

A unified account of Hausa genitive constructions

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Abstract. In this paper I shall propose an analysis of the Hausa bound genitive marker which unifies its use in possessives and partitives with that in gerundive and pre-nominal adjectival constructions (see Newman, 2000 and Jaggar (2001) for a detailed overview). I shall provide evidence that the bound genitive marker *-n/-r* is not simply an enclitic variant of the free form marker *na/ta* derived at a surface phonological level, but rather an affix attached in the morphology. Under the analysis proposed here, the free form is an instance of dependent marking, mainly used for possessive modifiers, whereas the bound form is an instance of head-marking, signalling the presence of an adjacent in-situ complement. The formal analysis, which is carried out in the framework of HPSG (Pollard and Sag, 1994), will make crucial use of type-raising in the sense of Kim and Sag (1995) and Iida *et al.* (1994), in order to model head-marking of possessives and pre-nominal adjectives on a par with complement-taking strong verbal nouns (gerunds). Furthermore, the head-marking approach to the bound linker also connects the presence vs. absence of this marker to a more general property of the language, namely direct object marking (Crysmann, 2005).

1 Major functions of the Hausa genitive linker

Genitival constructions in Hausa¹ are used to express a wide range of syntactic functions: apart from possessives and partitives, genitive linkers are also employed to mark pre-nominal adjectival modifiers and certain gerunds, when followed by a direct object complement.

In principle, there are two distinct ways to effect genitive marking in this language: either by means of a free form marker *na* (masculine and plural) or *ta* (feminine) appearing on the dependent, or else by means of a suffixal (or enclitic) marker *-n/-r* attached to the head.

¹ Hausa is an Afroasiatic language spoken mainly in Northern Nigeria and bordering areas of Niger. Both tone (high, low, falling) and length (long vs. short) are lexically and grammatically distinctive. Following common practice, I shall mark low tone with a grave accent and falling tone with a circumflex. Vowels unmarked for tone are high. Length distinctions are signalled by double vowels.

1.1 Possessives

Possessives in Hausa can be formed either with a free or a bound linker. In both cases, the linker agrees with the head noun the possessive attaches to: while *ta* and *-r* are used with feminine singular head nouns only², *na* and *-n* are essentially default forms occurring with masculine and plural heads.

- (1) a. *rìigaa ta Audù*
 gown.f L.f Audu.m
 ‘Adu’s gown’
- b. *rìiga-r Audù*
 gown.f-L.f Audu.m
 ‘Adu’s gown’
- (2) a. *littaafii na Kànde*
 book.m L.m Kande.f
 ‘Kande’s book’
- b. *littaafi-n Kànde*
 book.m-L.m Kande.f
 ‘Kande’s book’

Use of the bound possessive linker imposes some strict adjacency requirements: if, e.g., a PP intervenes between the head noun and the possessive, use of the bound form is banned and the free form must be used instead.

- (3) a. *littaafi-n Audù bisà Sarkii*
 book.m-L.m Audu about Emir
 ‘Adu’s book about the Emir’
- b. *littaafi na Audù bisà Sarkii*
 book.m L.m Audu about Emir
 ‘Adu’s book about the Emir’
- c. **littaafi-n bisà Sarkii Audù*
 book.m-L.m about Emir Audu
- d. *littaafii bisà Sarkii na Audù*
 book.m about Emir L.m Audu
 ‘Adu’s book about the Emir’

Possessives featuring the free marker can also be used independently:

- (4) *Naa karàntà na Kànde*
 1.sg.completive read L.m Kànde
 ‘I read Kande’s.’

² See below, though, for an additional phonological constraint applying to the bound marker *-r*.

In sum, Hausa recognises two distinct strategies for marking the possessive: a dependent-marking strategy where the genitive marker appears initially on the possessive modifier as a free form, and a head-marking strategy featuring a “genitive” suffix. While dependent-marking is essentially free in that the modifier can be either separated from the head or the head can be elided, bound affixal marking imposes a strict adjacency requirement on the dependent phrase. Independently of marking strategy, however, the post-nominal NP clearly has the status of a semantic modifier.

1.2 Objects of strong verbal nouns

Another construction in which the genitive linker surfaces are nominal gerunds, a construction which, at first sight, does not seem to share too much similarity with the prototypical use of the genitive described above.

Hausa Tense Aspect-Mood (TAM) markers can be coarsely divided into two major classes: non-continuative TAM markers, including, inter alia, completive, future, and subjunctive on the one hand side, and the continuative on the other. Whereas non-continuative TAM markers uniformly select standard verbal complements, the continuative marker selects a special “gerundive” form. Furthermore, continuative markers are the only TAM category that can directly take dynamic nouns as complements, without having to resort to do-support.

Morphologically, we can identify essentially two major classes of gerunds in Hausa: *waa* (or weak) verbal nouns and non-*waa* (strong) verbal nouns (Newman, 2000). Weak (*waa*) verbal nouns represent the regular productive pattern for verbs in grades (paradigms) 1, 4, 5, 6, and 7 (Parsons, 1960). When no (direct) object follows, the gerund in these paradigms is productively formed by affixation of a suffix -`*waa* (with an initial floating low tone). If an object follows in situ, the form of *waa* verbal nouns is identical to that of a verb selected by non-continuative TAM markers, i.e. the gerundive suffix is dropped. Verbs in grade 2 and 3, however, do not have a weak (*waa*) verbal noun, so they use a strong form instead. Besides verbs from grades 2 and 3, some verbs from other grades have a secondary strong form that can be used instead of the regular weak *waa* verbal noun. Besides the absence of the suffix -*waa*, the most salient feature of the strong form is the presence of the genitive linker: if followed by a nominal or pronominal direct object, strong verbal nouns are obligatorily inflected with the genitive linker -*n/-r*. Object pronouns attached to strong verbal nouns are taken from the (low tone) genitive set, rather than the (polar) accusative set used with weak verbal nouns or normal verbs.

- (5) a. Yaa tàm̀b̀à̀ỳèè -sh̀ì / *-s̀à̀ .
 3.m.sg.completive ask -him.acc -him.gen
 ‘He asked him.’
- b. Yaaǹà̀ t̀àm̀b̀aỳà̀-̀r̀ -s̀à̀ / *-sh̀ì.
 3.m.sg.continulative ask.f-L.f -him.gen -him.acc
 ‘He is/was asking him.’

Despite the difference in genitive marking, strong verbal nouns still bear the same semantic relationship to their direct object complements as the verbs they derive from, or even their weak verbal noun counterparts. This is most obvious with verbs having both strong and weak verbal noun form, such as grade 1 *dìnkàa*.

- (6) a. Yaa *dìnkà riigaa*.
 3.m.sg.completive sew gown
 ‘He has sewn the gown.’
- b. Yanàa *dìnkà riigaa*.
 3.m.sg.continulative sew gown
 ‘He is/was sewing the gown.’
- c. Yanàa *dìnkìn riigaa*.
 3.m.sg.continulative sew gown
 ‘He is/was sewing the gown.’

If no direct object is present in situ, the genitive linker is illicit.

- (7) a. Yanàa *dìnkii*.
 3.m.sg.continulative sew
 ‘He is/was sewing.’
- b. Rìigaa cèè yakèè *dìnkii*.
 gown FOCUS 3.m.sg.continulative sew
 ‘It’s the gown he is/was sewing.’

Given that genitive head-marking on strong verbal nouns is triggered by what is unmistakably an argument of the verb, I will take this as initial evidence that genitive head-marking in general may be better understood in terms of head-complement rather than head-adjunct relations.

1.3 Pre-nominal Adjectives

Adjectival modifiers in Hausa can appear in one of two structural positions: either following the head noun, or immediately preceding it. Both pre- and post-nominal adjectives agree with the head noun in number and gender. According to Newman (2000), the absence of inherent gender and the prevalence of agreement gender constitute one of the main pieces of evidence to postulate a distinct category of adjectives in this language, the other piece of evidence being their inherently attributive nature. While post-nominal adjectives do not trigger any further special morphological marking, pre-nominal adjectives obligatorily take the bound linker to combine with the head noun.

- (8) a. rìigaa bakaa
 gown.f black.f
 ‘black gown’

- b. baka-r riigaa
black.f-L.f gown.f
'black gown/blackness of the gown'
- (9) a. gidaa bakii
house.m black.m
'black house'
- b. baki-n gidaa
black.m-L.m house.m
'black house/blackness of the house'

In contrast to possessives, pre-nominal adjectival constructions obligatorily make use of the bound linker: in other words, use of the free form linker is illicit here.³

- (10) a. # bakaa ta riigaa
black.f L.f gown.f
'black gown'
- b. # bakii na gidaa
black.m L.m house.m
'black house'

Superficially, pre-nominal adjectives resemble head nouns in N-of-N constructions. Semantically, though, they are clearly modifiers, just like their post-nominal counterparts. However, pre-head modifiers are quite exotic in Hausa, which is otherwise a strict head-initial language. If we assume that pre-nominal adjectives are syntactic heads, but modifiers semantically, we shall be able to assimilate the analysis of this particular construction to the general word order of the language.

1.4 Arguments against cliticisation

In her dissertation, Tuller (1986) treats *na/ta*-insertion analogously to the then-current GB account of English *of*-insertion, namely as a “dummy” case marker. Furthermore, she treats alternation between free form and bound form linker essentially as an instance of cliticisation, suggesting that both bound and free forms are syntactically part of the dependent NP. Phonologically, however, the bound marker is assumed to attach to the preceding N or N' node.⁴

While sharing some initial plausibility, there are nevertheless a number of facts that make the surface cliticisation approach unworkable in the long run.

³ Many Hausa adjectives have a second reading as an abstract noun. Thus, *farin gidaa* is ambiguous between 'the white house' and 'the whiteness of the house'. In the following discussion, I shall use the hash sign to mark the unavailability of the intended adjectival reading.

⁴ The phonological change of feminine singular *ta* to *-r* is derived by means of a rhotacism rule.

First, the “cliticised” and free linker differ as to their agreement pattern: as detailed in Newman (2000), choice of *na* vs. *ta* is subject only to morpho-syntactic properties, namely the number and gender of the NP the possessive attaches to. If the attachment site is feminine singular, the free form linker is *ta*, otherwise, it is *na* (masculine or plural). The bound linker, however, observes some additional phonological constraint: *-r* is only possible with feminine singular hosts ending in [a]. As a result, feminine singular head nouns not ending in [a] take *ta* as a free linker, but *-n* as a bound linker. Note that [a]-final masculines still take the linker *-n* (or *na*), illustrating that the constraints operative for bound forms are not purely phonological.

- (11) a. *màataa ta Bellò*
 mother L.f Bello
 ‘Bello’s mother’
 b. *màata-r Bellò*
 mother-L.f Bello
 ‘Bello’s mother’
- (12) a. *gwamnatì ta Ingilà*
 government L.f England
 ‘England’s government’
 b. *gwamnatìn Ingilà*
 government-L England
 ‘England’s government’
- (13) a. *ḃeeraa na Audù*
 rat L.m Audu
 ‘Audu’s rat’
 b. *ḃeera-n Audù*
 rat-L.m Audu
 ‘Audu’s rat’

Thus, under a surface-phonological cliticisation account, these hosts do not combine with a free form linker from which the bound form could possibly be derived.⁵

Second, not all occurrences of the bound linker can be related to a free form by regular phonological rules. As for non-pronominal possessors, reduction of *na/ta* to *-n/-r* can be modelled on the basis of a chain of fairly general rules, involving deletion of the short vowel (reduction), resyllabification as the coda of the preceding word, automatic shortening of the preceding vowel and finally, in the case of *ta*, rhotacism. With possessive pronouns, which, by contrast, feature a long vowel linker, plausibility of an automatic vowel deletion rule is greatly reduced.

⁵ The criticism raised here does not, of course, apply to account within Distributional Morphology Halle and Marantz (1993).

(14) Paradigm of free possessive pronouns

	masc/plural		feminine singular	
	sg	pl	sg	pl
1	nàawaa	naamù	tàawaa	taamù
2m	naakà	naakù	taakà	taakù
2f	naakì	naakù	taaki	taakù
3m	naasà/naashì	naasù	taasà	taasù
3f	naatà	naasù	taatà	taasù

(15) Paradigm of bound genitive pronouns

	masc/plural		feminine singular	
	sg	pl	sg	pl
1	-naa	-nmù	-taa	-rmù
2m	-nkà	-nkù	-rkà	-rkù
2f	-nkì	-nkù	-rki	-rkù
3m	-nsà/-nshì	-nsù	-rsà/-rshì	-rsù
3f	-ntà	-nsù	-rsà	-rsù

Yet even if we were to accept automatic vowel reduction to apply to the long vowel pronominal possessive linker, bound possessive pronouns still confront us with idiosyncratic morphophonological effects: most notably, first person singular possessives undergo exceptional reduction, involving deletion of intervocalic /w/. Furthermore, first singular pronouns, in contrast to the rest of the paradigm obligatorily trigger lengthening of the preceding syllable.

- (16) a. àku
parrot
'parrot'
- b. *àkuu
parrot
- (17) a. àkuu-naa
parrot-my
'my parrot'
- b. *àku-naa
parrot-my

Third, in the case of pre-nominal adjectives, no construction with a full form linker exists from which the bound form could possibly be derived. As described in subsection (1.3) above, constructions with post-nominal adjectives do not feature a linker, whether bound or free, whereas pre-nominal adjectives are obligatorily marked with a bound linker. Furthermore, use of the free form linker is illicit in this construction, in contrast to possessives. Tuller (1986) recognises this problem, suggesting that pre-nominal adjectival constructions are actually compounds. Regular N-of-N compounds like *gidan wayàa* 'post office (lit.: house of wire)' or *gidan sauroo* 'mosquito net (lit.: house of mosquito)' indeed pattern

with pre-nominal adjectives in that both disallow the use of the free linker. Tuller’s perspective appears to be further supported by the observation that some pre-nominal adjectival constructions have acquired idiomatic semantics: to name an example, *farin gidaa* ‘white house’ can be used to refer to the White House as well as to any white house, whereas post-nominal *gidaa farii* ‘white house’ only has the compositional meaning (Newman, 2000). Thus, if the compositional meaning is still available for pre-nominal adjectival constructions, Tuller’s compound analysis is greatly weakened. Interestingly enough, Tuller herself cites the perfectly compositional cases given below (Tuller, 1986, p. 36):

- (18) a. *kàrama-r riigaa bakaa*
 small-L.f gown black
 ‘small black gown’
 b. *baka-r riigaa kàramaa*
 black-L.f gown small
 ‘black small gown’

Tuller (1986) suggests that the genitive linker has been reanalysed as a compound marker here. This solution, which is driven by theory-internal considerations, does not seem entirely satisfactory: while there is a plausible lexicalisation path from entirely compositional N-of-N constructions to idiomatic N-of-N compounds, no such path exists for pre-nominal adjectives, unless we concede that compositional pre-nominal adjectival constructions are syntactic in the first place. Thus, I would like to conclude that a compound analysis of pre-nominal adjectives introduces more conceptual problems than it actually solves. Furthermore, a dual analysis of the bound linker as compound marker and case marker must be inferior on Occamian grounds to any unified account of the data. I shall return to the case of idiomatic N-of-N and A-of-N compounds in the course of my analysis.

Finally, the bound marker is highly selective with respect to its host, attaching to nominal expressions only. In particular, phonological cliticisation to an immediately preceding verb is impossible:

- (19) Naa karàntà na Kànde
 1.sg.completive read L.m Kànde
 ‘I read Kande’s.’
 (20) *Naa karàntà-n/-r Kànde
 1.sg.completive read-L Kànde

To summarise, we have presented phonological, morphological and syntactic evidence to the extent that a surface-phonological cliticisation analysis of the Hausa bound genitive linker cannot account for the full range of data. Instead, I shall conclude that the language actually has two marking strategies for genitival constructions — morphological head-marking and syntactic dependent-marking — which partially overlap in the case of possessives.

2 Analysis

In the preceding section we have established that at least one of the uses of bound genitive markers, namely strong verbal nouns are unmistakable syntactic and semantic heads, taking their internal semantic arguments as syntactic complements. Furthermore, we observed that pre-nominal adjectives are syntactically similar to heads in N-of-N constructions and that pre-head adjuncts are actually quite exotic in this language. I shall therefore suggest that constructions involving the bound genitive marker, i.e., head-marking constructions, are to be uniformly analysed as head-complement structures. Since, some of the constructions, most notably possessives and pre-nominal adjectives, involve semantic modification rather than complementation, I shall suggest that Hausa adjectives and possessed nouns undergo operations similar to type-raising, reversing functor-argument relations.

As a first step towards a formal analysis of genitive head marking in Hausa, we need to address of course how these markers get introduced on their host. As I have argued above, there is considerable reason to doubt the viability of a cliticisation approach. Rather, I shall suggest that the bound linker is a suffix, attached to its host by means of inflectional rules.

The inflectional perspective on the bound linker is also supported by the observation that its use is highly grammaticised. As we have seen above, the bound linker marks a heterogeneous set of constructions: except with possessives, the linker does not appear to add any semantic contribution. Thus, I shall suggest that the basic function of the bound linker is to mark noun-complement structures. Under this perspective, the bound genitive linker is actually the nominal counterpart of direct object marking already attested for verbs (Crysmann, 2005).

Along with most recent work in HPSG, I assume that lexical entries are lexemes, not words. Fully inflected words are derived from lexemes by means of inflectional rules which are modelled as unary rule schemata (cf. Riehemann, 1998; Koenig, 1999).

The most fundamental property of direct object marking is that it only applies with direct object in situ. Adapting the proposal advanced in Crysmann (2005), I shall suggest that all direct object marking rules will inherit from the following constraint:

(21) *d-o-m-word* \rightarrow

$$\left[\begin{array}{l} \textit{word} \\ \text{SS} \quad \boxed{1} \\ \text{MORPH} \quad \left[\begin{array}{l} \textit{lexeme} \\ \text{SS} \quad \boxed{1} \left[\text{L} \mid \text{CAT} \mid \text{COMPS} \left\langle \left[\text{L} \mid \text{CAT} \mid \text{HD} \mid \text{CASE} \quad \textit{struc} \right], \dots \right\rangle \right] \right] \end{array} \right] \end{array} \right]$$

The inflectional rules attaching the genitive linker are then instances of this more general rule type. The inflectional rule for *-r* is illustrated below.⁶

$$(22) \left[\begin{array}{l} \textit{d-o-m-word} \\ \text{PHON} \quad \boxed{0} \oplus \langle r \rangle \\ \text{MORPH} \quad \left[\begin{array}{l} \textit{lexeme} \\ \text{PH} \quad \boxed{0} \langle \dots, a \rangle \\ \text{SS} \mid \text{L} \mid \text{CAT} \mid \text{HD} \quad \left[\begin{array}{l} \textit{noun} \\ \text{AGR} \quad \left[\begin{array}{l} \text{NUM} \quad \textit{sg} \\ \text{GEND} \quad \textit{fem} \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right]$$

These two direct object marking rules are then complemented by a third rule that derives zero marking in all other case:

$$(23) \left[\begin{array}{l} \textit{d-o-m-word} \\ \text{PHON} \quad \boxed{0} \\ \text{MORPH} \quad \left[\begin{array}{l} \textit{lexeme} \\ \text{PH} \quad \boxed{0} \\ \text{SS} \mid \text{L} \mid \text{CAT} \mid \text{COMPS} \quad \neg \left\langle \left[\text{L} \mid \text{CAT} \mid \text{HD} \mid \text{CASE} \quad \textit{struc} \right], \dots \right\rangle \end{array} \right] \end{array} \right]$$

Bound genitive pronouns can subsequently be added by means of a word-to-word inflectional rule. Essentially the rules introducing bound pronominals from the genitive set are almost identical to those introducing bound accusative pronominals. Selection of genitive vs. accusative sets is captured by means of different restrictions regarding the host's head value (*noun* vs. *verbal*).

As depicted below, pronominal affixation saturates a direct object valency, and introduces the pronoun semantics into the host's MRS representation. Building on Copestake *et al.* (2005), syncategorematic introduction of contents by unary rule application will be performed via the constructional content feature C-CONT.

⁶ Following Kathol (1999) and Wechsler and Zlatić (2001), I assume a head feature AGR for morpho-syntactic concord that is distinct from syntacto-semantic INDEX features. The main motivation in Hausa comes from the fact that formal agreement is marked even on dynamic nouns and nominal gerund, where INDEX actually refers to the event variable.

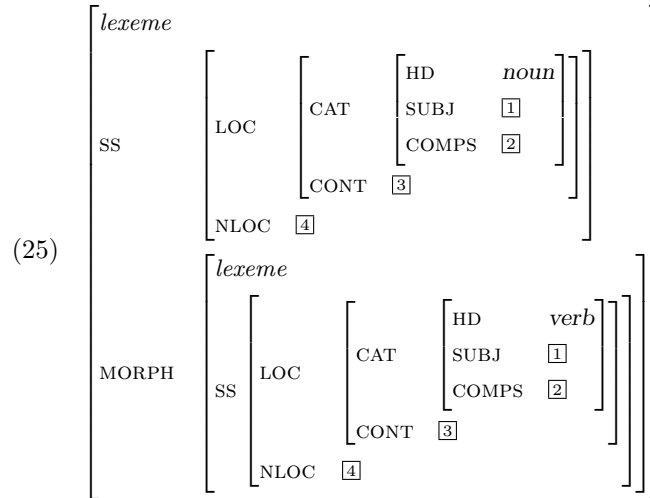
$$(24) \left[\begin{array}{l} \textit{word} \\ \text{PH } \boxed{p} \oplus \langle \textit{ki} \rangle \\ \\ \text{C-CONT } \boxed{c} \left[\begin{array}{l} \text{RELS } \left\langle \begin{array}{l} \text{PRED } \textit{"pron-rel"} \\ \text{LBL } \boxed{l} \\ \text{ARG0 } \boxed{i} \end{array} \right\rangle, \left[\begin{array}{l} \text{PER } 2 \\ \text{NUM } \textit{sg} \\ \text{GEND } \textit{fem} \end{array} \right], \left[\begin{array}{l} \text{PRED } \textit{"quant-rel"} \\ \text{ARG0 } \boxed{i} \\ \text{RSTR } \boxed{h} \end{array} \right] \right\rangle \\ \text{HCONS } \left\langle \begin{array}{l} \textit{qeq} \\ \text{HARG } \boxed{h} \\ \text{LARG } \boxed{l} \end{array} \right\rangle \end{array} \right] \\ \\ \text{SS } \left[\text{L} \mid \text{CAT } \left[\begin{array}{l} \text{HEAD } \textit{noun} \\ \text{COMPS } \boxed{r} \end{array} \right] \right] \\ \\ \text{MORPH } \left[\begin{array}{l} \textit{word} \\ \text{PH } \boxed{p} \\ \text{SS } \left[\text{L} \mid \text{CAT} \mid \text{COMPS } \left\langle \left[\text{L} \mid \text{CONT } \boxed{c} \right] \right\rangle \oplus \boxed{r} \right] \end{array} \right] \end{array} \right]$$

Now that we have sketched how exponents of genitival direct object marking will be introduced onto their hosts, we can proceed towards a detailed account of the three constructions under consideration here which are instances of this general marking strategy.

2.1 Strong verbal nouns

The major difference between strong verbal nouns and their corresponding verbs is almost exclusively morphological in nature: derivation of a strong verbal noun from a verb base essentially changes the major category, but carries over unmodified the argument structure. As a result, grade 2 verbs display direct object marking of the verbal type, including final vowel shortening (Hayes, 1990; Crysmann, 2005), grade 2 strong verbal nouns, being nouns make use of nominal direct object marking, the genitive linker. Similarly, grade 2 verbs take bound object pronouns from the accusative set, whereas the derived strong verbal nouns select their genitival counterparts.

In order to account for strong verbal nouns, all we need to do is to provide a lexeme-to-lexeme rule that converts a verbal lexeme into a nominal one. Since verbal nouns can be specified for continuative aspect, I shall suggest that the semantic representation is equally carried over from the verb it derives from. In other words, strong verbal nouns are morpho-syntactic nouns with essentially verbal semantics.

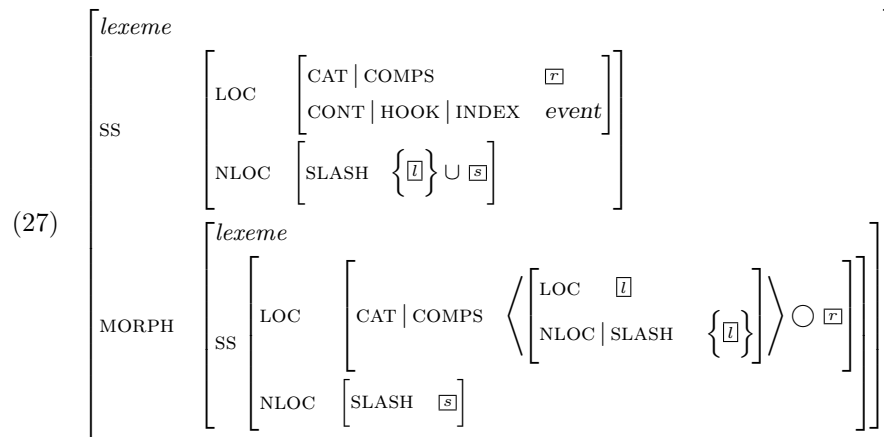


As we have observed above, direct object marking only applies, if the object is realised in situ. This is true not only for strong verbal nouns (see above), but also for plain verbs.

- (26) a. riigaa cèe ya dīnkàa
 gown FOCUS 3.sg.m.completive sew
 ‘He has sewn.’
- b. Yaa dīnkà riigaa
 3.sg.m.completive sew gown
 ‘He has sewn the gown.’

It appears, thus, that extracted complements are simply not visible to direct object marking inflection.

The treatment of complement extraction in HPSG is trace-less, that is the locally unexpressed valency is removed from the COMPS list and its *local* value is inserted directly into SLASH.



For Hausa complement extraction, this can be achieved with the lexeme-to-lexeme rule given above which generalises across verbs, verbal nouns and action nouns. If complement extraction is a lexeme-to-lexeme rule, applying before any lexeme-to-word rules, it is clear that in the case of extraction the direct object valency will have disappeared from COMPS at the point where the inflectional rules apply. As a result, the standard treatment of extraction in HPSG provides a straightforward account of the direct object marking patterns found in this language (cf. Crysmann, 2005 for a similar proposal).

2.2 Possessives

In contrast to verbal nouns and pre-nominal adjectives where the genitive linker does not contribute to the semantics, the bound possessive linker appears to be nothing more than the affixal counterpart of free form *na/ta*. However, we have established above that the bound form cannot be derived from the free form by simple cliticisation, so we are clearly dealing with an instance of head-marking here. While head-marking for in-situ direct objects is common in Hausa, it is otherwise unattested for head-adjunct structures. Furthermore, the morphological constraints applying to the bound marker are actually identical across all three constructions, suggesting, again, that we are in fact dealing with the same marker. I shall therefore propose that even in the possessive construction, the bound linker *-n/-r* is a direct object marker. In contrast to the free form, where the possessive relation is directly encoded in the lexical entry of *na/ta*, possessive semantics is introduced as part of the type raising rule that turns the possessor into the head noun's complement.

$$(28) \left[\begin{array}{l} \text{lexeme} \\ \text{C-CONT} \\ \text{SS} \\ \text{MORPH} \end{array} \left[\begin{array}{l} \text{RELS} \left\langle \begin{array}{l} \text{PRED} \text{ "poss-rel"} \\ \text{LBL} \text{ [7]} \\ \text{ARG1} \text{ [1]} \\ \text{ARG2} \text{ [2]} \end{array} \right\rangle \\ \text{HCONS} \langle \rangle \\ \text{L} \left[\begin{array}{l} \text{CAT} \left[\begin{array}{l} \text{HD} \text{ [0] noun} \\ \text{COMPS} \left\langle \text{[L | CONT | HOOK | INDEX [2]]} \right\rangle \end{array} \right] \\ \text{CONT | HOOK} \left[\begin{array}{l} \text{LTOP} \text{ [7]} \\ \text{INDEX} \text{ [1]} \end{array} \right] \end{array} \right] \\ \text{SS | L} \left[\begin{array}{l} \text{lexeme} \\ \text{CAT} \left[\begin{array}{l} \text{HD} \text{ [0]} \\ \text{COMPS} \langle \rangle \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right]$$

specification *noun*, the representation suggested here conforms to the standard treatment of attributive adjectival modifiers in HPSG as proposed for English in Pollard and Sag (1994). Equally unremarkable is the specification of intersective modifier semantics, which is essentially that proposed in Copestake *et al.* (2005). Agreement with the head noun is enforced by structure-sharing of the adjectives AGR value with the INDEX (and AGR) of the modified head noun.

Since basic adjectives do not take any complements themselves, their COMPS list is empty. Thus, with respect to direct object marking, they obligatorily undergo the zero marking rule.

Given that Hausa is head initial and, moreover, that basic adjectives are adjuncts, they obligatorily follow the head they modify. Pre-nominal adjectives are then derived from basic adjectives by a lexical type raising rule, moving the selectional requirement towards the noun from MOD to COMPS.

$$(30) \left[\begin{array}{l} \textit{lexeme} \\ \text{SS | L} \left[\begin{array}{l} \text{CAT} \left[\begin{array}{l} \text{HD} \left[\begin{array}{l} \textit{noun} \\ \text{AGR} \left[\bar{i} \right] \\ \text{MOD} \left[\langle \rangle \right] \end{array} \right] \\ \text{COMPS} \left[\langle \overline{m} \rangle \end{array} \right] \end{array} \right] \\ \text{CONT} \left[\bar{c} \right] \end{array} \right] \end{array} \right] \\ \text{MORPH} \left[\begin{array}{l} \textit{word} \\ \text{SS | L} \left[\begin{array}{l} \text{CAT} \left[\begin{array}{l} \text{HD} \left[\begin{array}{l} \textit{noun} \\ \text{AGR} \left[\bar{i} \right] \\ \text{MOD} \left[\langle \overline{m} \rangle \right] \end{array} \right] \\ \text{COMPS} \left[\langle \rangle \right] \end{array} \right] \\ \text{CONT} \left[\bar{c} \right] \end{array} \right] \end{array} \right] \end{array} \right] \end{array} \right]$$

Since the semantics of adjectives are already fixed at the level of the lexical entry, the reversal of head-dependent relation can straightforwardly account for the alternation in word order and direct object marking, while leaving the semantic relation entirely unaffected.

3 Conclusion

Hausa bound genitive markers are used in a variety of grammatical constructions including strong verbal nouns, possessives, and pre-nominal adjectives. Despite the superficial difference in function, the marker is subject to identical morphological constraints, setting it apart from the free form possessive linker. Using type raising rules for bound possessive and pre-nominal adjectival constructions, we have developed a unified account of the genitive marker that not only captures the shared properties across its different uses, but also connects this head-marking strategy to a salient feature of the language, namely direct object marking.

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