

VERB-INTERNAL COMPOUND FORMATION IN AKAN

Jonathan C. Anderson

Indiana University, Bloomington, USA

andersjc@indiana.edu

In this paper, I synthesize and analyze the structure, formation, and status of compounds that contain at least one verb stem (i.e. $[V-V]_V$, $[V-N]_V$, $[N-V]_V$, $[V-V]_N$, $[N-V]_N$ and $[V-N]_N$) in Akan. I use phonological and morphological aspects of word formation from root compounds to show whether these VV, VN, and NV sequences can be considered compounds, and what types of compounds they are, such as, synthetic compounds, noun incorporation, or other root compounds. The results show that $[N-V]_N$ compounds are best analyzed as synthetic compounds, and that processes, such as noun incorporation, which would allow for $[N-V]_V$ and/or $[V-N]_V$ structures, do not exist in Akan. Finally, $[V-V]_N$ compounds are possible and can be categorized as exocentric compounds. A short typological discussion of synthetic compounding and noun incorporation is used to situate Akan in relation to other West African languages.

Dans cet article, il est question de synthétiser et d'analyser la structure, la formation et le statut des mots composés qui contiennent au moins une base verbale, (c.-à-d. $[V-V]_V$, $[V-N]_V$, $[N-V]_V$, $[V-V]_N$, $[N-V]_N$ et $[V-N]_N$) en akan. L'analyse s'appuie sur l'utilisation des aspects phonologiques et morphologiques de la formation du nom à partir des racines composées afin de montrer si ces racines aux séquences VV, VN et NV peuvent être considérées comme des composés, et quel genre de composés elles sont. En d'autres termes, sont-ce des composés synthétiques, un genre de nom incorporé ou un autre genre de racine composée ? Les résultats montrent que les composés $[N-V]_N$ s'intègrent mieux dans une analyse où on les considère comme des composés synthétiques et que les processus tels que l'incorporation de nom, qui donnerait lieu aux structures $[N-V]_V$ et/ou $[V-N]_V$ n'existe pas en akan. Quant aux composés $[V-V]_N$, nous envisageons la possibilité de leur existence, auquel cas, elles peuvent être catégorisées comme des composés exocentriques. Une brève discussion typologique de composition synthétique et de l'incorporation du nom est utilisée pour situer la langue akan vis-à-vis d'autres langues africaines.

0. INTRODUCTION

Verb-internal compounds (VN, NV, and VV sequences) comprise a special class of compounds that can structure and function grammatically different from root compounds since they typically reflect syntactic structure and abide by language specific phonological rules. Two processes, synthetic compounding and noun incorporation (NI), tend to be the method in which verb-internal compounds are created. NI compounds are verbs that result from the conjunction of a noun and verb, and synthetic compounds are a type of nominal counterpart to NI compounds. Synthetic compounds can be considered a form of verb incorporation (VI)¹ in which derivational affixes appear.

Several West African languages exhibit verb-internal compounds, but the presence of synthetic compounding and NI varies. For example, in Yoruba (Madugu 1995; Ogunkeye 2004) and Gwari (Hyman and Magaji 1970), both NI and synthetic compounding have been observed. However, in Kɔnni (Cahill 2007), Ewe (Essegbey 2002), and Nzema (Anderson and Obeng forthcoming) synthetic compounding occurs to the exclu-

* Thank you to Samuel Gyasi Obeng, Richard Janda, Clement Appah, an anonymous referee, and the attendees of the 42nd Annual Conference on African Linguistics, University of Maryland, for their discussion and comments on the paper. Any further errors are indeed my own. Phonetic transcription is used throughout the paper for Akan data. A list of abbreviations appears at the end of the paper.

¹ Verb Incorporation, strictly speaking, is the nominal counterpart to NI (Madugu 1995; Ogunkeye 2004). It is distinct from synthetic compounding in that these compounds do not contain derivational affixes.

sion of NI. The following paper analyzes compounds that contain at least one verbal element in Akan to understand the processes that form them, specifically, whether some verb-internal compounds are synthetic compounds and if verbs can be formed by compounding via NI.

One type of structure in particular, known as inherent complement verbs, are a potential candidate for the use of NI in Akan as they have been analyzed as such in Yoruba (Ogunkeye 2004:17). Yet, others have found them to be simple phrases, as in Ewe (Esegbey 2002). Inherent complement verbs have been mentioned in the literature for Akan (Adu-Amankwah 2003: 15; Dolphyne 1996:103), but an incorporation analysis has yet to be done.

1. COMPOUND FORMATION IN AKAN

In Akan, compounds are formed with the following combinations: [N-N]_N, [Adj-N]_N, [N-Adj]_N, [V-N]_N, [N-V]_N, and [V-V]_N, all of which are nominal (Anyidoho 1990; Dolphyne 1988; Christaller 1875; Marfo 2004, 2005, 2009).² Examples of each are shown in (1). Dolphyne (1988) describes several phonological characteristics of compounds including: homorganic nasal assimilation (1e,j), affix deletion (1c,d), vowel harmony (1h,j,k), tonal changes (1a,f,g,k), and nasalization of voiced stops (1j). Dolphyne further explicates that these phonological changes show that verb-internal compounds are distinct from phrases.

Dolphyne (1988) also describes some verb-internal compounds³ showing how they can be constructed with a syntactic word order VO (1g,h), but that some verb-internal compounds are constructed with a “reversal” of verb and object creating OV (1i,j).

(1) Examples of Compound Formation in Akan

- | | |
|-------------------------|---|
| a. [N-N] _N | àní + òsúó → òsúó
eye water tears |
| b. [N-N] _N | òdzúán + níni → dzùèníni
sheep male ram |
| c. [Adj-N] _N | fèfè + àdíé → àfèfédí
beautiful thing vain things |
| d. [Adj-N] _N | tàntán + àsém → àtántánsém
ugly matter despicable thing |
| e. [N-Adj] _N | àsém + húnú → àsènhúnú
talk empty nonsense |
| f. [N-Adj] _N | ètíré + bòní → tìbòní
head bad bad luck |
| g. [V-N] _N | dí + bíá → dibìá
take place rank |

² Reduplication and serial verb constructions have been considered as a type of compound formation (Dolphyne 1988); however, these forms will not be discussed.

³ Dolphyne refers to Verb + Noun compounds as Verb plus Object compounds.

- h. [V-N]_N **bó + díń → àbódíń**
 call name title
- i. [N-V]_N **òsé + bó → òsé'bó**
 outcry make jubilation
- j. [N-V]_N **àsém + bìsá → àsèmmìsá**
 matter ask question
- k. [V-V]_N **dzì + dí → dzídí**
 receive eat faith
- l. [V-V]_N **só + ɛɥé → nsóɛɥé**
 try see tribulations

Vowel harmony is triggered by a [+ATR] vowel and spreads regressively to the preceding syllable in compounds, although, in non-compounds all vowels within a word must harmonize. Homorganic nasal assimilation occurs at a morpheme boundary when a nasal stop precedes an oral stop and voiced stops can nasalize when they appear after a nasal stop that has assimilated to the voiced stop. For tone changes, [N-N]_N, [Adj-N]_N, and [N-Adj]_N compounds can have one of two different tonal patterns. The first stem is either L or it is not, while the lexical tones of the second stem remain unchanged (*ibid.*)⁴ In the first case, the initial stem will become all L. Marfo (2004, 2005, 2009) refers to this tonal process as H-Deletion, and argues that each stem forms a separate phonological word, which are then combined into a phonological phrase. Interestingly, the data reflect a common phenomenon of compounding in West African languages, such as Bambara and Susu, among others, known as tonal compactness, whereby the tones of the first stem in a compound neutralize; in Akan, the H of the first stem becomes L (see Green 2011 and references therein for tonal compactness). The second pattern, however, shows that the first stem of an Akan compound can have at least one H tone. Marfo (2004, 2005, 2009) suggests, for these compounds, H-Deletion, or tonal compactness, is blocked because the first stem of these compounds forms a phonological phrase, rather than a phonological word, because they are tonally emphasized (prominent).

Some tonal processes of verb-internal compounds have been analyzed in previous work. Dolphyne (1988) offers several examples for observation and shows that the tonal melodies are largely similar to those in root compounds. There are some apparent differences in the tonal makeup of verb-internal compounds.⁵ Notice the word in (1k) unexpectedly shows a L tone become H on the first stem of the compound. Several forms also contain downstep between the two stems (1i). Anyidoho (1990) attempts to analyze the downstepping patterns found among some verb-internal compounds by suggesting that the nominalizing marker⁶, which is a L-toned vowel or nasal stop, prefixes to the second stem of the compound and that the marker deletes, leaving the L tone to float and create a down-

⁴ With the exception of some adjectives appearing as the second stem with an initial L, which have been analyzed as gaining a H through insertion by Marfo (2004).

⁵ Tone in verb-internal compounds are not the topic of this paper, and a treatment of such deserves a whole paper on its own. Further research into the tonal processes of compounds in Akan, however, should provide an analysis that explains all the phenomena seen in compounding.

⁶ Nominal affixes in Akan are vestiges of a productive noun class system that is found in the Niger-Congo languages to varying extents (Osam 1993).

step. The deletion itself is opaque and is only apparent due to the downstep created by a floating L tone as shown in (2).

(2) Downstepping in Compound Nouns (adapted from Anyidoho 1990:6)⁷

- a. **nwómí** + **tó** → **nwón'tó**
 song sing singing
- b. **ntámí** + **ká** → **ntám'ká**
 oath say oath-taking

Since all compounds seem to be nominal and right headed,⁸ nominal compounds derived from two verbs ([V-V]_N) pose a derivational problem. As argued in Anyidoho (1990), if the second stem of a compound is not a noun, it should nominalize so that the head is always a noun; however, these compounds do not exhibit the downstepping pattern described above. As seen in the data in (3), no downstepping occurs where predicted. Furthermore, the tonal patterns contradict the analysis of tone rules for [N-N]_N, [Adj-N]_N, and [N-Adj]_N compounds as shown by (3d), where a L on an initial stem becomes H. Nonetheless, it is clear they are indeed compounded forms evidenced by the vowel harmony in (3b, d). These compounds, however, have one thing in common making them distinct from other compounds: they are all exocentric, meaning they lack a head. Thus, the head of the compound cannot be determined based on the meaning of the whole compound, and in fact, there is no overt sign of a deverbal head.

(3) [V-V]_N Compounds in Akan (from Obeng, 2009)

- a. **pìrè** + **ɛyé** → **∅-pìrè-ɛyé**
 touch look Nom-touch-look
 to touch to look gossiping
- b. **kú** + **gú** → **ŋ-kú-gú**
 fight fall Nom-fight-fall
 to fight to fall defeat
- c. **tó** + **súm** → **ɔ̀-tó-súm**
 buy serve Nom-buy-serve
 to buy to serve lazy person
- d. **dɛ̀** + **dí** → **∅-dɛ̀-dí**
 get eat Nom-get-eat
 to get to eat faith

⁷ Although these forms take the plural marker **n-**, as in, **dwom** [dʒwɔm] (sg.) → **nwom** [ɲwɔm] (pl.), they are considered singular. Both the singular and plural forms are grammatical, however, the plural form is preferred. In speculating, it has been suggested that speakers possibly perceive the compounded forms as plural, perhaps because they denote an action that happens in time (Samuel G. Obeng, personal communication).

⁸ Headedness can only be determined for endocentric compounds, whose meaning is in fact derived from the head. For Akan, the heads of endocentric compounds are on the right. Further evidence for right headedness in compounds comes from reduplicative compounds. The first element undergoes a vocalic change, whereas the head does not, e.g. **gye** 'to receive' → **gyigye**.

Since these are exocentric compounds, they may work phonologically and morphologically different from endocentric compounds, where a head can be determined (Fabb, 2001). For endocentric compounds, the second stem must nominalize and subsequently delete the nominal affixes according to the compounding rules of Akan. For exocentric compounds, the right verbal element is not nominalized prior to compounding; rather, nominalization occurs after compounding.

2. SYNTHETIC COMPOUNDING

Synthetic compounding is the creation of a nominal compound by combining a derived word, which is a verb combined with an affix (usually nominalizing the verb), and a noun which acts as an argument to the verbal predicate (DiSciullo and Williams 1987; Fabb 2001; Haspelmath 2002; Roeper and Siegel 1978; Selkirk 1983). According to Fabb (2001), the verb in a synthetic compound is the head and appears with some affixes, as in English *truck driver* (*truck* + *drive* + *er*) and *expert tested* (*expert* + *test* + *ed*). Haspelmath (2002) adds that the noun in a synthetic compound is an argument to the verb, known as the *First Sister Principle* proposed by Roeper and Siegel (1978).

Several theories have been put forward to account for the movement of the object in synthetic compounds in English (DiSciullo and Williams 1987; Lieber 1980; Roeper and Siegel 1978; Selkirk 1983). The details of each theory and analysis are unimportant for this paper; however, the conclusions reached in the literature agree that synthetic compounding is a productive process of forming special compounds. Additionally, phonological processes may be different for synthetic compounds and simple root compounds (Fabb 2001).

Cahill (2007) offers several examples of agentive synthetic compounds in Kɔ̀nni shown in (4). However, he notes there are no verbal compounds derived from the combination of a noun and a verb, as would be expected by ***tɔ̀n-taa** ‘to bow-throw’. Since these forms are unattested, Cahill proposes a formation similar to English synthetic compounds by showing that the verb is derived with the agentive suffix before the two stems are compounded representing them as **[[tɔ̀n][[tãà]rò]**, rather than **[[[tɔ̀n][tãà]]rò]** (ibid., p. 52). The synthetic compounds are also different than other compounds in this respect that have varying tonal patterns depending on their lexical tones.

(4) Kɔ̀nni Synthetic Compounds (adapted from Cahill (2007:51))

- | | |
|---|--|
| a. tɔ̀n-tãà-ró
bow-throw-AGENT
warrior (lit., bow thrower) | b. tíí-jùàlì-tó
tree-climb-AGENT
tree climber |
|---|--|

In Akan, NV sequences (**[N-V]_N**) are nominal, and nominalizing the verb that takes the noun as an argument allows the compounding process to occur. Such examples are shown in (5).

(5) NV Sequences in Akan

- | | |
|---|---|
| a. é-tíré-^lbó
Nom-head-tie
the act of hair-braiding | b. èsù-bùá
top-cover
the act of covering |
|---|---|

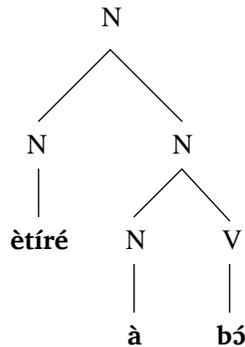
- | | |
|---|--|
| <p>c. è-hó-'síé
Nom-corn-husk
the act of husking corn</p> <p>e. à-dí-'tɛ́é
Nom-something-share
the act of giving</p> <p>g. è-dɔ̀iá-'sɛ́n
Nom-tree-hang
the act of hanging a tree</p> | <p>d. à-dí-'nīm
Nom-thing-know
the act of knowing things</p> <p>f. (è)-dí-'bó
(Nom)-name-recite
the act of saying a praise</p> <p>h. à-dí-'jé
Nom-something-do
the act of doing something</p> |
|---|--|

The above examples can be analyzed as synthetic compounds. The structure and derivation of these compounds in Akan is analogous to that of English and Kɔ̀nni synthetic compounds, whereby the object moves to a position before the verb, phonological rules associated with compounding occur, and the verb receives a nominal affix by the derivational process of nominalization. While the nominalization is apparent in English, it is not so apparent that the second word in the compound in Akan is in fact a derived noun. The nominalization is only clear because of the downstep caused by the loss of the nominal prefix added to the verb before the two stems are combined (Anyidoho 1990). As mentioned earlier, the nominal prefix is always a vowel or nasal stop with a L tone. Once combined, the vowel deletes, but the L remains, triggering a downstep. This derivation is shown in (6) and the morphological representation is shown in (7).⁹

(6) Derivation of Akan Synthetic Compounds

UR	/è-tíré bó/
Nominalization	è-tíré à-bó
Vowel Prefix Deletion	è-tíré-'bó
PR	[è-tíré-'bó]

(7) Morphological Representation of Akan Synthetic Compounds



⁹ Movement of the object is assumed and is not crucially ordered. The phonological changes occur very late in the derivation and do not affect the process of synthetic compounding.

The downstep, then, is a clue that the verb had been nominalized before compounding. If this is the case, then the second word in the synthetic compound is, indeed, a derived word. This derived word then combines with a noun that functions as an argument to the verb. Since the verb becomes a noun and then the two words are combined, the process should not be considered VI, since it is not a verb that is incorporating into the noun, but rather two nouns forming a compound.

Anyidoho (1990) mentions several of these compounds that do not contain downstepping, but labels them as exceptions that have been fused as lexical items. These examples are shown in (8). However, the non-downstepped compounds share a common property: the first stem of the compound contains all L tones; a compounding tone rule described earlier. Since downstepping can only appear between two H tones, the environment does not exist for downstep to occur, so it applies vacuously. Therefore, the downstep is not apparent because the first stem of the compound contains a L on every syllable, thus, they are not exceptions to the rule, but rather, the rule does not apply.

- (8) a. **m̀-̀m̀iriká** + **tú** → **m̀-̀m̀irikà-tú**
 Nom-race + run → Nom-race-run
 to run a race → the act of running
- b. **ò-̀nàmí** + **sùrò** → **ò-̀nàmì-súró**
 Nom-god + fear → Nom-god-fear
 to fear god → the act of fearing god
- c. **à-̀bùsqiá** + **bó** → **à-̀bùsqià-bó**
 Nom-family + make → Nom-family-make
 to enter a lineage → the act of entering a lineage
- d. **á-sém** + **bisà** → **à-sèm-misá**
 Nom-matter + ask → Nom-matter-ask
 to ask a question → the act of questioning
- e. **à-̀tɛ̀ɛ̀nìè** + **dzi** → **à-̀tɛ̀ɛ̀nìè-dzi**
 Nom-receive + doubt → Nom-receive-doubt
 to disbelieve → the act of disbelieving

Additionally, notice that when the object does not move to appear before the verb, the compound, following the described phonological rules, has a different meaning, as shown in (9).

- (9) a. **bó-tíré** → **à-bò-tíré**
 tie-head → Nom-tie-head
 to braid hair → turban/headgear
- b. **tɛ̀-à-díé** → **à-tɛ̀-!díé**
 share-Nom-thing → Nom-share-thing
 to give a gift → gift
- c. **nìm-(à)díé** → **nìm-dìé**
 know-thing → know-thing
 to know something/to be intelligent → knowledge

In the next section, we turn to compounds that may possibly function as verbs, particularly, examples known as inherent complement verbs. Previous research has not directly claimed that verbal compounds do not exist in Akan, but rather, have only shown nominal compounds to exist, which does not deny the use of inherent complement verbs as predicate compounds.

3. NOUN INCORPORATION

NI compounds can be represented morphologically as [V-N]_v and [N-V]_v. In NI, the noun acts as an argument to the verb. The resulting complex verb is, then, the predicate of the clause (Anderson 2000; Baker 1988; Gerdts 2001; Mithun 1984, 1986; Rosen 1989; Sadock 1980, 1985, 1986; Sapir 1911). The example below is a classic illustration of NI from Nahuatl (Sapir 1911). It can be seen that the noun is an argument to the verb and that their combined form acts as the predicate of a clause, as in (10b).

(10) Nahuatl (from Sapir (1911:260))

- | | | | | | |
|----|------------------|-----------|---------------|----|--------------------|
| a. | ni-c-qua | in | nacatl | b. | ni-naca-qua |
| | I-it-eat | the | flesh | | I-flesh-eat |
| | I eat the flesh. | | | | |

The concept of NI has been analyzed by two different approaches: syntactic and lexical. For the syntactic approach, NI happens post-lexically and involves some transformation (Baker 1988; Sadock 1980, 1985, 1986). The lexicalist approach claims NI happens directly in the lexicon as a process similar to compounding (Di Sciullo and Williams 1987; Mithun 1984, 1986; Rosen 1989; Sapir 1911). Since it has been shown that derivational processes, i.e., nominalization, occur before the syntactic level in Akan, as for syntactic compounds, I will use the lexicalist approach to further analyze verb-internal compounds in Akan.

Within the lexicalist approach, Rosen (1989) argues that there are only two types of incorporation: Classifying NI and Compounding NI. Classifying NI is when the transitivity of the verb is unaffected, that is, valency does not decrease after incorporation. Objects can appear as arguments to verbs with incorporated nouns. Compound NI is when incorporation results in a decrease of valency because the object noun has become part of the verb, rather than an external argument. In this type of analysis, whether a language has Classifier NI, Compound NI, or neither depends on whether the transitivity changes after incorporation, if modifiers can be stranded, and if doubling of object NPs can occur.

The Benue-Congo languages, Yoruba, Igbo, Nupe, and Gwari all have very similar processes of noun incorporation (Bamgboṣe 1964; Madugu 1995; Ogunkeye 2004; Uwalaka 1995). In these languages, the noun appears after the verb when it incorporates. Ogunkeye (2004) uses the definitions of Classifying NI and Compound NI above to provide evidence for NI in Yoruba. For Classifying NI, an object can appear as an argument to a predicate with an incorporated noun, as in (11b). The evidence for Compound NI in Yoruba, however, is not as clear. Ogunkeye suggests that Compound NI in Yoruba only applies to complex verbs that have an idiomatic meaning, but also provides examples of idiomatic complex verbs that can take arguments, which is not possible for Compound NI. Nevertheless, it is clear that, in Yoruba, VN sequences can function as predicates in a clause, and that these incorporated forms fulfill the criteria of Classifying NI.

(11) Yoruba (from Ogunkeye, 2004:12)

- | | | |
|-----------------------------|-----|--|
| a. Olú je-ran | vs. | b. Olú je-ran ajá |
| Olú eat-meat | | Olú eat-meat dog |
| Olu meat-ate. | | Olu meat-ate dog. |

3.1 PHONOLOGICAL ANALYSIS OF POSSIBLE NI FORMS IN AKAN

Since NI can be considered a type of compounding, the same phonological criteria are expected to hold for words formed by compounding NI as those formed for compounds (Mithun 2000). For Akan, the examples in (12a) and (13a) show a verb and its direct object appearing in a verb phrase. If the direct object were incorporated into the verb, then nasal assimilation would be expected as well as a tonal contour such as those found in root compounds in (1). However, if the phonological rules of compounds are applied to the clauses below, they become ungrammatical, as shown in (12b) and (13b). In (12c) and (13c), we see that a reversal of the VN order is also not possible, as it is in a typical NI language like the Nahuatl example from (8).

- | | | |
|-----------------------------------|--------------------------|--------------------------|
| (12) a. mè-sén dujá | b. * mè-sén-nujúá | c. * mè-nujúà-sén |
| I-hang wood | I-hang-wood | I-wood-hang |
| I hang a piece of wood | I wood-hang | I wood-hang |
| (13) a. wò-bó ètíré | b. * wò-bó-tíré | c. * wò-tíré-bó |
| you-braid hair | you-braid-hair | you-hair-braid |
| You braid hair | You hair-braid | You hair-braid |

NI compounds also behave morphosyntactically different than their phrasal counterparts. The behaviors were discussed earlier as being of two types: Classifier NI and Compound NI (Rosen 1989). When a noun is incorporated via Classifier NI, a new argument can appear after the incorporated form. In Compound NI, however, the incorporated form is intransitive and does not allow an argument to appear in object position.

3.2 CLASSIFIER NOUN INCORPORATION IN AKAN

Classifier NI can be determined by using three criteria. First, stranding of NPs and modifiers will occur. Second, the transitivity of a verb will be unaffected, so that a transitive verb with an incorporated noun can have another noun as object and an intransitive verb can only have an incorporated noun. Third, doubling of NP objects can occur. The last two criteria are similar to each other since if a transitive verb incorporates an object, another object must appear, which is in itself doubling.

It was mentioned earlier that many of the verbs considered as Classifier NI in Yoruba are inherent complement verbs, and that Akan also has verbs of this type, some of which are given in (14). Ogunkeye (2004) found that, in Yoruba, inherent complement verbs can be considered a type of compound verb created by the process of Classifier NI, and mentions that “it is not a surprise that they are treated as Classifier Noun Incorporation” (p. 17). In Akan, it is not yet understood whether they should be analyzed as under-going NI.

(14) Inherent Complement Verbs in Akan

a. bɔ dam create insanity to be mad	b. di kɔnkɔnsa take gossip to gossip	c. bo nsa hit alcohol to be drunk
d. to dɔɔom sing song to sing	e. di asem take matter to judge	f. tu mmirika run race to run
g. di agoro take play to play	h. tu kwan move path to travel	i. di atorɔ take lie to tell lies
j. je dede make noise to make noise	k. ji nam kill fish to fish	l. di nkɔmɔ take conversation to have a chat

The phrases in (15) were constructed to see if modifiers can be stranded. The modifiers used in these examples are adjectives. Stranding of modifiers can occur in languages when a modifier appears with a null object. Akan has null object constructions where a phonetically null object can appear after a verb (Saah 1992). (15) shows that an object can be modified (15a) and that a pronoun can stand in for the modified object (15b), but that the object cannot be covert when modified, as in (15c), that is, modifiers cannot be stranded. The sentence in (15c) is grammatical, but has the meaning of ‘I sing well,’ modifying the verb, rather than the object.

(15) No Stranding of Modifiers

a. me-to dɔɔom papa I-sing song good I sing a good one.	b. me-to bi papa I-sing one good I sing a good song.
c. *me-to papa I-sing good I sing a good song.	

Next, to see if the transitivity of the above verbs is affected, it is necessary to determine whether the objects satisfy the argument to the verbs as it is expected not to do so in cases of Classifier NI. Thus, an additional direct object is necessary for a transitive verb. In all of the forms in (16), the direct objects satisfy the arguments of the verbs and no other direct objects can appear. The example in (16b) shows that a noun can appear after a verb, and that the noun serves as an argument to the verb. However, if an object is added to the sentence, it must replace the general object, as shown in (16c). If the transitivity were unaffected, then the form in (16d) would be grammatical. Furthermore, this final example shows that the third criteria, the doubling of NP objects, cannot occur.

(16) Lack of NP doubling

- | | |
|---|--|
| a. yi nam
remove fish
to fish | b. mè-yí nàm
I-remove fish
I fish. |
| c. mè-yí àdžúéń
I-remove catfish
I fish catfish. | d. *me-yi-nam adžúen
I-remove-fish catfish |

Since the transitivity is affected, stranding is not possible, and doubling cannot occur, Akan does not fulfill the criteria of Classifier NI. However, the lack of these criteria could mean they are forms of Compound NI.

3.3 COMPOUND NOUN INCORPORATION IN AKAN

Since the inherent complement verbs in the previous section did not fulfill the definition of Classifier NI, it is suspected that they may be forms of Compound NI. The same criteria above will be used to determine the existence of Compound NI in Akan. Since Compound NI forms an intransitive verb comprised of a verb and an incorporated noun, the occurrence of Compound NI may be determined morphosyntactically depending on the language. For example, in an Ergative/Absolutive case system, as found in Samoan and Niuean, subjects of intransitive verbs and objects of transitive verbs receive the same absolutive marker, whereas the subjects of transitive verbs receive an ergative marker. This is elucidated by the example in (17).

(17) Samoan (from Mithun (1984:850))

- | | |
|--|---|
| a. po ʔo a:fea e tausí ai e ia tamaʔ
QUES PRED when TNS care PRON ERG he child
When does he take care of children? | b. po ʔo a:fea e tausí-tama ai ʔoiaʔ
QUES PRED when TNS care-child PRON ABS.he
When does he baby-sit? |
|--|---|

However, Akan does not have such an overt case marking system and the possible examples of compounding NI in Akan are very similar to their phrasal counterparts. While Akan does not mark case on subjects and objects, transitivity can be morphologically marked on the verb. In the past tense,¹⁰ intransitive verbs and transitive verbs without an object are marked by a changing vocalic sequence and a HL melody that suffixes to a verb, as in (18a,d). When an object appears after a verb, (18c) they are marked with a lengthening of the final vowel and a HL melody on the suffix. Transitive verbs that do not have an overt object or adverbial will take the intransitive suffix, as in (18d).¹¹

(18) Transitive and Intransitive Past Tense Suffixes

¹⁰ The past tense is considered to be the completive aspect by Osam (2004).

¹¹ It is possible to add an object after **da** 'to sleep'. In the past tense, similar to the example in (18c), the verb takes the transitive suffix as in **mì-dá-à kùmási** 'I slept in Kumase'.

- | | |
|---|---|
| <p>a. mì-dá-ì
I-sleep-PAST.INTRANS
I slept.</p> | <p>b. *mì-dá-à
I-sleep-PAST.TRANS
I slept.</p> |
| <p>c. mì-kó-ò fié
I-go-PAST.TRANS home
I went home.</p> | <p>d. mì-kó-ì
I-go-PAST.INTRANS
I left.</p> |

If an object noun were incorporated into a verb, then the intransitive past tense suffix would be expected to appear. For Compound NI, the verb and noun together form the predicate and the intransitive past tense marker would appear on the noun, which is considered ungrammatical in Akan, as in (19b). It is also the case that the noun cannot move to appear before the verb so that the transitive or intransitive past tense markers occur on the verb, as shown in (19c).

(19)

- | | |
|---|---|
| <p>a. mì-tɛ́-é à-dí
I-share-PAST.TRANS NOM-thing
I gave a gift.</p> | <p>b. *mì-tɛ́-dí-ɛ
I-share-thing-PAST.INTRANS
I gave a gift.</p> |
| <p>c. *mì-dí-tɛ́-ɛ¹²
I-thing-share-PAST.INTRANS
I gave a gift.</p> | |

The analysis presented above shows that inherent complement verbs are not formed by Compound NI, although both stranding and doubling are not possible, which would actually predict that Compound NI is a productive process. The evidence for the lack of Compound NI is found in the fact that the transitivity is unaffected. If Compound NI were active, then the complex verb would be intransitive after incorporating its direct object. The data above have shown that the complex forms have the same number of arguments as they would if they did not incorporate.

4. DISCUSSION

In an examination of verb-internal compounds in Akan, it is apparent that the language does not exhibit any form of NI, and consequently, there are no compounds whose head is a verb. This lack of verb-headed compounds can be represented with the following notations: $*[N-V]_V$, $*[V-N]_V$, and $*[V-V]_V$. Thus, there is a constraint that says no two stems can be created to form a verb. To implement this constraint, a verb appearing on the right side of a compound in head position must be nominalized, otherwise, the two stems cannot form a compound. It was also shown $[V-V]_N$ compounds do not undergo nominalization of the right stem, and they all have exocentric meanings, thus, they are constructed phonologically and morphologically distinct from endocentric compounds.

In this sense, Akan is similar to English and Kɔnni, that combining a noun and a verb to form a compound verb is ungrammatical. In fact, the literature concerning NI fre-

¹² The vowel quality of the past tense suffix changes depending on the preceding vowel and also harmonizes in [ATR].

quently makes reference to the fact that English synthetic compounds do not have verbal equivalents. Examples of what can be considered NI in English, such as *babysit*, *mountain climb*, and *bartend* have been shown to be highly unproductive, and are usually backformations of their synthetic compound counterparts (Baker 1988; Mithun 1984; Sapir 1911). Thus, these differences can be taken as the criteria for defining whether a language is using NI or not. The NI process must be productive, not formed from other structures, and the noun root can refer to specific objects.

Synthetic compounding in Akan is productive, but based on the data currently available to me the formation of verbs from such compounding (i.e. NI) never happens. Also, lexical processes, such as backformation, do not occur that would allow the derived verbal compound to act as a predicate of a clause.

The evidence for considering the lack of both Compound NI and Classifier NI is somewhat subtle. Since Akan does not show evidence to fulfill the criteria of Classifier NI, one would expect inherent complement verbs to be formed by Compound NI, but this was not the case from the data presented in this paper. There are two ways, however, in which inherent complement verbs may be considered cases of Compound NI. First, Rosen (1989:312) suggested that English synthetic compounds are formed by the Compound NI process, but that English only allows deverbal compounds. The same could be said for Akan since synthetic compound formation is productive, but can only form gerunds and agentive forms. Second, it may not be necessary that the verb and direct object are combined in such a way that verbal morphology is *required* to appear on a noun. The language may have a restriction on how the NI forms are created such that affixes can only appear on their respective lexical items. The grammatical forms, then, in (18), can be considered to be Compound NI forms if this idea were adopted. However, this can be countered by the fact that Akan forms synthetic compounds by having the direct object appear before the verb. Synthetic compounding and NI are formed syntactically the same way in languages, such that the direct object would appear before the verb in Akan. Verbal forms of this structure are never found in Akan, thus, it is unlikely that there are verbal compounds formed by either type of NI.

Finally, it is not understood how these compounding processes in Akan are typologically related to other languages in West Africa. In comparing Akan to related languages, it can be seen that it is not alone in its productive use of synthetic compounding, or its lack of NI. The table in (20) shows the possible compound structures using a verb stem and noun stem.

(20) Typological survey of Synthetic Compounding and NI in West African Languages

	Synthetic Compounding	Noun Incorporation
Akan (Kwa)	✓	X
Nzema (Kwa)	✓	X
Ewe (Kwa)	✓	X
Fon (Kwa)	X	X
Kɔnni (Gur)	✓	X
Gwari (Benue-Congo)	✓	✓

Idoma (Benue-Congo)	✓	✓
Igbo (Benue-Congo)	✓	✓
Nupe (Benue-Congo)	✓	✓
Yoruba (Benue-Congo)	✓	✓
Bambara (Mande)	✓	✓

From the above typological survey, it can be seen that NI is a widespread phenomenon in the Benue-Congo languages as well as Mande languages, but not necessarily in West African languages, as claimed by Ogunkeye (2004). In fact, languages outside of Benue-Congo and Mande do not have NI. The Kwa and Gur languages, rarely, if ever, exhibit NI, however, they tend to make use of synthetic compounding. It is also interesting to note that if a language has NI then it also has synthetic compounding, meaning that NI implies the presence of synthetic compounding, but not vice versa.

In addition, the ordering of the verb in NI in the Benue-Congo languages above places the languages in the marked group of a typological prediction made by Caballero et al. (2008). In a survey of 39 languages, they found that in only 13 the incorporated noun appeared after the verb as shown earlier for Yoruba in (11). The typological survey done here is limited in its number, so I hesitate to generalize their patterns any further until more languages can be added.

5. CONCLUSION

After outlining verb-internal compounds in Akan, one could posit that the language does not have verbal compounds, that is, a verb is never the head of a compound. Some derivational affix must attach before the compound is created. As an implication of the ban on verbal compounds, any verb that is the second stem of an endocentric compound must be nominalized. Exocentric compounds do not share the same process.

It was shown that $[N-V]_N$ compounds should be considered synthetic compounds. In Akan, synthetic compounding is a productive process that creates a gerundive form of a verb that takes a complement. The various phonological processes, i.e. vowel harmony, nominal prefix deletion, nasal assimilation, and tone changes that occur in root compounds were shown to also apply in synthetic compounds. The tonal patterns of synthetic compounds was described as being similar to root compounds, except a downstep occurs. The downstep appears due to the fact that the verb is a derived noun whose nominal vowel prefix was deleted due to the morphological compounding rules of Akan.

Verbal compounds of the type $[V-N]_V$ and $[N-V]_V$ are representations of a process known as NI. It was shown that Classifier NI is not functional in Akan because the transitivity was affected, stranding of modifiers was not possible, and doubling of NP objects does not occur. Compound NI is also not a possible source of compound formation, even though both stranding and doubling are impossible, because complex verb forms do not become intransitive when combined.

ABBREVIATIONS

ATR	Advanced Tongue Root [feature]	VI	Verb Incorporation
NI	Noun Incorporation	VN	Verb + Noun sequence
NP	Noun Phrase	VO	Verb + Verb sequence
NV	Noun + Verb sequence	VV	Verb + Object sequence
OV	Object + Verb sequence		

REFERENCES

- Adu-Amankwah, D. 2003. *Asante-Twi learners' reference grammar*. Madison, WI: National African Language Resource Center.
- Anderson, J. and Obeng, S. Forthcoming. *A grammar of Nzema*. Munich: Lincom Europa.
- Anderson, S. 2000. Lexicalism, incorporated or incorporation, lexicalized. In A. Okrent and J.P. Boyle Eds., *Proceedings of the Chicago linguistics society*, 36 pp. 13-34. Chicago, IL: University of Chicago, Department of Linguistics.
- Anyidoho, A. 1990. On tone in Akan compound nouns. Paper presented at the 19th West African Languages Congress, April 2-6, 1990. University of Ghana, Legon.
- Baker, M. 1988. *Incorporation: A theory of grammatical function changing*. Chicago: University of Chicago Press.
- Bamgboṣe, A. 1964. Verb-nominal collocations in Yoruba: A problem of syntactic analysis. *Journal of West African Languages*, 12, 27-32.
- Caballero, G., Houser, M.J., Marcus, N., McFarland, T., Pycha, A., Toosarvandani, M., Wilhite, S., and Nichols, J. 2008. Nonsyntactic ordering effects in noun incorporation. *Linguistic Typology*, 123, 383-421.
- Cahill, M. 2007. *Aspects of the morphology and phonology of Kɔnni*. Dallas: SIL International.
- Christaller, J.G. 1875. *A grammar of the Asante and Fante language called Tshi*. Ridgewood, NJ: Gregg Press Inc.
- Di Sciullo, A. and Williams, E. 1987. On the definition of word. *Linguistic Inquiry Monograph* 14. Cambridge, MA: MIT Press.
- Dolphyne, F.A. 1988. *The Akan Twi-Fante language: Its sounds systems and tonal structure*. Accra, Ghana: Woeli Publishing Services.
- . 1996. *A comprehensive course in TwiAsante*. Accra: Ghana Universities Press.
- Essegbey, J. 2002. The syntax of inherent complement verbs in Ewe. In F.K. Ameka and E. K. Osam Eds., *New directions in Ghanaian linguistics* pp. 55-84. Black Mask Ltd.: Accra, Ghana.
- Fabb, N. 2001. Compounding. In A. Spencer and A.M. Zwicky Eds., *The handbook of morphology* pp. 66-83. Hoboken, NJ: Wiley Publishers.
- Gerds, D.B. 2001. Incorporation. In A. Spencer and A.M. Zwicky Eds., *The handbook of morphology* pp. 84-100. Hoboken, NJ: Wiley Publishers.
- Green, C. 2011. Compacité tonale and the Bamana prosodic word domain. In *Indiana University Linguistics Club Working Papers Online: Volume 113*. Bloomington, IN: IULC Publications.
- Haspelmath, M. 2002. *Understanding morphology*. London: Arnold Publishing.
- Hyman, L.M. and Magaji, D.J. 1970. *Essentials of Gwari grammar*. Occasional Publication, no. 27. Institute of African Studies, University of Ibadan. Ibadan, Nigeria.
- Lieber, R. 1980. *On the organization of the lexicon*. Bloomington, IN: Indiana University Linguistics Club Publications.
- Madugu, I.S.G. 1995. Category incorporation in West African languages. In K. Owolabi Ed., *Language in Nigeria: Essays in honor of Ayo Bamgboṣe* pp. 142-155. Ibadan, Nigeria: Group Publishers.
- Marfo, C. 2004. On tone and segmental processes in Akan phrasal words: A prosodic account. *Linguistik Online*, 18, 93-110.
- . 2005. *Aspects of Akan grammar and the phonology-syntax interface*. Unpublished doctoral dissertation. The University of Hong Kong.
- . 2009. The structure of Akan compounds: Some prosodic structural insights. In Eds., *Studies in the languages of the Volta Basin* pp. 141-152. *Proceedings of the Annual Colloquium of the Legon-Trondheim Linguistics Project*, 18-20 January, 2005. Department of Linguistics, University of Ghana.

- Mithun, M. 1984. The evolution of noun incorporation. *Language*, 604, 847-894.
- . 1986. On the nature of noun incorporation. *Language*, 621, 32-37.
- . 2000. Incorporation. In Booij, G., Lehmann, C., and Mugdan, J. Eds., *Morphology: An international handbook on inflection and word-formation*, Vol. 1 pp. 916-928. Berlin: Walter de Gruyter.
- Obeng, S.G. 2009. Akan deverbal nouns. In S.G. Obeng Ed., *Topics in African and descriptive linguistics: Essays in honor of Paul Newman* pp. Munich: Lincom Europa.
- Ogunkeye, O. 2004. Incorporation in Yoruba. *Journal of West African Languages*, 312, 9-25.
- Osam, E.K. 1993. The loss of the noun class system in Akan. *Acta Linguistica Hafiensia*, 26, 81-106.
- . 2004. An introduction to the structure of Akan: Its verbal and multiverbal systems. Department of Linguistics, University of Ghana.
- Roeper, T. and Siegel, M.E.A. 1978. A lexical transformation for verbal compounds. *Linguistic Inquiry*, 92, 199-260.
- Rosen, S.T. 1989. Two types of noun incorporation: A lexical analysis. *Language*, 652, 294-317.
- Saah, K. 1992. Null object constructions in Akan. In C. Collins and V. Manfredi Eds., *Proceedings of the Kwa comparative syntax workshop* pp. 219-244. MIT Working Papers in Linguistics, 17.
- Sadock, J.M. 1980. Noun incorporation in Greenlandic: A case of syntactic word formation. *Language*, 562, 300-319.
- . 1985. Autolexical syntax: A proposal for the treatment of noun incorporation and similar phenomena. *Natural Language and Linguistic Theory*, 3, 379-439.
- . 1986. Some notes on noun incorporation. *Language*, 621, 19-31.
- Sapir, E. 1911. The problem of noun incorporation in American languages. *American Anthropologist*, 13, 250-282.
- Selkirk, E.O. 1983. *The syntax of words*. Linguistic Inquiry Monograph 7. Cambridge, MA: MIT Press.
- Uwalaka, M.A. 1995. X⁰-movement and Igbo complex predicates. In K. Owolabi Ed., *Language in Nigeria: Essays in honor of Ayọ Bamgboṣe* pp. 156-176. Ibadan, Nigeria: Group Publishers.