

External Modifiers in Georgian

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Abstract

This paper addresses the issue of stranded modifiers and null heads through two otherwise unrelated constructions in Georgian. In each construction, a word in the oblique form modifies part of the complex word following it. It is shown that null modifiers in Georgian have a form different from that of the modifiers in the constructions at issue, and the latter cannot have null heads. However, Baker's (1988) approach is not easily compatible with the derivational morphology of these examples. I propose an analysis in terms of Beard (1991), which addresses other bracketing paradoxes by permitting "the semantic features of an attribute [to] subjoin with one and only one semantic feature of its head" (1991: 208). In this way I suggest a unified analysis of the two construction types, drawing on a mechanism that must be included in the grammar for non-derived words as well.

1. Introduction

This paper addresses the issue of external modifiers through two otherwise unrelated constructions in Georgian. The constructions are illustrated below.

- (1) *sam* *tit-moč' r-il-i* (*k'aci*)¹
three.OBL finger-cut.off-PTCPL-NOM man.NOM
'(a man) with three fingers cut off'
- (2) *or-ze-met'* *marcvl-ian-i* (*sit'q'va*)
two-on-more.OBL syllable-PROP-NOM word.NOM
'(a word) of more than two syllables'

The problem is that in each construction, a word in the oblique form appears on semantic grounds to modify part of a word following it. Thus, *sam* 'three' in (1)

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¹ Abbreviations used in glossing include the following: DAT dative, ERG ergative, GEN genitive, INCHO inchoative, INDIC indicative, INST instrumental, MAS masdar, NOM nominative, OBL oblique, PL plural, PRIV privative, PROP proprietive, PRPTCPL present participle, PRX proximate, PTCPL past participle, PTV partitive, SG singular, SM series marker, SCM screeve marker, TRLV translative. Each element of a circumfix is glossed, and they are linked with subscripted numbers.

apparently modifies *tit-* ‘finger’, and *or-ze-met* ‘more than two’ appears to modify *marcvl-* ‘syllable’. There has been a debate in the literature about whether similar constructions involve stranded modifiers or null heads. I argue in this paper that things are just as they appear to be; these are stranded modifiers, not modifiers with null heads.

Baker (1988, especially 92-105, 1996) described stranding of a similar kind in noun incorporation and used this as an argument for syntactic movement and incorporation in the syntax. This approach violates the Lexical Integrity Principle, and analyses more in keeping with this Principle are suggested in Mithun (1984) and Rosen (1989). However, Baker’s syntactic approach is not easily compatible with the derivational morphology illustrated in (2), and there are other problems with the approaches of Mithun and Rosen. In this paper I argue that, while words are formed in the morphology, under some circumstances parts of words are accessible to parts of the syntax, contrary to the Lexical Integrity Principle. Specifically, I argue that a demonstrative, adjective, or participle may modify the left-hand element of a compound or derived word in Georgian and that these constructions with “stranded modifiers” are actually simple bracketing paradoxes. In developing this I follow Beard (1991), which addresses other bracketing paradoxes by permitting “the semantic features of an attribute [to] subjoin with one and only one semantic feature of its head” (1991: 208). In this way I propose a unified analysis of both construction types.

I begin with an introduction to the issue of stranded modifiers vs. null heads in the linguistic literature and then go on to describe each of the constructions illustrated above. In the sections devoted to these individual constructions, (§§3-4), the first subsection provides a general introduction, the second presents evidence for wordhood as indicated by spacing in (1-2), and a later subsection includes specific arguments for an external modifier. §5 provides a discussion of Beard (1991) and a unified analysis based on this, and §6 offers a conclusion.

2. Stranded Modifiers and Null Heads in Linguistics

The issue of stranded modifiers has been addressed primarily in connection with noun incorporation. Mithun (1984) presents a large typological study of noun incorporation (NI) types, arguing that noun incorporation takes place in the morphology or lexicon, not in the syntax. Mithun argues that verbs with incorporated nouns (INs) are compounds, and particularly notes that in general left-hand constituents of such compounds do not refer, do not introduce discourse referents, and are not marked for definiteness or number (1984: 849). Thus, although we find the sentences in (3-4a), we do not find the corresponding (b) sentences.

- (3) a. Bob went berry-picking.
b. *Bob went {the, ripe} berry-picking.
- (4) a. I am baby-sitting.
b. *I am {those, some, three} baby-sitting.

(The examples in (3) and (4) are from Mithun 1984 or inspired by that paper.)

Her discussion of stranded modifiers of the incorporated noun is also of immediate interest here. She notes that (5) in Mohawk appears to involve a stranded modifier, but adds that “languages which exhibit structures like the above [(5)] also exhibit structures like [(6)]” (1984: 870).

- (5) kanekwarúnyu wa'-k-akya'tawi'tsher-ú:ni.
it.dotted.DIST PAST-I-dress-make
'I dress-made a polka-dotted one.' ('I made a polka-dotted dress.')

- (6) kanekwarúnyu wa'katkáhtho. (Mithun 1984: 870)
it.dotted.DIST PAST.I.see
'I saw a polka-dotted (one).'

She concludes that constructions such as (5) involve null heads.

Sadock (1980, 1986) suggests that INs in Greenlandic Eskimo can, contrary to Mithun's claim, be referential and may introduce discourse referents. In Greenlandic, these elements may also be quantified.

- (7) ...Paliitsit 276-inik ammassattortoq (adapted from Sadock 1986: 28)
P. 276-INST.PL sardine.eat.NOM.PTV.3SG
'...that Paliitsit ate 276 sardines...'

Sadock argues that in Greenlandic quantifiers and other modifiers can be stranded, and he shows that Greenlandic lacks constructions with null heads, contrary to Mithun's claim quoted above. Greenlandic stranded modifiers also include both possessors (illustrated in (8)) and adjectives (Sadock 1986: 26-27).

- (8) kunngip panippassuaqarpoq.
king-ERG daughter.many.have.INDIC.3SG
'There are many king's daughters (i.e. princesses).'

In (8), the ergative case expresses possession of the incorporated noun, 'daughter' (or of 'daughter.many').

Mithun (1986) argues that the constructions at issue in Greenlandic are not noun incorporation, at least not in the usual sense of compounding. Rather, the construction that Sadock refers to as incorporation in Greenlandic is, according to Mithun, derivation. The bases for her analysis are (i) that the construction at issue is denominal verb derivation, and (ii) that independent verbs do not incorporate nouns (and the derivational affixes cannot exist independently as verbs). For Mithun, the fact that the construction at issue in Greenlandic does not meet the definitional criteria of noun incorporation means that it is irrelevant that Greenlandic does not conform to her generalizations. But the present paper focuses on external modifiers, not on noun incorporation; so the Greenlandic construction is entirely relevant here.

Like Mithun (1984, 1986), Baker (1988) considers incorporated noun constructions to be compounds (1988: 84). Unlike Mithun, he considers the external modifiers of Mohawk to be stranded, and he accounts for this in the syntax by a process

of movement with incorporation of the noun head, leaving behind (stranding) the modifiers.

Rosen (1989) suggests that two kinds of noun incorporation need to be distinguished, and that in a language in which noun incorporation is a kind of compounding, stranded modifiers will not occur. Rosen associates stranded modifiers with occurrence of a direct object outside the verb (called “doubling” or “possessor raising”).

Baker et al. (2005) continue to look upon modifier stranding as a characteristic limited to NI, and they continue to argue for a syntactic account for NI, and thus for stranding.

Looking beyond NI, it has been observed that it is impossible to quantify the left-hand member of synthetic compounds in English: **the-man hater*, **every-cat chaser*, **some-dog lover* (Sproat and Ward 1987: 326). They suggest (FN 3) that this has something to do with the size, in X' terms, of the left-hand member: **The-Bronx hater*, *Bronx hater*.

Bresnan and Mchombo (1995), while acknowledging the considerable literature on syntactic phrases in derivation and compounding, state that “word-internal constituents generally differ from word-external phrases in disallowing the arbitrarily deep embedding of syntactic phrasal modifiers” (1995: 192). As examples, they cite (9).

- (9) a. [A happy]-ness
 b. *[AP quite happi]-ness
 c. *[AP more happy [than sad]]-ness

For Bresnan and Mchombo, this is one of five tests for lexical integrity, and in this way the ban on external modifiers has become an integral part of the Lexical Integrity Principle.

Other violations of aspects of the Lexical Integrity Principle have been attributed to a variety of factors. Booij (1985) and Nespor (1985) suggest that conjunction reduction may apply to part of a word if it is a phonological word. Sproat and Ward (1987) suggest that outbound exceptions to anaphoric islandhood such as (10) are due to the “discourse salience” of part of a word.

- (10) After painting the house I had *enough left over* for the dog-kennel.
 (Simpson 1991: 56)

Simpson (1991: 61-62) agrees with the latter and adds that the acceptability of *pre- and post-World War II* is related to the relative transparency of the argument structure. She suggests that acceptability of gapping may also be related to stress. Finally, Spencer (1988, 1991: 414-417) has suggested that a prerequisite for the acceptability of *baroque flautist*, where *baroque* modifies a proper part of *flautist*, is the lexicalization of the phrase *baroque flute*.

I argue here that the Georgian construction in (1) is not noun incorporation, and the construction in (2) is not even similar to noun incorporation. Therefore the Greenlandic data are as relevant as the Mohawk data, whether one agrees with Mithun or with Sadock. In the sections below, I argue that in neither of the Georgian

constructions illustrated here does the modifier have a null head, nor does either involve word-internal modifiers. The analysis that the external modifiers are stranded by head movement encounters the problem that case markers and affixes that derive nouns and adjectives are not ordinarily viewed as projecting phrase structure. I argue (following Beard 1991) that instead we have a word-external modifier of only part of the word, and that this analysis is needed in any case for English expressions such as *old friend* that do not involve morphological complexity.

3. Participial Compounds

3.1. General Description

Modern Georgian no longer has productive noun incorporation with finite verb forms, as Old Georgian had.² However, compounding of a noun with a participial head is highly productive. These formations must be viewed as compounds of a noun and a participle for two reasons. First, these are adjectival, not part of a periphrastic verb form, such as English *is baby-sitting* or *has baby-sat*.³ Second, since noun incorporation with finite verbs does not exist in Georgian, these cannot be the participles of such constructions.

The left-hand member of the compound is usually the theme of the verb expressed as a participle. Thus, in (11), *xel-* ‘hand’, is the theme of *gašlili* ‘spread out’.

- (11) *xel-gašl-il-i*
hand-spread.out-PTCPL-NOM
‘(with) hand(s) spread out’ i.e. ‘generous’

The word in (11) also illustrates the fact that the meaning of the compound is not entirely compositional, and the compound may take on a particular meaning of its own.⁴

Additional examples with external modifiers are provided below.

- (12) *garšemo šav q’aitan-movleb-ul-i* (Šaniže 1973:160-161)
outside black.OBL silk.cord-encircled-PTCPL-NOM
‘edged on the outside with black silk cord’

- (13) *or tit-gašl-il-i* (Šaniže 1973:160-161)
two.OBL finger-spread-PTCPL-NOM
‘two fingers spread’

² A description of the syntax of productive noun incorporation in Old Georgian can be found in Harris (1985: 331-337).

³ See Booij (1993: 39) for similar reasoning regarding Dutch.

⁴ Similarly, the first element in the compound is not always the theme. Šaniže (1973: 160) makes the point that (i) refers to a person or thing carried away by water, not the person or thing that carried away water.

(i) *c’q’al-c’ayeb-ul-i*
water-carry.away-PTCPL-NOM
‘[someone or something] carried away by water’

- (14) [deda-s] cxare creml-mtovi-are-sa (Šaniže 1973:160-161)
 mother-DAT hot tear-stream-PRPTCPL-DAT
 ‘[the mother with] hot tears streaming’
- (15) i šemomt’k’iceb-ul puže-eb-ši (A. Lomtaze 1987: 9, 6 up)
i retain-PTCPL stem-PL-in
 ‘in *i*-retaining stems’ ‘in stems that retain *i*’
- (16) p’ap’-is cxvr-is t’q’av-is kud-čamopxat’-ul-i
 grandfather-GEN sheep-GEN skin-GEN hat-down.pull-PTCPL-NOM
 ‘wearing grandfather’s sheep skin hat pulled down low’ (Šaniže 1973:160-161)

The last example, (16), shows that the external modifier may itself have a modifier and that the external modifier may be compound. Here, both ‘grandfather’s and ‘sheep skin’ modify *kud-* ‘hat’. The modifier *t’q’avis* ‘skin-GEN’ is itself modified by *cxvr-is* ‘sheep-GEN’.

A detail of Georgian grammar that is illustrated here and below is that when a quantifier is in construction with a noun, the noun does not bear an overt plural marker. Thus we find *or-i marcvil-i* ‘two syllables’ [two-NOM syllable-NOM], not **or-i marvl-eb-i* [...syllable-PL-NOM]. For the same reason, the plural of *tit-* ‘finger’ in (13) would be ungrammatical, even if the words were independent: *or-i tit-(*eb)-i* ‘two fingers’.

It is often noted that in noun incorporation the incorporated noun is non-referential, and more generally, left-hand members of compounds are non-referential (Mithun 1984, Spencer 1991: 312). Note in the examples above that the left-hand member may be non-referential (e.g. (11)); but when this element is modified, it appears to be referential.

3.2. Wordhood

In this section I argue that the participle and its theme are parts of a single word. For example, in (1), the participle *moč’rili* ‘cut off’ and its theme *tit-* ‘finger’ are parts of a single word. Arguments in this section do not prejudice the question addressed later, whether *sam* ‘three’ is also part of the same word, except that obviously the wordhood of the participle plus theme is a prerequisite to the more extensive wordhood.

In (11) above, *xel-gašl-il-i* ‘(with) hand(s) spread out’, the participle, *gašl-il-i* ‘spread out’, can stand alone as a word. The left-hand element, *xel-* ‘hand’, on the other hand, cannot. In Georgian every independent noun must occur in a case form, and for consonant-final stems, all cases require a non-null case suffix. (For the declension of vowel-final stems see §3.4.) Thus, (17b), (18b), and (19b) are impossible.

- (17) a. es marj vena xel-i aris
 this.NOM right hand-NOM is
 ‘This is the right hand.’
- b. *es marj vena xel aris

- (18) a. marj vena xel-is črdil-i
 right hand-GEN shadow-NOM
 ‘the right hand’s shadow’ ‘shadow of the right hand’
- b. *marj vena xel črdil-i
- (19) a. xel-i da tav-i
 hand-NOM and head-NOM
- b. *xel da tav-i

The stem form and noun is used only in compounding and derivation:

- (20) *Compounding*
- | | | |
|--------------|----------------|-------------------------------|
| xel-axla | hand-now | ‘again, renewed’ |
| xel-burt-i | hand-ball-NOM | ‘handball’ |
| xel-tepš-i | hand-plate-NOM | ‘wooden plate of medium size’ |
| xel-saxoc-i | hand-towel-NOM | ‘handtowel’ |
| xel-mk’lav-i | hand-arm-NOM | ‘hand and arm’ |
- (21) *Derivation*
- | | | |
|----------|---|---------------------------------------|
| xel-ur-i | hand-PROP-NOM | ‘sheaf of ears (e.g. of corn)’ |
| xel-v-a | hand-SM-MAS | ‘working, taking in hand, finding’ |
| u-xel-o | PRIV ₁ -hand-PRIV ₂ | ‘[person, statue, ...] without hands’ |

Because *xel-* cannot be an independent word, *xel-gašl-il-i* ‘(with) hand(s) spread out’ must be a single word. The same reasoning applies to the other examples quoted above, with the exception of (15), which is indeterminate in this respect and will not concern us further.

A second argument that the string in (11) is a word is that it has a single stress, *xel-gašl-il-i* or *xel-gášl-il-i*, whereas the closest corresponding phrases, (22), have two.

- (22) a. xél-i gašl-íl-i-a
 hand-NOM spread-PTCPL-NOM-IS
 ‘The hand is open, outspread.’
- b. gášl-il-i xél-i
 spread-PTCPL-NOM hand-NOM
 ‘open, outspread hand’

Third, the string in (11) cannot be split by another element.

- (23) *xel-ve-gašl-il-i
 hand-indeed-spread-PTCPL-NOM
 ‘(with) that very hand outspread’

In this section I have given three arguments that the participle and its theme constitute a word, not a phrase, and I conclude that this is correct.

3.3. *Two Analyses of (1)*

In this subsection I lay out two possible analyses of (1) and of examples like it; in later subsections I argue that both are wrong. In §5 I propose a different analysis. For convenience, (1) is repeated here as (24).

- (24) *sam* *tit-moč'r-il-i* (k'aci)
 three.OBL finger-cut.off-PTCPL-NOM man.NOM
 ‘(a man) with three fingers cut off’

According to the null head analysis, the structure of (1/24) is as in (25), where *sam* ‘three’ has a null head, indicated by N. Constituency is indicated with brackets, word boundaries with spaces.

- (25) *Null Head Analysis*
 [sam N] [tit-moč'r-il-i]
 three N finger-cut.off-PTCPL- NOM

This is parallel to Mithun’s analysis of NI in Mohawk, which the Georgian examples superficially resemble.

Section 3.2 above showed that the participle and its theme, here *moč'rili* ‘cut off’ and *tit* ‘finger’ respectively, are a single compound word; it was silent on the inclusion of *sam* ‘three’ in that word. The second analysis, which I refer to as the internal modifier analysis, posits that *sam* ‘three’ is part of the word with the participle and its theme.

- (26) *Internal Modifier Analysis*
sam-tit-moč'r-il-i
 three-finger-cut.off-PTCPL- NOM

In the following subsections I argue against both analyses.

3.4. *Arguments Against the Null Head Analysis*

Georgian does have null heads; for example, the sentences in (27) are fully grammatical.

- (27) a. *sam-i* *vnaxe.*
 three-NOM I.see
 ‘I saw three.’
- b. *sam-s* *vxedav.*
 three-DAT I.see
 ‘I see three.’
- c. *sam-i* *makvs* *moč'rili.*
 three-NOM I.have.it cut.off
 ‘I have three [e.g. fingers] cut off.’ ‘I have cut off three [e.g. fingers].’

Each sentence in (27) assumes a null head, whose referent has been established in discourse; (27a) might mean, for example, ‘I saw three horses’ or ‘I saw three bridges’, according to the referent in discourse. I argue below that (1) cannot be interpreted as an example of the null head construction illustrated in (27).

The first argument is based on the form of the modifier. The paradigm in (28a) shows the forms of an adjective, numeral, participle, or other modifier of a nominal, when the modifier precedes the head, in the ordinary order. Here *sam-* is ‘three’, *moxuc-* is ‘old’, and the head is *k’ac-* ‘man’.⁵

(28)		a. ‘three old men’			b. ‘three’
	<i>Nominative</i>	sam-i	moxuc-i	k’ac-i	sam-i
	<i>Ergative</i>	sam-ma	moxuc-ma	k’ac-ma	sam-ma
	<i>Dative</i>	sam	moxuc	k’ac-s	sam-s
	<i>Genitive</i>	sam-i	moxuc-i	k’ac-is	sam-is
	<i>Instrumental</i>	sam-i	moxuc-i	k’ac-it	sam-it
	<i>Translative</i>	sam	moxuc	k’ac-ad	sam-ad

The forms in (28b) show the forms for a numeral, adjective, or participle with a null head. While null heads are very common in Georgian, a consonant-final stem, such as *sam* ‘three’, cannot occur in this construction without an overt case suffix, as illustrated in (29).

(29)	a. sam-i /	*sam vnaxe.	d. lamaz-eb-i /	*lamaz-eb vnaxe.
	three-NOM	three I.see	pretty-PL-NOM	pretty-PL I.see
	‘I saw three.’		‘I saw the pretty ones.’	
	b. sam-s /	*sam vxedav.	e. lamaz-eb-s /	*lamaz-eb vxedav.
	three-DAT	three I.see	pretty-PL-DAT	pretty-PL I.see
	‘I see three.’		‘I see the pretty ones.’	
	c. sam-i /	*sam makvs moč’rili.		
	three-NOM	three I.have.it cut.off		
	‘I have three [e.g. fingers] cut off.’			

The grammatical versions of (29a-e) differ from the ungrammatical versions only in that the latter have no case suffix. ((29b,e) differ from (29a,d) in tense and require an object in a different case.) The examples in (29) show that in Georgian, a modifier with a null head cannot be in bare one of a few cases, e.g. dative (see (28)). and the modifiers in (1), (12), and (13), which are in stem form, cannot have null heads.

⁵ The paradigm in (28a) represents the standard; an alternative pattern is as in (ii).

(ii)	<i>Nominative</i>	sam-i	moxuc-i	k’ac-i	‘three old men’
	<i>Ergative</i>	sam	moxuc	k’ac-ma	
	<i>Dative</i>	sam	moxuc	k’ac-s	
	<i>Genitive</i>	sam	moxuc	k’ac-is	
	<i>Instrumental</i>	sam	moxuc	k’ac-it	
	<i>Translative</i>	sam	moxuc	k’ac-ad	

That is, in all cases except nominative, pre-nominal modifiers may occur in stem form. This does not affect the form of modifiers with null heads, in (28b), which are those at issue here. However, the forms in (ii) are relevant to one of the arguments given in §4.4.

Vowel-final stems in Georgian are invariant when they precede a head, as illustrated by *cxare* ‘hot’ in (30a) ; when they have null heads, they are declined regularly, as in (30b). Because the stem form of a vowel-stem is indeterminate, examples with these are avoided here.

(30)	a.	<i>Nominative</i>	<i>cxare</i>	<i>creml-i</i>	‘hot tears’	b.	<i>cxare</i>
		<i>Ergative</i>	<i>cxare</i>	<i>creml-ma</i>			<i>cxare-m</i>
		<i>Dative</i>	<i>cxare</i>	<i>creml-s</i>			<i>cxare-s</i>
		<i>Genitive</i>	<i>cxare</i>	<i>creml-is</i>			<i>cxar-is</i>
		<i>Instrumental</i>	<i>cxare</i>	<i>creml-it</i>			<i>cxar-it</i>
		<i>Translative</i>	<i>cxare</i>	<i>creml-ad</i>			<i>cxare-d</i>

For this reason, the examples in (14) and (15) are consistent with either analysis, and they are included here only to provide a variety of examples.

A second, related argument, is that, although null heads are common in Georgian, it is not possible to express a meaning parallel to that of Mohawk (5) using one. Recall that Mithun translates the NI example in (5) as “‘I dress-made a polka-dotted one.’ (‘I made a polka-dotted dress.’)” The semantic parallel for Georgian (1) would be ‘with fingers-cut-off three of them’, but ‘three of them’ cannot be expressed in a form parallel to Mohawk (5). Rather, if we take the nominative case as our example, the Georgian form most closely parallel to Mohawk (5) has the meaning in (31).

(31)	<i>sam-i</i>	<i>tit-moč’r-il-i</i>
	three.NOM	finger-cut.off-PTCPL-NOM
	‘three (men, people, statues, ...) with fingers cut off’	

If *sam-* ‘three’ is in a case other than the nominative, it is difficult to assign any meaning to a null head here.

The formal and semantic differences between (1) and (31), show that (31) has a null head, while (1) has some other structure.

3.5. Arguments Against the Internal Modifier Analysis

In formal terms, the status of *sam* ‘three’ is indeterminate. That is, as shown in the preceding section, the stem form of a modifier is formally consistent either with its being part of a larger word, as in (20-21), or with its having a head that is itself in stem form.

In an example such as (16), while *kud-čamopxat’-ul-i* ‘with hat pulled down low’ has a single main stress (*kud-čamopxát’-ul-i* or *kud-čamopxat’-úl-i*), the other elements have their own main stresses. This indicates that these do not all form a single word.

As discussed above, Bresnan and Mchombo have argued that “word-internal constituents generally differ from word-external phrases in disallowing the arbitrarily deep embedding of syntactic phrasal modifiers” (1995: 192), and this statement would probably be accepted by most linguists. We find both a multiple modifier and a recursive modifier in example (16). Both *p’ap’is* ‘grandfather’s’ and *cxvris t’q’avis*

‘sheep skin’ modify *kud-* ‘hat’, and *cxvr-is* ‘sheep-GEN’ modifies *t’q’avis* ‘skin’, just as the phrase modifies *kud-* ‘hat’. Most linguists do not accept that words could have this complexity of internal structure of the types found in syntax, and such an analysis is undesirable.

3.6. Conclusion

We have seen that the stem form of a modifier is not consistent with its having a null head; null heads in Georgian cannot have bare stem form, which the modifiers in examples (1) and (12-13) have. The depth of embedding and complexity of examples such as (16) suggest that the internal modifier analysis is inappropriate. We must thus conclude that the participial construction described here has some other structure.

4. The Man in the Panther’s Skin

4.1. General Description

The great Georgian epic poem that is translated into English as *The Man in the Panther’s Skin* is in Georgian *vepxistq’aosani* or *vepxis tq’aosani*. Note in (32) that *vepxis* ‘panther’s’ appears to be an external modifier of *t’q’a* ‘skin, pelt’. In examples in this section, the root is in bold.

- (32) *vepx-is* ***tqa***’-osan-i
 panther-GEN skin-PROP-NOM
 ‘[the one] having a panther’s skin’

The derivational suffix *-osan-* attaches to nouns and forms proprietive adjectives meaning ‘having’, ‘characterized by’, or, as here, ‘wearing’. (Note that this phrase itself has a null head.) The suffix *-osan-* is not highly productive today, but a similar suffix with the same range of meanings, *-ian-*, is very productive, and it is illustrated in (2).

4.2. Wordhood

In this section I argue, regarding (2), repeated here for convenience as (33), that the root, *marcv(a)l-* ‘syllable’, and the derivational suffix, *-ian-* PROPRIETIVE, are parts of a single word.

- (33) *or-ze-met*’ ***marcvl-***ian-i (sit’q’va)
 two-on-more.OBL syllable-PROP-NOM word.NOM
 ‘(a word) of more than two syllables’

Arguments in this section do not prejudice the question addressed later, whether *or-ze met*’ ‘more than two’, is also part of the same word, except that the wordhood of these two parts is a prerequisite to the more extensive wordhood.

Evidence that *marcvl-ian(-i)* ‘syllabic, having a syllable’ in (2) and (24) is a word, not a phrase, is similar to that discussed in connection with the participial construction, in §3.2. The string *-ian(-i)* ‘PROP’ cannot stand as an independent word, nor can the noun stem *marcv(a)l-* ‘syllable’.

- (34) a. **marcvl-is** dasac’q’is-i
 syllable-GEN beginning-NOM
 ‘syllable onset’
- b. ***marcv(a)l**

Independent nouns with consonant-final stems cannot stand in bare stem form. Since neither element can exist as an independent word, I conclude that *marcvl-ian(-i)* is a word, not a phrase.

4.3. Three Analyses of (2)

In this subsection I lay out three possible analyses of (2) and of examples like it; in later subsections I argue that none of these is correct. In §5 I propose a different analysis. For the sake of simplicity, I use the example in (35), instead of (2/33).

- (35) or-**marcvl-ian-i** puʒe-eb-i (Jeiranišvili 1971: 23, 7 up, 4 up)
 two-syllable-PROP-NOM stem-PL-NOM
 ‘bisyllabic stems’

A null head analysis of (35) would be as in (36), where *or* ‘two’ has a null head, indicated by N.

- (36) *Null Head Analysis*
 [or N] [marcvl-ian-i [puʒe-eb-i]]
 two.OBL N syllable-PROP-NOM stem-PL-NOM

While we have shown that *marcvliani* ‘syllabic’ is a word, not a phrase, we have not yet considered the possibility that *or* ‘two’ may be part of the same word. The internal modifier analysis in (37) posits exactly this.

- (37) *Internal Modifier Analysis*
 [or-marcvl-ian-i [puʒe-eb-i]]
 two-syllable-PROP-NOM stem-PL-NOM

For (2) or (35) we need to consider an additional analysis; in (38) the head has nested modifiers.

- (38) *Nested Modifier Analysis*
 [or [marcvl-ian-i [puʒe-eb-i]]]
 two syllable-PROP-NOM stem-PL-NOM

In the following subsections I argue against each of these analysis.

4.4. Evidence Against these Analyses

The arguments against the null head analysis in the participial construction also apply here. As shown in section 3.4, a modifier with a null head must bear a case marker (which can have a zero-form only with vowel-final stems). The modifiers *or-ze met*- ‘more than two’ in (2), and *or-* ‘two’ in (35), do not bear cases; therefore they cannot have null heads, and we must rule out the analysis in (36).

The form of the modifier is likewise incompatible with the nested modifier analysis. As shown in (28a), a modifier in bare stem form is never grammatical with a head in the nominative case. In example (35), the only available heads are the nominals in nominative case and the stem form *marcv(a)l-* ‘syllable’. The modifier in the stem form, *or* ‘two’ in (35), cannot modify *puʒeebi* ‘stems’ or the derived word as a whole, *marcvliani* ‘syllabic’, since each of these is in the nominative and is thus incompatible with the stem form of the modifier. There is a grammatical example similar to (35), but with nested modifiers; this requires the nominative form of the numeral, as in (39), where ‘two’ now modifies the phrase ‘syllabic stems’, as in (38).

- (39) *or-i* *marcvl-ian-i* *puʒe-eb-i*
 two-NOM **syllable**-PROP-NOM stem-PL-NOM
 ‘two syllabic stems’

On the basis of the form of the numeral, as well as the meaning, we must rule out the nested modifier analysis of (35).

Regarding the internal modifier analysis, where modifiers of the root are part of the same word, orthography provides ambiguous evidence. Like many other examples, (40) shows the modifier of the root written together with the root and derivational suffix *-ian* as one word; in the original, it is written without hyphens.

- (40) *tanxmovan-puʒ-ian-eb-tan* (A. Lomtaze 1987: 39, l. 6)
 consonant-**stem**-PROP-PL-with
 ‘with [ones] having consonant stems’

However, in other examples the modifier of the root is written as a separate word, as in (41) below.

- (41) *nac’armoeb-i* (čveul. *nates[a]obit brunva-ši dasm-ul-i*) *puʒ-isa da*
 derived-NOM ordinarily genitive.OBL case-in place-PTCPL-NOM stem-GEN and
 “c’minda” *puʒ-ian-i* *arsebiti* *saxel-isa-gan* *šedgen-il-i*
 pure **stem**-PROP-NOM substantive-NOM nominal-GEN-from compose-PTCPL-NOM
 ‘composed of a derived stem (ordinarily placed in the genitive case) and a
 substantive nominal [i.e. noun] having a “pure” stem’ (Jeiranišvili 1971: 30, 15)

In (41), the modifier of the root is “c’minda”. In yet other examples, part of the modifier is written with the derived word and part separately.

- (42) ert-ze met'-**marcvl**-ian-i ჳir-eul-i morpem-eb-i
 one-on more-**syllable**-PROP-NOM root-PROP-NOM morpheme-PL-NOM
 'polysyllabic root morphemes' 'root morphemes having more than one syllable'
 (Gamq'relisze 1983:16)

Here the modifier of *marcv(a)l*- 'syllable' is itself a complex phrase, *ert-ze met*'- 'more than one'.⁶ We can see from these examples that the orthography is not consistent and thus provides no help in determining whether the internal modifier analysis, (37), is correct.

The form of the modifier likewise provides no information relevant to (37). On formal grounds, the number of words in the string *or-marcv-ian-i* 'bisyllabic' in (35) or even in *or-ze met' marcvl-ian-i* 'polysyllabic' in (2) is indeterminate. A quantifier, such as *or* 'two' or *met'* 'more', is in bare stem form preceding heads in certain cases (see the paradigm in (28a)). In addition, the stem form occurs in compounds and derivation, as illustrated in (43-44).

- (43) *Compounds*
 or-as-i two-hundred-NOM 'two hundred'
 or-zoma two-size 'double-size'
 or-sul-a two-soul-PROP 'pregnant'
 or-gul-a two-heart-PROP 'liar, traitor'
- (44) *Derivation*
 or-d-eb-a two-INCHO-SM-3SG 'it doubles, reduplicates'
 or-eul-i two-PROP-NOM 'double, shadow'

Thus, the form of the numeral in (35) cannot distinguish between the internal modifier analysis, (37), and the external modifier analysis proposed in §5.

We do find relevant evidence in (45), where the modifier is more complex than any we have seen.⁷

- (45) ert-ze met' (γia an daxurul) **marcvl**-ian arsebit saxel-eb-ši
 one-on more open or closed **syllable**-PROP substantive nominal-PL-in
 'in substantive nominals [i.e. nouns] having more than one (open or closed)
 syllable' (Jeiranišvili 1971: 44, 23)

⁶ This phrase illustrates one productive way of stating comparison in Georgian, where the standard of comparison is expressed as the object of the enclitic postposition *-ze* 'on', and where the comparative adjective is expressed without special morphology, as in (iii).

(iii) šen-ze did-i
 you-on big-NOM
 'bigger than you'
 (iv) or-ze met'-i minda
 two-on more-NOM I.want.it
 'I want more than two.'

⁷ (45) is from the literature, but it is infrequent enough that I checked it with three consultants. Two found it fully acceptable, but the third wanted hyphens inserted in unspecified locations.

A string such as *ert-ze met* (*γia an daxurul*) *marcvl-ian* ‘having more than one (open or closed) syllable’ in (45) is best viewed as a phrase, not a single word because, even if words may be based on phrases, it is generally assumed that a word may not include a syntactic construction as complex as a comparative phrase, such as *ert-ze met* ‘more than one’, or a parenthetical remark, such as (*γia an daxurul*) ‘(open or closed)’. On this basis we must rule out also the internal modifier analysis of this construction.

4.4. Conclusion

In this section we have examined words derived with the proprietive suffix *-ian-*, which forms a word with a base and a case suffix. For examples in which the root of the derived lexeme is modified, we have considered a null head analysis, an internal modifier analysis, and a nested modifier analysis. The form of (2) and other related examples is not consistent with the first- and last-named analyses, but is indeterminate with respect to the internal modifier analysis. The fact that modifiers may include complex phrases, such as comparative constructions, and parenthetical comments suggests that the internal modifier analysis is also incorrect. I conclude that the modifiers here are external modifiers of the root.

5. Beard’s Solution to Bracketing Paradoxes and Its Application to Georgian

Beard (1991) shows that a variety of bracketing paradoxes in English cannot be dealt with effectively by means of the various devices previously proposed for this, including bracket erasure. He argues that a construction such as *transformational grammarian* is actually semantically compositional and proposes a formal semantics which permits a modifier to take wide or narrow scope. For example, the modifier *transformational* can, in principle, take wide scope over *grammarian*, or narrow scope over *grammar* alone, the latter corresponding to the ordinary reading of this phrase. Beard shows that structural analyses are inherently incapable of accounting for the ambiguity of a phrase such as *criminal lawyer*, because there are only two potential structures, yet established tests show four potential meanings, (46).

- (46) a. [criminal lawyer] ‘the lawyer who is criminal as a person’
b. [criminal law] yer ‘a person who practices law criminally’
(i.e. ‘who is criminal as a lawyer’)
(c) [criminal law] yer ‘a person who practices criminal law’, where
(i) ?the law is criminal (QAdj reading) or
(ii) the law merely pertains to crime
(RAdj reading) (Beard 1991: 201)

Beard’s analysis is further buttressed by the observation that the same narrow vs. wide scope ambiguity exists in phrases such as *old friend*, which are not morphologically derived. That is, the machinery for resolution of this ambiguity must exist in the grammar independently of the requirements of bracketing paradoxes.

In his paper, Beard suggests that “in languages other than English, [such problems] seem to reduce to phonological issues unrelated to morphology” (1991: 197). In this section I argue that, on the contrary, the apparently external modifiers in Georgian described above present entirely morphological problems, that these problems reduce to bracketing paradoxes, and that these paradoxes, like the English ones discussed by Beard, are effectively analyzed by means of his proposed semantics.

Beard makes use of a simple semantics, based on Jackendoff (1983, 1987), requiring no special mechanisms, and adding only a more elaborated notion of attribute composition (1991: 205). Definitions of potential heads indicate the features “category”, “function”, and “properties”, which are referred to by the Principle of Decompositional Composition.

(47) *The Principle of Decompositional Composition*

The semantic features of an attribute subjoin with one and only one semantic feature of its head. (Beard 1991: 208)

According to (47), the modifier (“attribute”) does not combine semantically with all the features of the head on either the broad or the narrow reading; rather it combines with a single feature.

When we consider the Georgian constructions described above, we find that for each, one of the readings that is possible in English is ruled out in Georgian on grammatical (morphological) grounds. In the participial construction, we see that the structure parallel to (46a), namely (48a) below, is ruled out for (1) in Georgian by the fact that the modifier *sam* ‘three’ is not in the form to agree in case with the whole word *tit-moč’rili* ‘(with) finger(s) cut off’.

- (48) a. *[*sam* *tit-moč’r-il-i* N-i]
 [three-OBL finger-cut.off-PTCPL-NOM]
 ‘three (men, people, statues, ...) with fingers cut off’
- b. [*sam* *tit*]-*moč’r-il-i* N-i
 [three-OBL finger]-cut.off-PTCPL- NOM
 ‘(men, people, statues, ...) with three fingers cut off’

In Georgian, the reading in (48a) is possible only if *sam* ‘three’ were in the form with the suffix *-i*, agreeing with *tit-moč’rili* ‘with fingers cut off’ and with its head, as in (46), repeated here as (49).

- (49) [*sam-i* *tit-moč’ril-i*]
 three-OBL finger-cut.off-PTCPL- NOM
 ‘three (men, people, statues, ...) with fingers cut off’

The structure in (48b), parallel to English (46b,c), with narrow semantic scope, is possible; remaining ambiguities are beyond the scope of this paper.⁸ The bracketing paradox here is that semantically and in terms of case agreement *sam* ‘three’ modifies

⁸ As far as I am aware, none of the modifiers in the participial examples has a QAdj reading (see Beard 1991: 199ff and sources cited there), but I have not done fieldwork on this specific issue. If correct, this reduces the number of readings available in Georgian.

and thus forms a constituent with *tit-* ‘finger’, while the two do not form a word or a syntactic constituent; rather the latter, but not the former, is part of a larger word. Applying Beard’s semantics here to (1), we see that on the ordinary reading *sam* ‘three’ combines only with the category feature of *tit-* ‘finger’.

Similarly, in the derivation of (2), the (a) reading is impossible because of lack of case agreement, as shown in §4.3.

- (50) a. **[or-ze-met’* *marcvl-ian-i* *N-i]*
 two-on-more.OBL syllable-PROP-NOM
 ‘more than two syllabic (words, morphemes, affixes,...)’
 b. *[or-ze-met’* *marcvl]-ian-i* *N-i]*
 two-on-more.OBL syllable-PROP-NOM
 ‘(words, morphemes, affixes,...) having more than two syllables’

The reading in (50a) is possible only if the form of the case were changed, as in (51).

- (51) *[or-ze met’-i* *marcvl-ian-i* *N-i]*
 two-on more-NOM syllable-PROP-NOM
 ‘more than two syllabic (words, morphemes, affixes,...)’

Given the form of (2), shown also in (50), the reading with narrow scope is the only possible one in Georgian. In this instance the bracketing paradox is that *or-ze met’* ‘more than two’ forms a constituent with *marcv(a)l-* ‘syllable’ semantically and in terms of case agreement, but not in terms of word boundaries. The Principle of Decompositional Composition permits the constituent *or-ze met’* ‘more than two’ to combine with the category feature of *marcv(a)l-* ‘syllable’ alone, accounting for the narrow scope of the interpretation.

Thus, the two problems introduced at the beginning of this paper are, in fact, bracketing paradoxes. Through morphological case agreement, they avoid some of the ambiguity that is found in some bracketing paradoxes in English. The Principle of Decompositional Composition provides an effective means of accounting for such constructions.⁹

Beard (1991) has shown that even for simplex words, (external) modifiers must have access to parts, features, of a word. In this way we can explain the meanings of *old friend*. Accounting for external modifiers of complex words such as those in (1-2) does not require any additional complication of the grammar. Because external modifiers must be available for underived words, stranding does not constitute an argument for a syntactic account of noun incorporation.

⁹ There remain other bracketing paradoxes in Georgian that are not effectively dealt with in this way.

6. Conclusion

It has been suggested in the linguistic literature (see §2) that part of a word cannot be modified by an element external to the word. An exception on some accounts is a modifier stranded by NI. I have shown in sections 3 and 4 that in two constructions in Georgian, the left-hand constituent of a compound or derived word can indeed be modified by a word, or an even longer string, outside.

However, Beard (1991) shows that this does not depend on morphological structure: an external element can and does ordinarily modify part of a word. In English phrases such as *old friend*, *prolific novelist*, the first word combines not with a particular morpheme, but with a particular element of the semantic features of the head. In these two structures in Georgian, this common semantic structure is reflected in the grammatical structure.

The putative inability of a part of a word to be modified from the outside has been interpreted by some as a basic notion of wordhood or of the Lexical Integrity Principle (see especially Bresnan and Mchombo 1995). Many kinds of exceptions have previously been noted in English, and (52) and (53) illustrate two more.

(52) small-childhood (Wharton 1998: 197)

(53) I [have] been mothered, fathered, aunt and uncled... (Simon 1965)

Wharton's (52) illustrates an external modifier (written by the author with a hyphen), while (53) could be interpreted as gapping of the participial marker *-ed* or as conjoining inside a word, with a structure like [*aunt and uncle*]-*d*, either of which is unexpected. Of course, in English these are unusual and not fully acceptable, while the Georgian examples discussed here are common and fully acceptable to all consulted. In other work I have challenged the accepted status of other criteria for identifying the word, including the putatively absolute inability of a word to be interrupted by a clitic or other word (Harris 2000, 2002) and the putative status of a word as an in-bound anaphoric island (Harris 2006), in languages where the phenomena at issue are neither unusual nor incompletely acceptable. I suggest that these three characteristics – inability to be interrupted, in-bound anaphoric islandhood, and inability to have modifiers of a proper subpart – while not irrelevant to wordhood, are not absolute linguistic principles, only tendencies. One possibility is that each of these is best expressed through Optimality Theory as a highly valued constraint in most languages.¹⁰ However, before we jump to that conclusion, we should look more closely at these phenomena in other unfamiliar languages, as well as at other restrictions on the constructions studied here. For example, although both constructions included in this paper permit external modifiers of parts of words, not all modifiers are permitted.

(54) a. es lob-ian-i xač'ap'ur-i
 this.NOM bean-PROP-NOM cheese.bread-NOM
 'this cheese-bread [made] with beans'

¹⁰ Similar suggestions are made in Anderson (2005), Harris (2002: 165-166), and Rice (2004: 295).

- b. *am lob-ian-i xač'ap'ur-i
 this.OBL bean-PROP-NOM cheese.bread-NOM
 'cheese-bread [made] with these beans'

In (54a), *es* 'this' modifies the *head*, *xačap=uri*, whereas in the ungrammatical (54b), it modifies the constituent *lob[io]* 'bean'. Given the facts of §4, one might expect (54b) to be grammatical, and its ungrammaticality requires further study.¹¹ Another example is that given the existence of in-bound anaphora in English words such as *therefore*, *therein*, *whereby*, and perhaps even *himself* and the fact that in-bound anaphora are extremely common in Georgian (Harris, 2006), we need to understand better what language-particular feature of English really blocks words such as **him-ite* and **you-less*. I suggest that much study is still needed to understand the characteristics of words cross-linguistically.

References

- Anderson, Stephen R. (2005) *Aspects of the Theory of Clitics*. Oxford: OUP.
- Baker, Mark C. (1988) *Incorporation: A Theory of Grammatical Function Changing*. Chicago: University of Chicago.
- Baker, Mark C. (1996) *The Polysynthesis Parameter*. Oxford: Oxford University.
- Baker, Mark C., Roberto Aranovich, and Lucia A. Golluscio (2005) "Two Types of Syntactic Noun Incorporation: Noun Incorporation in Mapudungun and Its Typological Implications." *Language* 81, 138-176.
- Beard, Robert (1991) "Decompositional Composition: The Semantics of Scope Ambiguities and 'Bracketing Paradoxes'." *Natural Language and Linguistic Theory* 9, 195-229.
- Booij, Geert E. (1985) "Coordination Reduction in Complex Words: A Case for Prosodic Phonology." In H. van der Hulst and N. Smith (eds.), *Advances in Nonlinear Phonology*. Dordrecht: Foris, 143-160.
- Booij, Geert (1993) "Against Split Morphology." In Geert Booij and Jaap van Marle (eds.), *Yearbook of Morphology, 1993*. Dordrecht: Kluwer, 27-49.
- Bresnan, Joan, and Sam A. Mchombo (1995) "The Lexical Integrity Principle: Evidence from Bantu." *Natural Language and Linguistic Theory* 13, 181-254.
- Harris, Alice C. (1985) *Diachronic Syntax: The Kartvelian Case*. (Syntax and Semantics, 18.) New York: Academic Press.
- Harris, Alice C. (2000) "Where in the Word is the Udi Clitic?" *Language* 76, 593-616.
- Harris, Alice C. (2002) *Endoclitics and the Origins of Udi Morphosyntax*. Oxford: Oxford University Press.
- Harris, Alice C. (2006) "Revisiting Anaphoric Islands." *Language*.
- Jackendoff, Ray (1983) *Semantics and Cognition*. Cambridge (Mass.): MIT Press.
- Jackendoff, Ray (1987) "The Status of Thematic Relations in Linguistic theory." *Linguistic Inquiry* 18, 119-126.
- Mithun, Marianne (1984) "The Evolution of Noun Incorporation." *Language* 60, 847-94.
- Mithun, Marianne (1986) "On the Nature of Noun Incorporation." *Language* 62, 32-37.
- Nespor, Marina (1985) "The Phonological Word in Italian." In H. van der Hulst and N. Smith (eds.) *Advances in Nonlinear Phonology*. Dordrecht: Foris, 193-204.
- Rice, Keren (2004) "Review of *Endoclitics and the Origins of Udi Morphosyntax*, by Alice C. Harris." *Linguistic Typology* 8, 287-298.

¹¹ It appears that the generalization is that words derived with *-ian-*, unlike the participial construction or the partitive, require that the left-hand element be indefinite.

- Rosen, Sara Thomas (1989) "Two Types of Noun Incorporation: A Lexical analysis." *Language* 65, 294-317.
- Sadock, Jerrold M. (1980) "Noun Incorporation in Greenlandic." *Language* 56, 300-319.
- Sadock, Jerrold M. (1986) "Some Notes on Noun Incorporation." *Language* 62, 19-31.
- Šaniže, Ak'ak'i (1973/1953) *Kartuli enis gramat'ik'is sapužvlebi*. [Fundamentals of the grammar of the Georgian language.] Tbilisi: Universit'et'i.
- Simpson, Jane (1991) *Warlpiri Morpho-syntax: A Lexicalist Approach*. Dordrecht: Kluwer.
- Spencer, Andrew (1988) "Bracketing Paradoxes and the English Lexicon." *Language* 64, 663-682.
- Spencer, Andrew (1991) *Morphological Theory*. Oxford: Blackwell.
- Sproat, Richard, and Gregory Ward (1987) "Pragmatic Considerations in Anaphoric Island Phenomena." *Chicago Linguistic Society* 23, 321-335.

Sources of Examples

- Gamq'reliže, Nana (1983) "Udiuri enis xmovanta ganac'ilebisatvis morpemis sazgvrebši." [On the distribution of Udi vowels at morpheme boundaries.] *Masalebi axalgazrda mecnier-pilologta resp'ublik'uri k'onperenciisa*. Tbilisi: University, 13-17.
- Jeiranišvili, Evgeni (1971) *Udiuri ena*. [The Udi language.] Tbilisi: University.
- Lomtaze, Amiran (1987) *Brunebis taviseburebata ist'oriisatvis megrulši*. [On the history of peculiarities of declension in Mingrelian.] Tbilisi: Universit'et'i.
- Simon, Paul (1965) "A Simple Desultory Philippic (or How I was Robert McNamara'd into Submission)."
- Wharton, Edith (1933/1998) *A Backward Glance: An Autobiography*. NY: Simon and Schuster.