andrew. 1991. *Morphological Theory: An Introduction to Word Structure in Generative Grammar*. Wiley-Blackwell.
- Spencer, Andrew. 2011. "What's in a Compound?" *Journal of Linguistics* 47 (2): 481–507.
- Štekauer, Pavol. 2000. "Beheading the Word? Please, Stop the Execution." *Folia Linguistica* 34 (3–4): 333–356.
- von Mengden, Ferdinand. 2010. *Cardinal Numerals: Old English from a Cross-Linguistic Perspective*. Mouton De Gruyter.
- Wälchli, Bernhard. 2005. *Co-Compounds and Natural Coordination*. Oxford University Press.
- Williams, Edwin S. 1981. "On the Notions 'Lexically Related' and 'Head of a Word'." *Linguistic Inquiry* 12 (2): 245–274.
- Zwicky, Arnold M. 1985. "Heads." *Journal of Linguistics* 21 (1): 1–29.

Akan Noun-Noun Compounds: A Construction Morphology Account

Clement Kwamina Insaiddoo Appah, Levina Nyameye Abunya & Obed Nii Broohm

Appendix: Full list of right-headed N-N compounds

The abbreviations used in the dataset are: AFF = affixation; AFV = Asante final vowel (a high-tone mid-vowel nominal suffix which occurs on nouns in the Asante dialect of Akan only when the noun terminates in a high vowel; its actual segmental realization, [e, ε, ɔ, o], depends on the phonetic properties of the final vowel in the base); COMP = compounding; DIM = diminutive; HD-INV = head-dependent inversion; LEX = lexicalization of a clause; NMLZ = nominalizer; PL = plural; SG = singular; SE = stem extender; RS = rank shifting (of a clause).

	Base 1	Gloss	Base 2	Gloss	Compound	Interpretation
1	<i>a-hu</i>	NMLZ-fear	<i>epoo</i>	intimidation	<i>a-hu-poo</i>	oppression
2	<i>a-kō</i>	PL-fight	<i>ade</i>	thing	<i>akō-de</i>	arms/war equipment
3	<i>a-kwan-si</i>	blockade	<i>adee</i>	thing	<i>akwan-si-dee</i>	hindrance/impediment/roadblock
4	<i>a-man</i>	PL-nation	<i>kuo</i>	group (As.)	<i>amanyɔ-kuo</i>	political party/organization
5	<i>a-sikafo</i>	PL-rich people	<i>m-ma</i>	PL-child	<i>a-sikafo m-ma</i>	children of rich people
6	<i>abasobo</i>	promotion	<i>ade</i>	thing	<i>abasobo-de</i>	an award
7	<i>aborɔfo</i>	Whiteman/caucasian	<i>ben</i>	dye	<i>a-borɔfo-ben</i>	white man's dye
8	<i>abote</i>	exasperation	<i>asem</i>	matter	<i>abote-sem</i>	exasperating matter
9	<i>abodee-mu</i>	creation-in	<i>nyansa-pe</i>	search for wisdom	<i>abodeemu-nyansape</i>	science/the search for the wisdom in creation
10	<i>abusua</i>	family	<i>asem</i>	matter	<i>abusua-sem</i>	family matters
11	<i>abusuabɔ nnyinasoɔ</i>	family foundation	<i>mfitiasee</i>	beginning	<i>abusuabɔ nnyinasoɔ mfitiasee</i>	fundamental unit/foundation of society
12	<i>adanse</i>	testimony/evidence	<i>asem</i>	word/matter	<i>adanse-sem</i>	testimony/evidence
13	<i>ade-mu</i>	<i>a safe/treasury</i>	<i>ade</i>	<i>thing/item</i>	<i>ade-mu-de</i>	treasure/well-kept possession
14	<i>adesua</i>	learning/education	<i>ahyese</i>	beginning	<i>adesua ahyese</i>	beginning of education/primary school
15	<i>adifiu</i>	act of eating a lot (usually free)	<i>ade</i>	thing	<i>a-di-fiu-de</i>	cheap_unpaid_for-thing
16	<i>adom</i>	grace	<i>akyede</i>	gift	<i>ɔ-dom-akyede</i>	gift of grace'
17	<i>adom</i>	grace	<i>nsu</i>	water/rain	<i>adom-nsu</i>	grace water/rain (type of rainfall)
18	<i>adɔw</i>	act of weeding	<i>ber</i>	<i>time</i>	<i>a-dɔw-ber</i>	farming season
19	<i>adwumayefoɔ</i>	workers	<i>kuo</i>		<i>adwumayefoɔ kuo</i>	trade union/workers' group
20	<i>afarfo</i>	fishermen	<i>mbaa/ mbasiafo</i>	women	<i>afarfo mbaa¹¹ (mbasiafo/far mbaa)</i>	lady fishers/fisherwomen
21	<i>afe</i>	equals/contemporaries	<i>kuo</i>	organization/group	<i>afe-kuo</i>	organization/group of equals/fellowship
22	<i>agoru</i>	play	<i>ahyiae</i>	meeting place	<i>agoru ahyiae</i>	theatre/sport stadium

¹¹ Inflected nominal bases occur as compound members.

Akan Noun-Noun Compounds: A Construction Morphology Account
Clement Kwamina Insaidoo Appah, Levina Nyameye Abunya & Obed Nii Broohm

	Base 1	Gloss	Base 2	Gloss	Compound	Interpretation
23	<i>ahanamanta</i>	harmattan	<i>aber</i>	time	<i>ahanamanta-ber</i>	harmattan season
24	<i>ahohia</i>	distress	<i>frɛ</i>	call	<i>ahohia frɛ</i>	distress call/S.O.
25	<i>ahuhu</i>	vanity	<i>ɔbra</i>	life	<i>a-huhu bra</i>	life of vanity
26	<i>ahuhufo</i>	vain people	<i>ɔbra</i>	life	<i>ahuhufo bra</i>	life of the vain (vain people)
27	<i>akɔmase</i>	location of a ritual dance	<i>nwomtofo</i>	singer	<i>akɔmase nwomtofo</i>	a singer who performs for ritual dances
28	<i>amammuo</i>	governance	<i>nnyinasoɔ</i>	foundation	<i>amammuo nnyinasoɔ</i>	foundation of governance
29	<i>aman~aman</i>	RED~nation	<i>nkabom kuo</i>	unity organization	<i>aman~a-man nkabom kuo</i>	UNO (organization for the unity of nations)
30	<i>amumɔyɛ</i>	evil	<i>ade</i>	thing/deed	<i>amumɔyɛ-de</i>	iniquity/evil deed
31	<i>anafua</i>	evening	<i>aber</i>	time	<i>anafua-ber</i>	eventide
32	<i>anana</i>	foreign/other	<i>bea</i>	place	<i>anana-bea</i>	strange place/foreign land
33	<i>ani</i>	eye	<i>nsu-o</i>	water-AFV	<i>ni-suo</i>	tears
34	<i>anibere</i>	seriousness	<i>aɛm</i>	matter	<i>anibere-ɛm</i>	serious matter
35	<i>animguase</i>	shame	<i>ade</i>	thing	<i>animguase-de</i>	disgraceful thing/act
36	<i>anodi</i>	contract	<i>aɛm</i>	matter	<i>anodi-ɛm</i>	declaration (contents of an agreement)
37	<i>Apaa</i>		<i>m-boá</i>	PL-net	<i>apaa m-boá</i>	fishing net (Apam)
38	<i>apofɔ</i>	fishermen	<i>ɔhen</i>	chief	<i>apofɔ-hen</i>	chief fisherman
39	<i>apokɔ</i>	sea-going	<i>aber</i>	time	<i>apokɔ ber</i>	sea-going time
40	<i>asaase</i>	earth	<i>mfoɔni</i>	photo	<i>asaase-mfoɔni</i>	map (photo of the earth)
41	<i>asetena-mu</i>	life-in	<i>ahiadɛɛ</i>	need	<i>asetenam ahiadɛɛ</i>	necessities of life
42	<i>aso-mu</i>	ear-in	<i>ade</i>	thing	<i>asom-ade</i>	earring
43	<i>asomdwoɛɛ</i>	peace	<i>kuo</i>	organization	<i>asomdwoɛɛ kuo</i>	The UN Peace Council
44	<i>àyàrèsá</i>	disease curing/healing	<i>bɛ́á</i>	place	<i>àyàrèsá-bɛ́á</i>	infirmary/hospital
45	<i>ayefɔr</i>	wedding	<i>nda-awɔtwe</i>	day-eight/week	<i>ayefɔr nda-awɔtwe</i>	eighth day after wedding
46	<i>baguafo</i>	counsellors	<i>atrae</i>	seat	<i>baguafo atrae</i>	seat of councillors/ council
47	<i>baka</i>		<i>enufo</i>	stirrers	<i>baka enufo</i>	those who fish in lagoons
48	<i>baka</i>	lagoon	<i>Nam</i>	fish	<i>baka-nam</i>	fish caught in a lagoon
49	<i>baka</i>	lagoon	<i>nsu</i>	water	<i>baka-nsu</i>	lagoon water
50	<i>borɔfo</i>	Caucasian/European	<i>ahoma</i>	thread /string	<i>borɔfo-homa</i>	name of a type of string
51	<i>borɔfo</i>	Caucasian/European	<i>kaadow</i>	whitewash	<i>borɔfo-kaadow</i>	foreign paint
52	<i>bosom</i>	fetish	<i>aɛm</i>	matter	<i>a-bosom-ɛm</i>	fetish matter
53	<i>bɔn</i>	sin	<i>fakye</i>	forgiveness	<i>bɔn-fakye</i>	forgiveness (of sin)

Akan Noun-Noun Compounds: A Construction Morphology Account
Clement Kwamina Insaidoo Appah, Levina Nyameye Abunya & Obed Nii Broohm

	Base 1	Gloss	Base 2	Gloss	Compound	Interpretation
54	<i>daadze</i>	ground	<i>mframa</i>	wind	<i>daadze mframa</i>	ground wind
55	<i>dɔm</i>	crowd	<i>piafo</i>	pusher	<i>ɔdɔm-piafo</i>	commander of an army
56	<i>dura</i>	covering	<i>ade</i>	thing	<i>a-dura-de-ε</i>	clothing/covering
57	<i>dwan-kɔ</i>	a rung-go	<i>bea</i>	place	<i>dwan-kɔ-bea</i>	refuge
58	<i>e-suma</i>	NMLZ-hide	<i>aɛm</i>	matter	<i>e-suma-ɛm</i>	secret/mystery
59	<i>eburo</i>	maize	<i>ntsew</i>	chaff/husk	<i>eburo-ntsew</i>	maize husk/chaff
60	<i>edzidzi</i>	act of eating	<i>kaw</i>	debt/cost	<i>edzidzi kaw</i>	the cost of feeding
61	<i>ekyir</i>	back	<i>m-ba</i>	PL-child	<i>nkyir-mba</i>	posterity
62	<i>esusow</i>	rain	<i>ber</i>	time/season	<i>esusow-ber</i>	rainy season
63	<i>ɛ̀yíádzé</i>	funeral-under(location)	<i>èkáv</i>	debt	<i>ɛ̀yí-ádzé !káv</i>	funeral bill
64	<i>εpo</i>	sea	<i>mpeme</i>	pushing	<i>po mpemee</i>	sea surge/push/movement
65	<i>εpo</i>	sea	<i>nkam</i>	shouting	<i>po nkam</i>	the shouting of the see
66	<i>εpo</i>	sea	<i>nkɔree</i>	going	<i>po nkɔree</i>	(going) fishing
67	<i>famu</i>	ground	<i>mbae</i>	come	<i>famu mbae</i>	coming to the shore/descent
68	<i>far</i>	fishing	<i>kuro</i>	town	<i>ɔ-far kuro</i>	fishing town/community
69	<i>fie</i>	home	<i>m-bowa</i>	PL-animal	<i>fie-m-bowa</i>	domestic(ated) animals
70	<i>fie</i>	home	<i>aɛm</i>	matter	<i>a-fi-ɛm</i>	domestic matter
71	<i>ha mu</i>	forest_in	<i>abowa</i>	animal	<i>ha-m-bowa</i>	wild animals
72	<i>ho</i>	self/exterior	<i>nam</i>	meat/flesh	<i>ho-nam</i>	the skin
73	<i>hyiaε</i>	meeting	<i>bea</i>	place	<i>hyia-bea</i>	meeting place
74	<i>hyiaε</i>	meeting	<i>bea</i>	place	<i>hyia-dan</i>	meeting room
75	<i>ke~ka</i>	RED~bite	<i>aboa</i>	animal	<i>ake~ka-boia</i>	?wild/biting animal
76	<i>kɔkoam</i>	in_secret'	<i>aɛm</i>	matter	<i>kɔkoam-ɛm</i>	a secret/private matter
77	<i>kua</i>	farming	<i>edwuma</i>	work	<i>e-kua-dwuma</i>	farm work/farming
78	<i>kua</i>	farming	<i>adze</i>	thing	<i>e-kua-dze</i>	farm produce
79	<i>kur</i>	sore	<i>kaw</i>	debt	<i>kur kaw</i>	medical bill/cost of healthcare
80	<i>m-brɔ</i>	NMLZ-intoxicate	<i>nsa</i>	drink/wine	<i>mbrɔ-nsa</i>	intoxicating drink/liquor
81	<i>m-firi-</i>	PL-machine	<i>adwuma</i>	work	<i>m-firi-dwuma</i>	Industries
82	<i>mansini</i>	district	<i>soafo</i>	minister/commissioner	<i>mansin-soafo</i>	district chief executive/commissioner
83	<i>mbarahye</i>	law-making/legislation	<i>bagua</i>	council	<i>mbarahye-bagua</i>	Parliament/Legislature (law-passing council)
84	<i>mbusu</i>	mischievous/devilish	<i>ade</i>	thing	<i>a-busu-de</i>	mischievous/devilish thing
85	<i>mbusu</i>	mischievous/devilish	<i>aɛm</i>	matter	<i>a-busu-ɛm</i>	devilish issues

Akan Noun-Noun Compounds: A Construction Morphology Account
Clement Kwamina Insaidoo Appah, Levina Nyameye Abunya & Obed Nii Broohm

	Base 1	Gloss	Base 2	Gloss	Compound	Interpretation
86	<i>mmɔfraberɛm</i>	childhood	<i>nwomasua</i>	education	<i>mmɔfraberɛm nwomasua</i>	childhood education
87	<i>mogya</i>	blood	<i>adanse</i>	witness	<i>mogya-danse</i>	martyrdom (blood witness)
88	<i>mogya</i>	blood	<i>adanse-fo</i>	witness- NMLZ _[PERSON]	<i>mogya-danse-fo</i>	martyr (blood witness _[PERSON])
89	<i>mpatowa</i>	tilapia	<i>ɛboa</i>	net	<i>mpatowa-boa</i>	tilapia net (fishing net for catching tilapia)
90	<i>mpena</i>	boy/girl friend	<i>ɔ-ba</i>	SG-child	<i>mpena ba</i>	child born out of wedlock
91	<i>n-koa</i>	PL-slave	<i>ɔ-som</i>	NMLZ-serve	<i>nkoa-som</i>	servitude/slavery
92	<i>n-kwasea</i>	PL-fool	<i>asɛm</i>	matter	<i>n-kwasea-sɛm</i>	nonsense/foolish matter
93	<i>n-nipa</i>	PL-person	<i>kuo</i>	group'	<i>nnipa-kuo</i>	people group
94	<i>nam</i>	fish	<i>kɔm</i>	hunger	<i>nan-kɔm</i>	fish famine (scarcity of fish)
95	<i>nan-kɔm</i>	fish famine	<i>aber</i>	time/period	<i>nankɔm-ber</i>	fishing off-season (fish hunger/famine period)
96	<i>nipa</i>	human	<i>su-o</i>	nature-AFV	<i>nipa-suo</i>	human nature/racial background
97	<i>nkabom</i>	unity	<i>kuo</i>	organization	<i>nkabom kuo</i>	unity organization/union
98	<i>nkoa asafo</i>	servant/slave army/warriors	<i>ɔman</i>	nation	<i>kwa-safo-man</i>	slave-army nation, communal nation/society
99	<i>nkwan</i>	soup/broth	<i>san</i>	pot	<i>nkwan-san</i>	saucepan/cooking pot
100	<i>nkwansan-mu</i>	cooking pot-in	<i>nam</i>	fish	<i>nkwansan-mu-nam</i>	fish for the family table
101	<i>nsa</i>	drink	<i>nam</i>	fish	<i>nsa-nam</i>	fish that is sold to get money for drinks
102	<i>nsa</i>	finger	<i>no</i>	mouth	<i>nsa-no</i>	fingertip
103	<i>nsaano</i>	fingertip	<i>adwuma</i>	work/job	<i>nsa-no-dwuma</i>	technical/artisanal job
104	<i>nsen-kyere</i>	sign	<i>ade/adze</i>	thing	<i>nsenkyere-nne (nsenkyere-dze)</i>	sign/an example
105	<i>nsu</i>	water	<i>ase</i>	bottom	<i>nsuadze</i>	seabed
106	<i>nsuadze</i>	seabed	<i>nam</i>	fish	<i>nsuadze nam</i>	deepwater fish (fishes from the seabed)
107	<i>nsuenyi</i>	water surface	<i>nam</i>	fish	<i>nsuenyi nam</i>	shallow water fish (lit. water surface fish)
108	<i>nwonwa</i>	wonder	<i>ade</i>	thing	<i>anwonwa-de</i>	miracle/wonders
109	<i>nwonwa</i>	wonder	<i>asɛm</i>	matter	<i>anwonwa-sɛm</i>	wonders/strange issue/wonderful thing
110	<i>nworaba</i>	star	<i>pon</i>	table	<i>nworaba pon</i>	table of stars
111	<i>a-nyame</i>	PL-God	<i>asɛm</i>	thing	<i>anyame-sɛm</i>	gospel/sermon
112	<i>nyamesom mu</i>	religion	<i>gyidie</i>	belief/faith	<i>nyamesom mu gyidie</i>	religious belief/faith
113	<i>nyansa</i>	wisdom	<i>adwumfo</i>	craftsman	<i>nyansa adwumfo</i>	philosopher (lit. wisdom craftsman)
114	<i>nyansa</i>	wisdom	<i>kwan</i>	way	<i>nyansa-kwan</i>	cunning way
115	<i>ohia</i>	need	<i>adeɛ/adze</i>	thing	<i>ahia-deɛ (e-hia-dze)</i>	need/necessity

Akan Noun-Noun Compounds: A Construction Morphology Account
Clement Kwamina Insaiddoo Appah, Levina Nyameye Abunya & Obed Nii Broohm

	Base 1	Gloss	Base 2	Gloss	Compound	Interpretation
116	<i>ohia</i>	need	<i>asem</i>	matter	<i>ahia-sem</i>	important matter/issue
117	<i>owú</i>	death	<i>bɔ́!fɔ́</i>	angel	<i>owú-bɔ́!fɔ́</i>	angel of death
118	<i>ɔ-ba</i>	child	<i>deseefo</i>	destroyer	<i>ɔ-ba-deseefo</i>	prodigal child
119	<i>ɔ-baa</i>	SG-woman	<i>ɔ-tan</i>	SG-parent	<i>ɔ-baa-tan</i>	mother/parent
120	<i>ɔ-man</i>	SG-nation	<i>kuw</i>	group (Fa.)	<i>ɔman-kuw</i>	ethnic group
121	<i>ɔ-man</i>	SG-nation	<i>asendini</i>	prosecutor	<i>ɔman-sendini</i>	state attorney
122	<i>ɔ-man</i>	SG-nation	<i>sen-kyerew-ni</i>	secretary [issue-write-NMLZ _[person.SG]]	<i>ɔman-senkyerewni</i>	secretary of state (lit. state writer)
123	<i>ɔ-man</i>	SG-nation	<i>soafo</i>	minister/commissioner	<i>ɔman-soafo</i>	minister of state
124	<i>ɔ-safo</i>	SG-army	<i>ɔ-hene</i>	SG-chief	<i>ɔ-safo-hene</i>	warlord/leader of an army
125	<i>ɔdodoɔ</i>	many	<i>amammuo</i>	governance	<i>ɔdodoɔ amammuo</i>	democracy
126	<i>ɔhen(e)</i>	chief	<i>akowaa</i>	servant	<i>ahen-kwaa</i>	royal servant
127	<i>ɔsa</i>	war/battle	<i>barima</i>	man	<i>ɔsa-barima</i>	warrior
128	<i>ɔsa</i>	war/battle	<i>ɔ-gyefo</i>	saviour	<i>ɔsa-gyefo</i>	redeemer/conquering warrior
129	<i>ɔsa</i>	war/battle	<i>ɔhen</i>	chief	<i>ɔsa-hen</i>	commander
130	<i>ɔsahen</i>	commander	<i>okunini</i>	champion	<i>ɔsahen-kunini</i>	archduke, marshal, field marshal
131	<i>ɔsɔfo</i>	pastor	<i>ɔboafo</i>	helper	<i>ɔsɔfo-borafo</i>	helper of a minister of the gospel
132	<i>po</i>	sea	<i>sor</i>	up/top	<i>posor</i>	high seas
133	<i>posor</i>	high seas	<i>n-kɔree</i>	going	<i>posor-nkɔree</i>	going to high seas
134	<i>sema</i>	Shema	<i>hen</i>	vehicle	<i>sema-hen</i>	vehicle (canoe) made in Shema
135	<i>sika</i>	money	<i>asem</i>	matter	<i>sika-sem</i>	economics
136	<i>sikakora</i>	money_keeping	<i>bea</i>	place	<i>sikakora-bea</i>	bank, vault
137	<i>sikakorafo</i>	treasurer	<i>atrae</i>	seat/location	<i>sikakorafo atrae</i>	treasury/office of a banker
138	<i>sire</i>	type of fish	<i>ahoma</i>	thread	<i>sire-ahoma</i>	strings for catching the fish <i>sire</i>
139	<i>soro</i>	up (heaven)	<i>bɔfo</i>	messenger	<i>ɔsoro-bɔfo</i>	angel
140	<i>twuwii</i>	fishing_by_dragnet	<i>nam</i>	fish	<i>twuwii nam</i>	fish caught by dragnet
141	<i>yɛ̀fù̀n</i>	belly	<i>kòtòkú</i>	sack	<i>yɛ̀fù̀n-kòtòkú</i>	stomach (belly sack)