

**BODY-PART ADPOSITIONS IN GAAHMG —
GRAMMATICALIZED FORMS WITH PERSON-MARKER VOWELS**

Timothy M. Stirtz
SIL International
tim.stirtz@suremail.org

Many African languages employ body parts as adpositions (Heine 1989), the general pattern in Gaahmg, with one locative postposition perhaps derived from ‘vagina’. In addition, Gaahmg has locative postpositions and locative pronouns that include a person-marker vowel: *a*, *ə* = 1st person; *ɔ*, *u* = 2nd person; *ɛ*, *i* = 3rd person. Most locative postpositions and locative pronouns are distinct in form and syntax from their source nouns, and postpositions with person-marker vowels do not synchronically refer to person. Thus, they are analyzed as grammaticalized forms, categorically distinct from nouns. In addition to describing these aspects of the grammar, we will posit two grammaticalization routes based on Heine’s (1989) model to trace the changes from the source nouns to the postpositions and locative pronouns.

1. Introduction

Casad (1982) was among the first to note that adpositions are derived from nouns in many languages. Heine (1989) continues in showing how landmark nouns (‘earth’, ‘sky’, etc.) or body parts (‘head’, ‘back’, etc.) are commonly the source of adpositions in African languages. Svorou (1994) shows the same two classes of nouns are the source of spatial words worldwide. DeLancey (1997) argues that the unpredictable syntactic behavior of grammatical categories such as adpositions is better explained through grammaticalization processes rather than through phrase structure rules.

In this paper, we take an in-depth look at Gaahmg body-part adpositions and their sources. Gaahmg (Gaam, Ingessana, Tabi, Ethnologue code [tbi]) is a Nilo-Saharan, Eastern Sudanic language. Approximately 70,000 Gaahmg speakers claim the Ingessana Hills of the Blue Nile Province of Sudan as their home area. This paper results from PhD research at Leiden University (Stirtz 2011),¹ yet extends beyond that work, particularly in comparing Gaahmg postpositions with adpositions of other languages, as well as proposing channels for grammaticalization.

All Gaahmg locative postpositions² are derived from body-part nouns as opposed to landmark

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² ‘Locative postpositions’ are occasionally referred to simply as ‘postpositions’, since there are no other kinds of postpositions in Gaahmg besides these. The term ‘locative postposition’ is used to indicate a parallel word category to ‘locative pronoun’, since, as discussed in 3.3, both word categories have the function of indicating the location of the preceding word, but ‘locative postpositions’ reference nouns and ‘locative pronouns’ reference pronouns.

nouns or other nouns. The source model is the human body rather than an animal body, as indicated by the upright orientation implied by the body-part postpositions. These and other properties of Gaahmg locative postpositions are discussed in section 2.

A unique feature of the postpositions ‘inside’, ‘above’ and ‘behind’ is that they are derived from inherently possessed body-part nouns and retain a person-marker vowel, even though they are grammaticalized forms that no longer refer to a person. The postposition *śśl* ‘above’ in (1) is derived from the inherently possessed body part ‘head’. In particular, it is derived from this body part possessed by the second person singular, which has the same vowel as the postposition. The body part possessed by other persons has other vowels, as shown in (1) in the last column on the right. In (1) the postposition *śśl* ‘above’ does not refer to second person since it refers to the noun *ūfú* ‘tree’. It also has a different tone than the possessed noun *śśl* ‘2sG-head’. For these reasons and others presented in this paper, we can analyze locative postpositions as belonging to a distinct word category, rather than as nouns with locative meaning through metaphorical extension. Gaahmg postpositions, such as *śśl*, follow a noun of reference. The postposition and its referent function as a verbal adjunct describing location.

(1)	<i>ē</i>	<i>àn</i>	<i>ūfú</i>	<i>śśl</i>	<i>ḍḍēnē</i>	<i>āā-l</i> ‘1sG-head’
	3sN ³	stay	tree.type	above	only	<i>śś-l</i> ‘2sG-head’
	‘He remained up (in) the baobab tree.’					<i>ēē-l</i> ‘3sG-head’

In addition to locative postpositions, Gaahmg has locative pronouns, which are also derived from body-part nouns, and are discussed in section 3. In (2), the locative pronoun *ḍ-éél* ‘above it’ is derived from the third singular inherently possessed noun *ēē-l* ‘his head’ and follows the accusative pronoun of reference =*i* attached to the verb.

(2)	<i>mīnjīb</i>	<i>ε</i>	<i>dōs</i>	<i>ē</i>	<i>əb=i</i>	<i>ḍ-éél</i>	<i>āā-l</i> ‘1sG-head’
	Minjib	3sN	starts	3sN	rides=3sA	PP-above.3sL	<i>śś-l</i> ‘2sG-head’
	‘Minyjib rode his horse proudly						<i>ēē-l</i> ‘3sG-head’
	(lit. rides it above it).’						

All Gaahmg pronouns have the same three person-marker vowels as inherently-possessed nouns, such as ‘head’. Thus, Gaahmg locative pronouns also have person-marker vowels, and have the same function as locative postpositions in that they describe location. However, postpositions and locative pronouns are distinct in form and syntax from each other, as well as from their body-part source nouns or other pronouns, as seen in section 3.

To my knowledge, no other Eastern Sudanic language has been documented as having person marker vowels throughout the pronoun system. Thus, although many languages of the world have adpositions derived from nouns, and some languages have adpositions derived from genitive nouns, it is unknown whether any other language has adpositions derived with various person-marker vowels, as in Gaahmg.

³See Abbreviations in the appendix

Finally in section 4, we discuss the grammaticalization processes for both postpositions and locative pronouns: All Gaahmg locative pronouns, and postpositions with first or second person-marker vowels, are derived from genitive nouns. Other postpositions are derived from noun heads of genitive constructions.

2. Gaahmg locative postpositions

In this section we discuss the properties of Gaahmg locative postpositions. They have human body-part source nouns (section 2.1), have number agreement with the noun of reference (section 2.2), are a distinct word category (section 2.3), are morphologically distinct from their source nouns (section 2.4), have person-marker vowels (section 2.5), have clitic-like morphology (section 2.6), and follow reference nouns just as heads of genitive constructions follow possessor body-part nouns (section 2.7).

2.1. Gaahmg locative postpositions compared with adpositions of other languages. Heine (1989: 98) compares adpositions in 125 African languages, noting that in many of these languages, adpositions are either derived from landmark nouns or body-part nouns. In a few Nilo-Saharan languages such as Dinka and Shilluk, all adpositions are derived from body-part nouns. As seen from the list in (3), locative postpositions in Gaahmg are also derived only from body-part nouns. We can imagine that over time, these source nouns were increasingly used in new contexts to indicate location, and eventually came to have conventional locative meanings and functions, following the grammaticalization pattern described by Heine (1997:76), and further discussed in section 2.7.

(3) Gaahmg locative postpositions derived from body-part nouns

	Noun	LOC POST
(a)	ēēlg ‘stomach.3sG’	éélg ‘inside, in’
(b)	ōōl ‘head.2sG’	óól ‘above, up, on, over’
(c)	āāŋ/ēēŋ ‘back.1sG/back.3sG’	ááŋ/ééŋ ‘behind, in back of’
(d)	bōl ‘vagina’	bōl ‘under, below’
(e)	mūū ‘face, forehead’	mūū ‘before, in front of’
(f)	bēŋŋ ‘side’	bēŋŋ ‘beside, next to’

Heine also notes that some Nilo-Saharan languages such as Dinka and Shilluk make use of both human and animal bodies in their source of adpositions (1989: 91). The human body is viewed as upright, whereas an animal body is viewed as on all four legs. Heine explains that the word *nhom* ‘head’ in Dinka can mean ‘on’ such as in an upright human body where the head is at the top. Or, ‘head’ can mean ‘front’ as in a cow on four legs where the head is in the front. Similarly in Shilluk, both the word *wic* ‘head’ and *kwom* ‘back’ have the meaning ‘on’, since ‘head’ and ‘back’ are at the top in human and animal bodies respectively.

In contrast, Gaahmg uses only the human body as its source of locative postpositions. In (3b), the postposition *óól* ‘above, up, on, over’ has *ōōl* ‘head.2sG’ as its source. In (3c), the postposition

áápn/éépn ‘behind, in back of’ has *āāpn/ēēpn* ‘back.1sG/back.3sG’ as its source. Both postpositions make use of their body-part source nouns as in an upright human position, rather than in an animal on all four legs.

In addition to listing the common body-part source nouns for adpositions, Heine also identified the most common source nouns of adpositions. As seen in (4), Gaahmg derives four of its five postpositions from these body-part nouns. The one exception is the word ‘under’, likely from ‘vagina’. Since no postpositions are derived from body parts unique to the male body, if the postposition ‘under’ is indeed derived from this body part unique to the female body, it would suggest that Gaahmg uses the female human body, as its source of postpositions. As shown in (5), Gaahmg has other words for ‘anus’ and ‘buttock’, so the meaning of ‘anus’, ‘buttock’ or other body parts is not included in the meaning of ‘vagina’.

(4) Gaahmg source nouns compared with those in 125 African languages (Heine 1989: 98)

Adposition	Number of languages (of 125) with most common source noun	Gaahmg source noun
‘above, on’	40 ‘head’	<i>ōōl</i> ‘head’
‘under, below’	22 ‘buttocks’, 22 ‘anus’	<i>bāl</i> ‘vagina’
‘inside, in’	58 ‘stomach’	<i>ēēlg</i> ‘stomach’
‘before, front’	47 ‘face’	<i>mūū</i> ‘face’
‘behind, back’	80 ‘back’	<i>āāpn/ēēpn</i> ‘back’

(5) Meaning of ‘vagina’ distinguished from that of other body-part nouns

<i>bāl</i> ‘vagina’	<i>lóór</i> ‘cervix’	<i>gōfō</i> ‘womb’
<i>sārànḡ</i> ‘crotch’	<i>bērḡ</i> ‘anus’	<i>kólmó</i> ‘buttock’

However, there is uncertainty as to whether the meaning of ‘vagina’ was extended to ‘under’ or whether the meaning of ‘under’ was extended to ‘vagina’ as a euphemism.⁴ The more common and default meaning of *bāl* ‘under/vagina’ is ‘under’. Thus, the word is not taboo in its default meaning. It is not clear as to whether the word is taboo when the meaning is clearly ‘vagina’. Perhaps the common use with the meaning ‘under’ has caused the word to lose all taboo connotations. Words such as *mōgōēg* ‘intercourse’ and *calāāḡ* ‘penis’ are taboo when said in the mixed company of men and women not married to each other. So, we can assume that the body-part noun *bāl* ‘vagina’ was also taboo, at least at some point in history. This raises the question of how *bāl* with an original meaning ‘vagina’ could have come to be used with the meaning ‘under’. More research is needed to resolve this issue.

2.2. Gaahmg locative postpositions and number agreement. Gaahmg postpositions have number agreement in much the same way as the nouns they are derived from. As seen in (6), the body-part nouns on the left each have a suffix containing *g* in the plural form. Similarly, Gaahmg postpositions with final *g* agree with plural nouns of reference. The plural postpositions of (a-c)

⁴ As one anonymous reviewer pointed out.

also differ from singular postpositions in [ATR] vowel quality, the singular being [-ATR] and the plural being [+ATR]. The singular and plural postpositions of (a-e) differ in tone, all the plural postpositions having a final low.

(6) Locative postposition number agreement

	Noun SG	Noun PL		POST SG	POST PL	
(a)	ēē-l-g ⁵	ì-l-g	‘3G-stomach’	éélg	ìilg	‘inside’
(b)	ōō-l	ùù-l-g	‘2G-head’	óól	úùlg	‘above’
(c)	āā-ŋ/ ēē-ŋ	àà-ŋ-g/ ì-ŋ-g	‘1G-back/ 3G-back’	ááŋ/ééŋ	ààŋg	‘behind’
(d)	bāl	bàl-g	‘vagina’	bāl	bàlg	‘under’
(e)	mūū	mùù-g	‘face’	mūū	mùùg	‘before’
(f)	bèŋ-ŋ	bèŋ-āāg	‘side’	bèŋŋ	bèŋāāg	‘beside’

The examples in (7-10) demonstrate number agreement with nouns of reference. In (7-8), the nouns of reference *fəl* ‘hole’ and *gəi* ‘tree type’ are singular, and the accompanying postpositions *mūū* ‘before’ and *bəl* ‘under’ have no final *g*. In (9-10) the nouns of reference *kúúfúg* ‘beans’ and *məsərèèg* ‘horses’ are plural, and the plural postpositions *mùùg* ‘before’ and *ùùlg* ‘above’ with final *g* are used.

(7) ē rāg fəl mūū
3sN stop hole before
‘He stopped **in front of the hole.**’

(8) fāā ná bəl còòjòòèèn ē àn gəi bəl⁶
old REL call Joojo.3sP 3sN stay tree.type under
‘An old man named Joojo was sitting **under a Gai tree.**’

(9) āldá ē rāg kúúfú-g mùùg
fox 3sN stop bean-PL before.PL
‘The fox stopped **in front of the beans.**’

(10) ēg ān məsər-èèg ùùlg
3pN remained horse-PL above.PL
‘They remained up on the horses.’

2.3. Gaahmg locative postpositions distinct from other word categories. The fact that Gaahmg postpositions retain number agreement supports the claim that they are derived from nouns, but it

⁵ The suffix -g is most commonly a plural marker, but also occurs as a singular marker suffix in a few nouns, e.g., *ààr-g/ààr-ēēg* ‘chief’ and *éé-l-g/ì-l-g* ‘stomach’ (Stirtz 2011:99).

⁶ In (8), the Mid tone of *bəl* ‘under’ assimilates to the preceding Low of *gəi* ‘tree type’. In (10), the initial High of *ùùlg* ‘above’ is lowered to Mid after the preceding Low of *məsərèèg* ‘horses’.

is not conclusive evidence that they remain nouns. Instead, we now argue the opposite. There are three other word categories in Gaahmg which also agree in number with the head noun, as shown in (11): adjectives, genitive pronouns of alienable nouns, and demonstratives. In Stirtz (2011), these are shown to be word categories distinct from nouns. So, this nominal property of number agreement is not conclusive evidence in itself that postpositions are (synchronic) nouns. In fact, there are no other nominal properties of postpositions. For instance, postpositions are not found to be verb subjects or objects, to take adjectives or demonstratives, nor to be the heads of genitive or relative constructions.

(11) Gaahmg word categories with number agreement

		SG	PL	
(a)	Locative postpositions	ūfú ́óól	ūfū-g úúl-g	‘above tree/s’
		ūfú ááj̃	ūfū-g ááj̃-g	‘behind tree/s’
(b)	Adjectives	kòlèèð ìi	kòlèèð-g ìi-g	‘heavy sword/s’
		ṭ́óó kóóf̃ar	ṭ́ó-g kóóf̃ar-g	‘thin cow/cows’
(c)	Genitive pronouns of alienable nouns	máà áàn	máà-g ánàg	‘my house/houses’
		máà ðyà̀n	máà-g ðyà̀g	‘our house/houses’
(d)	Demonstratives	ṭ́óó néé	ṭ́ó-g nèè	‘this/these cow/s’
		ṭ́óó náá	ṭ́ó-g nàà	‘that/those cow/s’

Further, postpositions are syntactically distinct from adverbs of direction, such as those in (12), which have similar meaning and function to postpositions. The two word categories differ in that postpositions always follow a noun of reference, whereas adverbs can immediately follow verbs as in (13). When adverbs follow verb complements as in (14), they do not agree in number with the noun as do postpositions with nouns of reference.

(12) Adverbs of direction

ṭ́áḍ	‘down’	ṭ́àḍ	‘up’	sím	‘in, down’
cāb	‘up’	fān	‘on, to’	ḍūmù̀n	‘towards’
ṭ́ú	‘out, away, through’				

(13) ēg bōf̃ō ēg léē ṭ́àḍ
 3sN sing 3pN going **up**
 ‘They sang as they went **up**.’

(14) á wīrā̀n áfáḍ mān ṭ́áḍ ṭ́è
 1sN slaughtering blood certain **down** here
 ‘I am sacrificing (lit. slaughtering **down** certain living creatures) here.’

2.4. Gaahmg locative postpositions tonologically distinct from their source nouns. Three of the six postpositions have different tones than the corresponding body-part nouns, as shown in (15). These are the same nouns and postpositions as in (6), repeated here for ease of reference. The singular body-part nouns of (a-c) have mid tones, whereas the singular postpositions have a high. The plural body-part nouns of (a-c) have low tone, whereas the plural postpositions have HL tone.

(15) Locative postpositions distinguished from source nouns by tone

	Noun SG	Noun PL		POST SG	POST PL	
(a)	ɛ̃ɛ-l-g	ù-l-g	‘3G-stomach’	é̃élg	ùlg	‘inside’
(b)	ɔ̃ɔ-l	ùù-l-g	‘2G-head’	óól	úùlg	‘above’
(c)	āā-ɲ/ ɛ̃ɛ-ɲ	ə̀ə̀-ɲ-g/ ù-ɲ-g	‘1G-back/ 3G-back’	ááɲ/ é̃éɲ	ə̀ə̀ng	‘behind’
(d)	bəl	bəl-g	‘vagina’	bəl	bəlg	‘under’
(e)	mūū	mùù-g	‘face’	mūū	mùùg	‘before’
(f)	bèɲ-ɟ	bèɲ-āāg	‘side’	bèɲɟ	bèɲāāg	‘beside’

2.5. Gaahmg locative postpositions with person-marker vowels. Three postpositions with person-marker vowels no longer refer to person, as do their body-part source nouns. We will discuss the person marking system first in pronouns, and then in nouns, before returning to postpositions.

As shown in (16-17), all Gaahmg pronouns use vowel features to mark person. First person is marked by back unrounded vowels, second person by back rounded vowels, and third person by front vowels. Depending on the pronoun, each person can be marked by either [+ or – ATR] quality of the vowel. Nominative, accusative, genitive, and prepositional pronouns have [-ATR] vowels, whereas dative and reflexive pronouns have [+ATR] vowels. Plural person pronouns are distinguished by the plural marker *g*.

(16) Person-marker vowels

Vowel features	[-ATR]	[+ATR]	Person indicated
[+back, -round]	a	ə	1 st person
[+back, +round]	ɔ	u	2 nd person
[-back, -round]	ɛ	i	3 rd person

(17) Pronouns with person-marker vowels

N(OM)	A(CC)	G(EN) ⁷	P(REP)	D(AT)	R(EFL)	
á	a	ā	-áán	=ǎn	ǎǎŋ	1s
ó	=ɔ	ō	-óón	=úñ	úúŋ	2s
ē	=ε	ē	-éĕn	=ín	īīŋ	3s
āg	āāgá	āg	-āgá	=ǎgón	ǎǎŋg	1p
ōg	=ɔɔgó	ōg	-ōgó	=úgún	úúŋg	2p
ēg	=εεgà	ēg	-êgè	=ígèñ	ììŋg	3p

In Gaahmg, possession of alienable nouns differs from possession of inalienable nouns, that is, body parts and kinship terms. As shown in (18), the possessor *jēn* ‘person’ follows alienable nouns, whereas it precedes inalienable nouns. Noun possessors of alienable nouns are in genitive case and are introduced with the general preposition (GP) *é*, whereas noun possessors of inalienable nouns are unmarked for case with no preposition.

As for pronoun possession, there are separate sets of genitive pronouns for alienable and inalienable nouns, as seen in (18), which have the same word order as noun possessors, following the alienable and inalienable distinction.

(18) Noun and pronoun possession of alienable and inalienable nouns

	Alienable	Inalienable	Inalienable inherently possessed	
GEN Noun	máá <i>é</i> <i>jēn</i> house GP person.GEN ‘ house of person’	<i>jēn</i> fānḡ person cheek ‘ cheek of person’	<i>jēn</i> ēē-ŋ person 3sG-body ‘ body of person’	
GEN PRON	máá <i>ó</i> n máá <i>ú</i> n máá <i>í</i> nī	ā <i>fānḡ</i> ō <i>fānḡ</i> ē <i>fānḡ</i>	āā-ŋ ōō-ŋ ēē-ŋ	1s 2s 3s
	máá-g <i>ǎy</i> ǎg máá-g <i>ūy</i> úg máá-g <i>īy</i> ǎgī	āg <i>fānḡ-ǎg</i> ōg <i>fānḡ-ǎg</i> ēg <i>fānḡ-ǎg</i>	ǎǎ-ŋ-g úú-ŋ-g ìì-ŋ-g	1p 2p 3p
	‘house(s) of PRO’	‘cheek(s) of PRO’	‘body(s) of PRO’	

In addition, there are seven body-part nouns representing a subset of inalienable nouns. These seven are inherently possessed (Payne 1997: 105-106) in that it is not possible to say the noun without also saying the possessor pronoun. In other words, the person-marker vowel is a required prefix. So, when saying ‘body’, the speaker must say ‘my body’, ‘your body’, or some other possessor of ‘body’.

⁷ This set of genitive pronouns is for possession of body-part nouns. Separate sets of pronouns are used for possession of kinship terms and alienable nouns (Stirtz 2011:79-81).

As seen in (19), three of the six locatives are derived from inherently possessed body-part nouns. These are the same body-part nouns as in (15) that were shown to differ in tone from the postpositions. Each postposition is derived from a body-part noun possessed by a different person. As to which person-marker vowel is used in each postposition, the choice appears to be random. The postposition ‘inside’ uses the third person, the postposition ‘above’ uses the second person, and the postposition ‘behind’ uses the first person, or optionally the third person in singular form.

(19) Locative postpositions derived from inherently possessed body-part nouns

	Noun SG	Noun PL		POST SG	POST PL	
(a)	āā-l-g	àà-l-g	‘1G-stomach’			
	ṡṡ-l-g	ùù-l-g	‘2G-stomach’			
	ēē-l-g	ìì-l-g	‘3G-stomach’	éélg	îîlg	‘inside’
(b)	āā-l	àà-l-g	‘1G-head’			
	ṡṡ-l	ùù-l-g	‘2G-head’	ṡṡl	úùlg	‘above’
	ēē-l	ìì-l-g	‘3G-head’			
(c)	āā-ŋ	àà-ŋ-g	‘1G-back’	ááŋ	ááŋg	‘behind’
	ṡṡ-ŋ	ùù-ŋ-g	‘2G-back’			
	ēē-ŋ	ìì-ŋ-g	‘3G-back’	ééŋ		

Although these three body-part nouns must refer to person, the postpositions derived from them no longer do. The postposition *ááŋ* ‘behind’, derived from the first person body part *āā-ŋ* ‘my back’, carries no reference to first person in sentence (20). The postposition *ṡṡl*⁸ ‘above’, derived from the second person body part *ṡṡ-l* ‘your head’, carries no reference to second person in sentence (21). For the postpositions to agree in person with the reference nouns, they would need the third person vowel *ēē*.

(20)	ē	rāg	fól	ááŋ	āā-ŋ	‘1G-back’
	3sN	stop	hole	behind	ṡṡ-ŋ	‘2G-back’
				‘He stopped in back of the hole.’	ēē-ŋ	‘3G-back’

(21)	ē	máá	ŋŋ	ē	añ	mṡsòr	ṡṡl	āā-l	‘1G-head’
	3sN	prides	3sR	3sN	stay	horse	above	ṡṡ-l	‘2G-head’
								ēē-l	‘3G-head’

2.6. Gaahmg locative postpositions as clitics. We now demonstrate how some postpositions behave morphologically as enclitics. In Gaahmg vowel elision, [+ATR] spreading, and tone alternations do not occur across word boundaries. These processes do occur across morpheme boundaries and particularly onto clitics, which are common in the language. Depending on the

⁸ In (19), the high tone of the locative *ṡṡl* ‘above’ is lowered to mid following the final low tone of *mṡsòr* ‘horse’. See 2.7 for this and other morphophonological processes of locatives similar to that of clitics.

speed of the utterance, the initial vowel of the postposition *éélǵ* ‘inside’ can be elided when following a vowel-final reference noun, as shown in (22).

- (22) \bar{e} pǎrd̥ \bar{e} wál wāā=lg | Compare with
 3sN jump 3sN fall well=inside | *éélǵ* ‘inside’
 ‘He jumped, falling **into** the well.’

If the vowel is not elided, the vowel becomes [+ATR] when following a [+ATR] noun, as in the postposition ‘inside’ of (23d-f). The same [ATR] process occurs in the postposition ‘above’. In all three postpositions of (23), High tone lowers to Mid after Low, regardless of the other processes. In postpositions *bāl* ‘under’ and *mūū* ‘before’, the Mid tone assimilates to Low following Low, as in *gāi bāl* ‘under the tree’ of (8).

- (23) Locative postpositions with morphophonological processes of clitics

	Noun SG	Tone	‘inside’	‘above’	‘behind’	
(a)	ǔóó	H	ǔóó=(éé)lg	ǔóó=óól	ǔóó ááj	‘cow’
(b)	rēē	M	rēē=(éé)lg	rēē=óól	rēē ááj	‘cotton’
(c)	máà	HL	máà=(ēē)lg	máà=óól	máà āāj	‘house’
(d)	bùù	L	bùù=(īī)lg	bùù=ūūl	bùù āāj	‘roof’
(e)	jīī	ML	jīī=(īī)lg	jīī=ūūl	jīī āāj	‘turkey’
(f)	wōō	M	wōō=(íí)lg	wōō=úúl	wōō ááj	‘shade’

2.7. Gaahmg locative postpositions and grammaticalization. Heine defines grammaticalization as ‘a process whereby a linguistic expression, in addition to its conventional meaning, receives a more abstract and more grammatical meaning’ (1997:76). As shown in (24), four parameters can be used to identify grammaticalization, where parameter (a) often triggers parameter (b), (b) often triggers (c), and so forth in a diachronic sequence with the final stage being erosion.

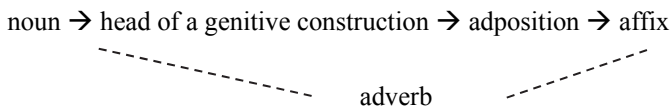
- (24) Parameters of grammaticalization (Heine and Song 2011:591)
- Extension, i.e. when linguistic expressions are extended to new contexts that invite the rise of grammatical functions (context-induced reinterpretation).
 - Desemanticization (or ‘semantic bleaching’), i.e. loss (or generalization) in meaning content.
 - Decategorialization, i.e. loss in morphosyntactic properties characteristic of lexical or other less grammaticalized forms.
 - Erosion (‘phonetic reduction’), i.e. loss of phonetic substance.

Applying these parameters to Gaahmg postpositions helps to verify that such postpositions have undergone grammaticalization. In 2.1 it was suggested that certain body part nouns (such as *ɔɔl* ‘your head’) were used in the extended context of location and eventually came to have locative function (such as ‘above’). Thus Gaahmg postpositions can be said to have achieved parameter (a). The postpositions no longer have the meaning of physical objects as do their body-

part source nouns; instead, meaning has been reduced to locations in space, i.e. parameter (b). We discussed how Gaahmg postpositions are syntactically distinct from nouns in 2.3 by taking fewer modifiers, and in 2.5 by the fact that three postpositions are no longer inflected for person. In 2.4, we saw that three postpositions are also morphologically distinct from nouns in having different tone. Thus Gaahmg postpositions can be said to have achieved parameter (c). Finally, in 2.6 we saw how Gaahmg postpositions are phonetically less autonomous than nouns in that tone and [ATR] can assimilate to previous nouns as if the postpositions are clitics. In that one kind of erosion listed by Heine and Song (2011:594) is ‘Loss of phonetic autonomy and adaptation to adjacent phonetic units’, this indicates parameter (d).

Heine (1989: 109) gives a specific path for how grammaticalization occurs in African languages, namely that adpositions are derived from nouns through an intermediate step of being the head of a genitive construction. Svorou (1994:101) gives a continuum with similar progression of changes.

(25) Adposition Grammaticalization in African languages (Heine 1989: 109)



Gaahmg locative postpositions have the same word order as the possessee, or head of a genitive construction. As shown in (26), postpositions follow nouns of reference (*jēn mūū* ‘before person’) just as body parts follow the possessor as the head of genitive constructions (*jēn fāŋḍ* ‘cheek of person’). In such constructions, postpositions (such as *mūū* ‘before’) which have the same form as the source noun (*mūū* ‘face’) can be interpreted as having either a body-part meaning (‘cheek of person’) or a locative meaning (‘before person’), depending on the context. There is the same word order for postpositions from either inherently possessed body parts (such as *ēē-ŋ* ‘his body’) or body parts that are not inherently possessed (such as *fāŋḍ* ‘cheek’). A look at word order reveals how a grammaticalization process for Gaahmg locative postpositions may have included an intermediate step as the head of a genitive construction. We will return to grammaticalization of postpositions after discussing locative pronouns.

(26) Genitive and Locative word order

	Body parts	Inherently possessed body parts
Genitive	ǰēn fāŋɗ person cheek 'cheek of person'	ǰēn ēē-ŋ person 3sG-body 'body of person'
	ǰēn mūū person face 'face of person'	ǰēn ēē-l-g person 3sG-stomach-SG 'stomach of person'
Locative	ǰēn mūū person before 'in front of person'	ǰēn éélg person inside 'inside person'

3. Gaahmg locative pronouns

To this point, we have discussed only locative postpositions. We now present locative pronouns — how they are distinct in syntax and morphology from locative postpositions, source nouns, and prepositional pronouns. This discussion will prepare us for positing grammaticalization routes for both locative postpositions and locative pronouns in section 4.

3.1. General preposition é and prepositional prefix ǰ-. Locative pronouns are locative postpositions with pronouns of reference. In (27), the locative pronoun ǰ-éél 'above it' follows the accusative pronoun of reference =i attached to the verb. Similarly in (28), the locative pronoun ǰ-îmùùg 'before them' follows the same pronoun of reference, which can refer to third singular or plural objects.⁹

(27) bēl mīŋjib ǰāéén ε dōs ē əb=i ǰ-éél
named Minjib then 3sN starts 3sN rides=3sA PP-above.3sL
'... called Minyjib rode his horse proudly (lit. rides **it above it**).'

(28) ná óní ē pəl=i ǰáǰ ǰ-îmùùg
REL bad 3sN fall=3sA down PP-before.3pL
'(thing) which is bad fell down in front of them.
(lit. falls **them down before them**).'

As discussed further in section 4, the locative pronoun ǰ-éél 'above it' is derived from the possessed body-part noun ēēl 'his head' and ǰ-îmùùg is derived from the possessed noun ēg mùùg 'their face'. We can imagine that over time, the source nouns were increasingly used in new

⁹ Stirtz (2011:224-227) calls =i a "marked object pronoun" in contrast with the more common "unmarked object pronoun" =ē. In other syntax such as transitive clauses, there is a plural marked object pronoun =ügə and plural unmarked object pronoun =égə. Yet, the same bound morpheme =i refers to both singular and plural objects in (27-28). Thus, as one anonymous reviewer has noted, this morpheme may better be termed a "non-promotional applicative".

contexts to indicate location and eventually came to have conventional locative meanings and functions.

To compare locative postpositions with locative pronouns, we must first note the difference between the general preposition (GP) *é* introducing nouns and the prepositional prefix (PP) *ǰ-* introducing pronouns, since the same distinction also occurs in introducing locatives. We have already seen the general preposition in (18). We now present it with its various roles: goal, source, time, location, instrument, and genitive. The prepositional prefix has the same roles.

(29) General preposition (GP) *é* and prepositional prefix (PP) *ǰ-*

Nouns	Pronouns	Gloss	Roles
<i>é</i>	<i>ǰ-</i>	‘to, from, in, at, by, of’	goal, source, time, location, instrument, genitive

In (30-31), the two morphemes are used for the role of goal.

Role: goal

(30) *á wāyā é nāāǰá māñ ǰūmùùn é ǰàal*
 1sN went GP day certain towards GP (valley name)
 ‘One day I went **to** Dal valley.’

(31) *ē yāā nāā néé lèèñán ǰūmùùn ǰ-óón ǰà*
 3sN mother girl this was.coming towards PP-2sP there
 ‘Her mother’s sister was coming **to** you there.’

In (32-33), the two morphemes are used in a genitive construction, similar to that of (18).

Role: genitive

(32) *ā námǰá nālg é nēēēēmāñ*
 to eat children GP devil.GEN
 ‘... to eat the children **of** the devil.’

(33) *ēg wár jègā ǰ-āgá kāē*
 3pN take things PP-1pP all
 ‘They take all the things **of** us.’

3.2. Prepositional phrases compared with locative constructions. We now consider the difference between nouns and pronouns in prepositional phrases (34-35) with nouns and pronouns in locative constructions (36-37). Just as the prepositional prefix *ǰ-* introduces the prepositional pronoun *ǰ-éēñ* ‘to him’ in (35), the prepositional prefix introduces the locative pronoun *ǰ-éēñ* ‘behind him’ in (37). Just as the noun of reference precedes the postposition in (36), an accusative pronoun of reference =*i* ‘him’ precedes the locative pronoun in (37), bound to the verb. The locative pronoun *ǰ-éēñ* in (37) can have the same form as the postposition *éēñ* ‘behind’ in (36),

except for the prepositional prefix, although the postposition ‘behind’ in (36) can optionally have the first person vowel as in *áápn*. Since the locative *ǫ-éépn* of (37) is a pronoun, it refers to person like all other pronouns in the language and in (37) has the third person vowel *εε*.

Prepositional phrases:

- (34) General preposition before noun

āldá ē p̄r̄d̄ō ǫm̀ùn é ūfú
fox 3sN jump towards GP tree
‘The fox jumped **to the tree**.’

- (35) Prepositional prefix before prepositional pronoun

āldá ē p̄r̄d̄ō ǫm̀ùn ǫ-ééñ
fox 3sN jump towards PP-3sP
‘The fox jumped **to him**.’

Locative constructions:

- (36) Locative postposition following noun of reference

āldá ē p̄r̄d̄ō ūfú éépn/áápn
fox 3sN jump tree behind
‘The fox jumped **behind the tree**.’

- (37) Prepositional prefix before locative pronoun
following pronoun of reference

āldá ē p̄r̄d̄=ì ǫ-éépn
fox 3sN jump=3sA PP-behind.3sL
‘The fox jumped (**him**) **behind him**.’

3.3. Distinct syntax for locative postpositions and locative pronouns. We can now see how locative pronouns differ in syntax from body-part nouns, as well as from postpositions and prepositional pronouns. Examples (39-41) are repeated from (35-37) for ease of reference. As in (38), body-part nouns can be nouns of reference, immediately following a verb, whereas in (41), locative pronouns require a preceding accusative pronoun, bound to the verb, as a pronoun of reference. Prepositional pronouns as in (39) and locative pronouns as in (41) are both objects of prepositional phrases, but again they differ in that locative pronouns require a preceding pronoun of reference. The only syntactic difference between postpositions as in (40) and locative pronouns as in (41) is that they require a different word category; post-positions reference nouns, whereas locative pronouns reference pronouns.

- (38) Genitive noun (inherently possessed body part)

āldá ē pârđō ēēŋ sól
 fox 3sN jump **back.3sG** above
 ‘The fox jumped on **his back**.’

- (39) Prepositional pronoun

āldá ē pârđō đūmùùn đ-éēn
 fox 3sN jump towards PP-**3sP**
 ‘The fox jumped to **him**.’

- (40) Locative postposition

āldá ē pârđō ūfú ééŋ
 fox 3sN jump tree **behind**
 ‘The fox jumped **behind** the tree.’

- (41) Locative pronoun

āldá ē pârđ=i đ-ééŋ
 fox 3sN jump=3sA PP-**behind.3sL**
 ‘The fox jumped (him) **behind him**.’

3.4. Distinct morphology for locative postpositions and locative pronouns. We now discuss how locative pronouns differ in form from body-part nouns, as well as from postpositions. Perhaps the most obvious difference is that locative pronouns take the prepositional prefix *đ-*. In addition, locative pronouns have a different tone from their body-part source noun. In fact, locative pronouns have the same tone as postpositions, but postpositions do not refer to person and so do not take all three person-marker vowels, as do locative pronouns. By comparing the locative pronouns in (42) with the prepositional pronouns in (17), we see that these two sets of pronouns are distinct in form.

(42) Distinct morphology for various forms

GEN Noun			LOC POST			LOC PRON		
SG	PL		SG	PL		SG	PL	
(a)								
āālg	ààlg	‘stom.1G’				ɔ̄-áálg	ɔ̄-áàlg	‘inside.1L’
ṵṵlg	ùùlg	‘stom.2G’				ɔ̄-ṵṵlg	ɔ̄-ùùlg	‘inside.2L’
ēēlg	ììlg	‘stom.3G’	éélg	ììlg	‘inside’	ɔ̄-éélg	ɔ̄-ùùlg	‘inside.3L’
(b)								
āāl	ààlg	‘head.1G’				ɔ̄-áálg	ɔ̄-áàlg	‘above.1L’
ṵṵl	ùùlg	‘head.2G’	ṵṵl	ùùlg	‘above’	ɔ̄-ṵṵlg	ɔ̄-ùùlg	‘above.2L’
ēēl	ììlg	‘head.3G’				ɔ̄-éélg	ɔ̄-ììlg	‘above.3L’
(c)								
āāɲ	ààɲg	‘back.1G’	ááɲ	ààɲg	‘behind’	ɔ̄-ááɲ	ɔ̄-ààɲg	‘behind.1L’
ṵṵɲ	ùùɲg	‘back.2G’				ɔ̄-ṵṵɲ	ɔ̄-ùùɲg	‘behind.2L’
ēēɲ	ììɲg	‘back.3G’	ééɲ		‘behind’	ɔ̄-ééɲ	ɔ̄-ììɲg	‘behind.3L’
(d)								
āāɳ	ààɳg	‘body.1G’	bāl	bàlg	‘under’	ɔ̄-ááɳ	ɔ̄-ààɳg	‘under.1L’
ṵṵɳ	ùùɳg	‘body.2G’				ɔ̄-úúɳ	ɔ̄-ùùɳg	‘under.2L’
ēēɳ	ììɳg	‘body.3G’				ɔ̄-ííɳ	ɔ̄-ììɳg	‘under.3L’
(e)								
ā mūū	āg mūùg	‘1G face’	mūū	mūùg	‘before’	ɔ̄-áámū ¹⁰	ɔ̄-àámūùg	‘before.1L’
ṵ mūū	ṵg mūùg	‘2G face’				ɔ̄-úúmū	ɔ̄-ùúmūùg	‘before.2L’
ē mūū	ēg mūùg	‘3G face’				ɔ̄-éémū	ɔ̄-íímūùg	‘before.3L’

Note that all locative pronouns have person-marker vowels — even locative pronouns having a source noun that is not an inherently possessed body-part noun, such as *ɔ̄-áámū* ‘before me’, *ɔ̄-úúmū* ‘before you’, etc., in (42e). So, we can imagine that all the locative pronouns were derived from genitive body-part nouns (such as *ā mūū* ‘my face’, *ṵ mūū* ‘your face’, etc.), rather than from body-part nouns without possession (such as *mūū* ‘face’). However, there is less evidence that all postpositions were derived from genitive body-part nouns. For instance, the postposition *mūū* ‘before’ in (e) has no vowel person marking, and we might suspect that it was derived from the body-part noun *mūū* ‘face’ without possession. The postposition *bāl* ‘under’ in (d) is not even derived from the same lexeme as the locative pronouns *ɔ̄-ááɳ* ‘under me’, *ɔ̄-úúɳ* ‘under you’, etc. As we saw in (3), the postposition *bāl* ‘under’ may be derived from *bāl* ‘vagina’, whereas in (42d) we see that the locative pronouns for ‘under’ are derived from the genitive nouns *āāɳ* ‘my body’, *ṵṵɳ* ‘your body’, etc.

¹⁰ In Gaahmg, [+ATR] spreads without limit in words except in some compounds with morphemes having vowels from both [ATR] sets, such as *gāāl-mási* ‘tree type (lit. eagle-claw)’, as well as the locative pronouns *ɔ̄-áámū* ‘before me’ and *ɔ̄-éémū* ‘before him’ (Stirtz 2011: 35, 56).

4. Grammaticalization paths for locative postpositions and locative pronouns.

As with locative postpositions, the parameters of (24) in 2.7 help to verify that locative pronouns have undergone grammaticalization. We can imagine that certain possessed body part nouns (such as *ēēl* ‘his head’) were used in the extended context of location and eventually came to have locative function (such as ‘above him’), i.e., parameter (a). The locative pronouns no longer have the meaning of physical objects as do their body-part source nouns; instead, meaning has been reduced to locations in space, i.e., parameter (b). In 3.3 we saw that locative pronouns are syntactically distinct from nouns in that they must follow a pronoun of reference bound to the verb. In 3.4, we saw that locatives pronouns are also morphologically distinct from nouns in having the prefix *q̄-* and different tone. Thus Gaahmg locative pronouns can be said to have achieved parameters (24a-c), and since Heine and Song (2011:593) say that erosion ‘is usually the last to apply, and is not a requirement for grammaticalization to happen’, they can be said to have undergone grammaticalization.

We now posit two grammaticalization paths for Gaahmg postpositions and locative pronouns. First, all locative pronouns were derived from genitive body-part nouns. That is, the source nouns of locative pronouns are possessed nouns, regardless of whether they are inherently possessed nouns such as *āā-ŋ* ‘my back’ or otherwise possessed nouns such as *ā mūū* ‘my face’.

- (43) Gaahmg locative pronoun grammaticalization channel
- | | | | | |
|-------------------------|-----------|---|------------------|-------------|
| genitive body-part noun | | → | locative pronoun | |
| <i>āā-ŋ</i> | ‘my back’ | | <i>q̄-ááŋ</i> | ‘behind me’ |
| <i>ā mūū</i> | ‘my face’ | | <i>q̄-áāmū</i> | ‘before me’ |

Second, postpositions were derived in one of two ways. Some postpositions were derived from heads of genitive constructions which were not necessarily genitive (possessed) nouns. The postposition *ééŋ* ‘behind’ with vowel *ε* was derived from a genitive noun that was a head of a genitive construction. It was genitive because it can’t be otherwise, being an inherently possessed body-part noun. However, the postposition *mūū* ‘before’ was derived from a non-genitive noun *mūū* ‘face’.

- (44) Gaahmg locative postposition grammaticalization channels

body-part noun	→	head of genitive construction	→	locative postposition
<i>ēē-ŋ</i> ‘(his) back’		<i>jēn ēē-ŋ</i> ‘(his) back of person’		<i>jēn ééŋ</i> ‘behind person’
<i>mūū</i> ‘face’		<i>jēn mūū</i> ‘face of person’		<i>jēn mūū</i> ‘before person’
genitive body-part noun	→	locative pronoun	→	locative postposition
<i>āā-ŋ</i> ‘my back’		<i>q̄-ááŋ</i> ‘behind me’		<i>jēn ááŋ</i> ‘behind person’
<i>ōō-l</i> ‘your head’		<i>q̄-óól</i> ‘above you’		<i>jēn óól</i> ‘above person’

Other postpositions were derived from locative pronouns. A second postposition *ááŋ* ‘behind’ has a first person-marker vowel *a*. The postposition *óól* ‘above’ has the second person-marker vowel *ɔ*. It would be difficult to imagine these postpositions being derived from a head of genitive construction, since the genitive construction requires third person agreement with the possessor noun. For instance, **jēn āā-ŋ* ‘(my) back of person’ and **jēn ɔɔ-l* ‘(your) head of person’ are ungrammatical, so we don’t expect these constructions to be the precursor to the locative phrases *jēn ááŋ* ‘behind the person’ and *jēn óól* ‘above the person’. Rather, we posit that the postpositions of these phrases were instead derived from locative pronouns with corresponding person-marker vowels (*ǰ-ááŋ* ‘behind me’, *ǰ-óól* ‘above you’). Perhaps at first, postpositions with all three person-marker vowels were allowed (*ááŋ/óóŋ/ééŋ* ‘behind’, *áál/óól/éél* ‘above’), but over time, the vowel choice became limited (*ááŋ/ééŋ* ‘behind’, *óól* ‘above’).

In any case, we cannot posit that all postpositions followed the same grammaticalization route. Nor can we claim that all postpositions were derived from the head of a genitive construction. It is clear, however, that all locative pronouns, and postpositions with first or second person-marker vowels were derived from genitive nouns. Postpositions with third person-marker vowels and postpositions without person-marker vowels were derived from a head of genitive construction.

5. Conclusion

All Gaahmg locatives are derived from body-part nouns with a human source model, as opposed to being derived from landmark nouns or body parts of an animal. Unusually, the postposition ‘under’ has the same form as the female body part ‘vagina’. Since nouns, prepositional pronouns, locative postpositions, and locative pronouns differ in morphology and syntax, they can be analyzed as distinct lexical categories. Two grammaticalization paths account for Gaahmg postpositions and locative pronouns from body-part source nouns. All locative pronouns, and postpositions with first or second person-marker vowels, are derived from genitive nouns. Other postpositions are derived from noun heads of genitive constructions.

Abbreviations

A(CC)	accusative	R(EFL)	reflexive
D(AT)	dative	REL	relativiser
G(EN)	genitive	SG	singular
GP	general preposition	1	first person
L(OC)	locative	2	second person
N(OM)	nominative	3	third person
PL	plural	1sG	first singular genitive
POST	postposition	2sP	second singular prepositional
PP	prepositional prefix	3sN	third singular nominative
P(REP)	prepositional	3pL	third plural locative
PRON	pronoun	3sR	third singular reflexive, etc.

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Timothy Stirtz
tim.stirtz@suremail.org

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