ASPECTS OF SPATIAL RELATIONS IN BILUGU OPO

Joshua A. G. Smolders

Abstract

This paper describes the semantics, syntax, and phonological behaviour of certain prominent morphemes in the grammar of spatial relations in the Bilugu dialect of Opo [lgn], a little-known language of the Koman family of Nilo-Saharan. It covers spatial relations in three broad categories: distance, location, and direction. For distance it describes the demonstrative enclitics, which differentiate three levels: proximal, medial, and distal. For location it describes how a Figure is positioned in reference to a Ground (e.g. via a predicator and the locative prefix /à-/ or certain stative verbs) and via spatial relators (nominals used in an associative relationship with the Ground to specify a particular site). For direction it describes verbs with lexical direction, marking patterns of goal and source, the deictic directional markers (a set of paradigmatically opposed suffixes that deictically orient motion), and the index directional adverb. Notably, the directional verbs and deictic directionals are shown to be primarily goal-oriented, contrary to traditional expectations that they have strictly venitive and andative orientation. Finally, in a brief discussion in the conclusion this paper shows how the description of spatial grams serves as an important foundation for approaching non-spatial grammar in Opo, since more abstract concepts such as temporal deixis and aspect are derived directly from the grammar of space.

Keywords: Nilo-Saharan, Koman, deixis, spatial relations, demonstratives, locatives, directionals, associated motion.

1. Introduction

The expression of spatial relations is fundamental to language in part because physical space, and the relative position of objects to one another within that space (a.k.a. spatial deixis), is one of the most concrete conceptual categories

in human cognition. Such concrete categories are metaphorically extended in order to understand and describe less concrete categories (Lakoff & Johnson 1980), and this is reflected in how people use the language of space to express abstract concepts such as time, social relationships, pragmatics, and much more (Levinson 2003:16). It is well attested cross-linguistically that the grammar of space is often the historical source of the grammar of tense, aspect, and modality (TAM). It is therefore arguable that a firm understanding of a given language's expression of physical space is the key to understanding its expression of abstract conceptual categories. This is certainly the case in Opo [lgn], a little-known Nilo-Saharan language of the Koman family.

In this paper I give a basic description of prominent spatial grams in Bilugu, an Ethiopian dialect of Opo. Spatial grams, as defined by Svorou (1993:34), are the grammatical forms of a language that express spatial relations, such as adpositions, deictic affixes, case, spatial adverbs, motion verbs, and so forth. In order to give a broad picture of the grammar of spatial relations in Bilugu Opo, I cover three categories: distance, location, and direction. My primary purpose is to describe relevant features of the semantics, syntax, and even phonology of the morphemes and constructions most commonly used in expressing these categories. My secondary purpose is to point to how these categories are foundational to understanding more abstract categories in the grammar of Bilugu Opo, which I preview in the discussion at the end.

This paper is organized as follows: after an introduction to the language classification (§1.1), phonology (§1.2), and research (§1.3-1.4), I begin in §2 by describing the expression of deictic distance in the demonstrative enclitics. I explore both their interaction with noun phrases (§2.1) and with pronouns (§2.1). In §3 I describe the expression of location with the locative prefix in locative predicates (§3.1), with spatial relators (§3.2), and with non-motion verbal predicates (§3.3). Finally, in §4 I describe the expression of direction via lexically directional verbs (§4.1), source and goal marking (§4.2), the deictic directional markers (§4.3), and the index-directional adverb (§4.4). In §5 I conclude with a brief discussion of how some spatial grams are repurposed in Bilugu Opo for more abstract concepts such as temporal deixis and aspect.

1.1 Language classification, location, and demographics

Opo [lgn] is a language of the Koman family, a small group spoken primarily in western Ethiopia and eastern Sudan and South Sudan. Koman is commonly classified within Nilo-Saharan, following Greenberg (1963), Bender (1983b), and Ehret (2001), but others such as Dimmendaal (2008,

2011, 2014, 2017, to appear) and Blench (2000) take exception to this citing lack of compelling evidence. In addition to Opo, Koman includes the languages Gwama [kmq], Komo [xom], Uduk [udu], and Gule [gly] (which is likely extinct). Ehret also includes Gumuz [guk] (2001:88), following Bender's "Komuz" (1989, 1991, 1994). Figure 1 below illustrates the classification of Opo according to the Ethnologue (Eberhard *et al* 2022) following Bender (1997).

***Figure 1***. *Opo genetic classification, based on Bender (1997).*
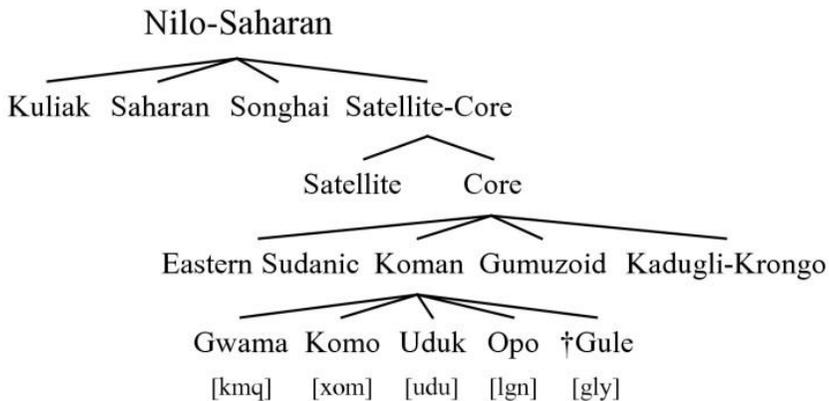
Opo is a cluster of language varieties, with upwards of seven dialects. These are Bilugu, Modin, Pame, Kigile, Pilakoy, Bikol, and Dana (Smolders 2019). This paper describes Bilugu, which is on one end of the dialect cline, along with limited comparative data from Pame and Modin. Based on current research it is likely that Dana, which is the most dissimilar dialect from Bilugu, will be classified as an independent Koman language (Otero 2016, 2019).

Opo is spoken on the border of Ethiopia and South Sudan. Figure 2 shows the approximate area in red, combining information available from the Ethnologue (Eberhard *et al* 2022) and my own research (Smolders 2019). In Ethiopia the primary population centers are Wankey (center of the Bilugu dialect), Mera (center of Modin dialect), and Pagak.[1] There is also currently an established population of Opo refugees from South Sudan in Akula, northwest of Itang, and some speakers in the Tongo and Tsore refugee camp in Benishangul-Gumuz regional state, Ethiopia. In South Sudan the extent of

---

1 Pagak was traditionally Opo territory but now is considered a Nuer town. The name itself, however, is Opo from /paǎ· àgák/ 'place of the crow.'

the Opo population is unknown due to difficulty of access, which I have indicated with a lighter shade of red. What is known is that speakers of the five Sudanese dialects once inhabited Mayut (Pame), Kigile (Kigile), Katen (Pilakoy), Paytet (Bikol), and Dajo (Dana). By their own estimation the total population of the Opo ranges from five to twenty-thousand people.

Figure 2. Approximate geographic area where Opo is spoken.
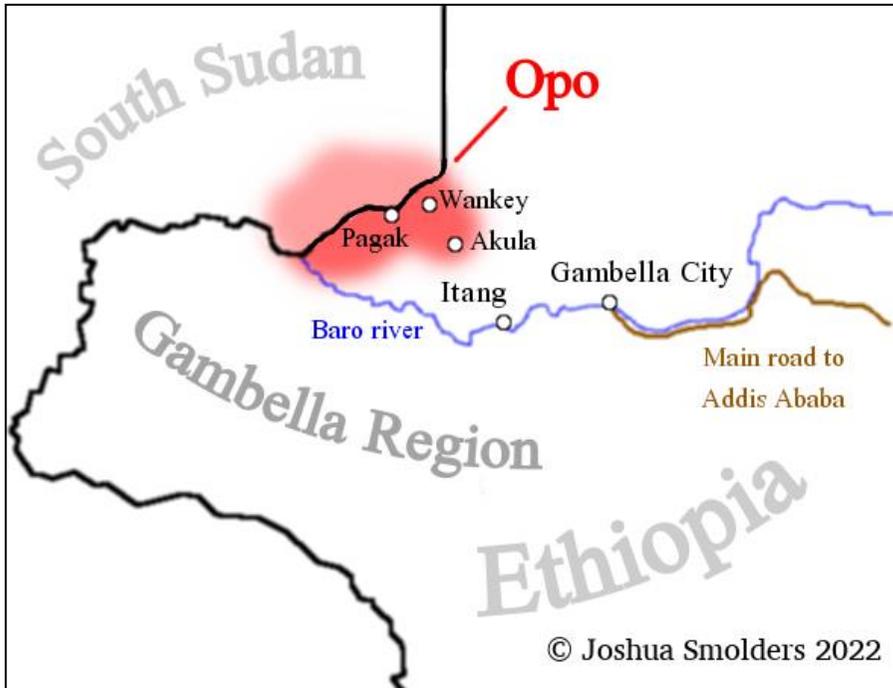
1.2 Phonological overview

While there have been some preliminary analyses of the phonology of Opo (Van Silfhout 2013a, b, Lemi 2010), here I present the conclusions of my own analysis which is primarily based on the Bilugu, Modin, and Pame dialects. The following is not representative of Dana.

Maximally, Opo has thirty-one phonemic consonants.[2] These include several interesting points of contrast such as a three-way distinction between plain, aspirated, and ejective in the voiceless stops, implosive contrast in the

---

2   Van Silfhout (2013a) describes twenty-five consonants (omitting the aspirated series /pʰ tʰ tʃʰ kʰ/, and the voiced alveolar sibilant /z/ of the Sudanese dialects) and Lemi (2010) describes twenty-four consonants (also omitting /pʰ tʰ tʃʰ kʰ z/ and additionally /ŋ/).

voiced stops, and voicing contrast for the labio-velar semivowel. In Table 1 I give a complete chart of these phonemes, with parentheses showing uncertain phonemes or those not attested in all dialects.

Table 1. *Phonemic consonants of Opo (excluding Dana).[3]*

		bilabial	alveolar	palato-alveolar & palatal	velar	labio-velar	glottal
stops & affricates	vl.	p	t	tʃ	k		(ʔ)
	vl. aspirated	pʰ	tʰ	tʃʰ	kʰ		
	vl. ejective	p'	t'	tʃˀ	k'		
	vd.	b	d	dʒ	g		
	vd. implosive	ɓ	ɗ				
fricative	vl.		s	(ʃ)			h
	vd.		(z)				
nasal	vd.	m	n	ɲ	ŋ		
lateral	vd.		l				
trill	vd.		r				
semivowel	vl.						
	vd.				j	w	

Like most other Koman languages, Opo has seven original phonemic vowels. [4] [5] These pattern in a /2IU/ system, meaning that there is ATR

---

3 Note that the palato-alveolar affricates /tʃ tʃʰ tʃˀ dʒ/ are paradigmatically palatal stops and have various surface realizations from [c~tʃ], [cʰ~tʃʰ], [c'~tʃˀ] and [ɟ~dʒ~z~ʒ] respectively depending on the speaker and dialect. In other papers I have used /c/ and /ɟ/ to represent them (Smolders 2019). The voiced alveolar fricative /z/ is a distinct phoneme in Pame, but has merged with /dʒ/ in Bilugu and Modin. The voiceless palatal fricative /ʃ/ is an allophone of /s/ before the high +ATR vowels in Bilugu, Modin, and Pame, but is possibly phonemic in the other dialects. The status of both the glottal stop /ʔ/palateis uncertain as it is only attested at morpheme boundaries (with a few exceptions where /ʔ/ shows up lexically before glides, such as in /ʔʷáj/ 'wild dog' and /ʔʲá/ 'go PL') (Smolders 2019).

4 The exception being Chali Uduk (Killian 2015:32). For evidence of a seven vowel system in Gwama see Hellenthal & Kutch-Lojenga (2011). For Komo see Olejarczuk *et al* (2019).

5 The vowel system of Opo is very difficult, and when discussing vowel quality with native speakers their intuition of these contrasts is often influenced by the Latin and Ethiopic scripts. Vowel quality is also often conflated with tone. It is not surprising then that descriptions of the vowel system have varied widely in the preliminary literature: Bender originally noted only five vowels / i e u o a /,

contrast in the high vowels but not in the mid or low vowels, which are all phonologically [-ATR] (Casali 2008:504, 2016:95). The original mid [-ATR] vowels are written in this paper with /e/ and /o/, which they are closest to phonetically. To say these vowels are phonologically [-ATR] is to say that they are neutral with regard to [+ATR] spread/harmony. Bilugu, Modin, and Pame also have a set of "borrowed" mid [-ATR] vowels /ɛ/ and /ɔ/, both of which are very rare and phonetically very low. These likely arose through contact with Nuer and Anyuak, as they almost exclusively occur in words borrowed from those languages, corresponding to /ə/ and /ʷɔ/ respectively.[6] Table 2 outlines the complete system, with the borrowed vowels in parentheses.[7]

Table 2. Phonemic vowels of Opo (excluding Dana).

	Front	Back
High [+ATR]	i	u
High [-ATR]	ɪ	ʊ
Mid [-ATR]	e (ɛ)	o (ɔ)
Low	a	

Tone bears a high functional load in Opo both lexically and grammatically. Bilugu has four levels of phonemic tone, the most of any Koman language: low (L), mid (M), high (H), and extra-high (X), with extra-high only occurring on the [+ATR] vowels /i u/ and the low vowel /a/. In

Table **3** below I illustrate lexical contrast on monosyllabic (CV), monomorphemic nouns using the frame /tā __ tón/ 'It is a big (SG) __', showing the four levels of tone realized in a M__H frame with pitch contour diagrams (following the principles of tone analysis from Snider 1999, 2017). Like many languages with large toneme inventories, the surface realization of lexical tone in Opo is highly stable.

Van Silfhout describes seven / i ɪ e ɛ u ɔ a / (2013a:23), and Lemi nine / i ɨ e ə u ʊ o ɔ a / (2010:9).

6   For example, the words /ŋɛ́t/ 'believe in', and /kʰɔ́r/ 'one-hundred' are clearly borrowed from Nuer /ŋə̱t/ and /kʷɔr/ respectively, and /tʰɛ̀nɛ̀/ 'pillow' from Anyuak /tə̠ŋe/.

7   In other papers I have represented the mid vowels with the symbols /ɛ ɛ̧ ɔ/ and /ɔ̧/ (Smolders 2019).

Table 3. *Lexical tone contrast in Bilugu Opo.*

	L	M	H	X
Pitch	┤ ↓ ┐	┤ ┤ ┐	┤ ↑ ┐	┤ ↑ ┐
Data Gloss Trans.	tā **pì** tón BE **cow** big.SG 'It is a big cow.'	tā **sō** tón BE **grass** big.SG 'It isbig grass.'	tā **tʃá** tón BE **tree** big.SG 'It is a big tree.'	tā **kʰí** tón BE **mouse** big.SG 'It is a big mouse.'

1.3 Research details

The data used in this paper was initially collected as part of a research project conducted from March 2016 to June 2017 with permission from the Institute of Ethiopian Studies of Addis Ababa University, and in partnership with the Canada Institute of Linguistics at Trinity Western University (Langley BC, Canada). Research took place in Addis Ababa and Gambella Regional State, both in Gambella city and the villages of Wanke and Longkwey. Participants included Ababa Nyoch, Onek Adus, Otapa Luk, Kadere Akuma, Kora Lul, Gereng Pok, Omen Pok, Asit Akuma, and James Pintar. Elders who provided recorded texts included Nyoch Abanban, Kwac Jing, Pok Olok, B'asoy Abelbel, and Jul Nikal. Additional data collection and checking took place up to 2025.

Unless otherwise noted, all data in this paper is from the Bilugu dialect, which all participants spoke fluently (though some identified as ethnically Pame). Much of the data which features in this description comes from two particular experiments: one based on the BowPed Project (Bowerman & Pederson 1992) and the other based on the Preliminary Come & Go Questionnaire (Wilkins & Hill 1993) which I expanded to explore more of the morphology specific to Koman.

1.4 Previous research

Opo, like its sisters in the Koman language family, is a sorely understudied language. It is first mentioned in the literature by Corfield (1938 & 1940, cf. *Ciita*) and later Bender (1976, cf. *Shita,* 1983a, cf. *Opo-Shita,* 1983b, 1985, 1994, 1997, & 2000, cf. *Opo,* 2007, & 2010, cf. *Opuuo*), but these works are all broad descriptions of Nilo-Saharan or Koman. The first paper to provide significant primary data for Opo was an analysis of cardinal numbers of Ethiopian Nilo-Saharan languages by Zelalem (2004). In recent years Lemi (2010) did a Master's thesis sketching the grammar, Van Silfhout (2013a) produced a bachelor's thesis sketch of the phonology, including a collection of the Comparative African Wordlist (2013b), and Mellese (2017) completed a PhD dissertation for Addis Ababa University that included a grammatical

description and documentation. It should be noted that my phonological and morphological analyses of the language differ significantly from these previous works, and thus I will rely primarily on my own data for this description.

2. Distance: demonstrative enclitics

The first set of spatial grams I describe are the demonstrative enclitics. These are determiners that deictically describe the spatial distance of a referent from the deictic center. After a brief introduction to the basic semantics and form of these morphemes, I demonstrate their syntactic and phonological behaviour when attaching to noun phrases (§2.1). After this I show the formation of the independent demonstrative pronouns from the enclitics plus pronominal bases (§2.2).

Opo semantically distinguishes three levels of deictic distance: proximal (PROX), which locates a referent at or very close to the deictic center (DC), medial (MED), which locates a referent at a distance from the DC, and distal (DIST), which locates a referent relatively further from the DC than the medial (usually at the edge of or beyond visible distance). In Bilugu Opo, the proximal and medial demonstratives are formed with the complementary enclitics /=(í)nō/ 'PROX' and /=(í)nī/ 'MED'. The distal is a phrasal extension of the medial using the particle /tīrí/ 'DIST'.[8][9] These are illustrated in Table 4 below. Note that the initial vowel is enclosed in parentheses to indicate that it frequently undergoes phonological change (see §2.1).

Table 4*. Bilugu Opo demonstrative enclitics.*

Gloss	Form	Allomorphs	Attested semantics
PROX	=(í)nō	ínō / ínō / énō / (V́)nō	'this/these'
MED	=(í)nī	ínī / ínī / énī / (V́)nī	'that/those'
DIST	=(í)nī tīrí	ínī / ínī / énī / (V́)nī tīrí	'that/those (far)'

These demonstrative encliticsonly encode relative distance from the deictic center and do not inflect for gender, number, or case of any sort. Where present, these other features are usually encoded lexically in the noun

---

8   Lemi only distinguishes between two levels of distance in the demonstratives, which he describes as the suffixes /-yino/ 'this' and /-yinitiri/ 'that' (2010:18). Mellese (2017) also only distinguishes two levels of distance, which he describes as the suffixes /-nu/ PROX and /-ni/ DIST.

9   Compare with the demonstratives enclitics in other dialects: Modin /=ínō/ 'PROX', /=ínī / 'MED' (n.b. final vowel is [+ATR]), /=(j)ín tīn/ 'DIST', and Pame /=í/ 'PROX', /=ínō/ 'MED', /=ín tōrō/ 'DIST'.

or through prefixing morphology (see Smolders 2019 for a thorough description of nominal number morphology).

2.1 Demonstrative noun phrases

When modifying nouns, the demonstrative morphemes always attach to the right edge of the noun phrase. For a minimal noun phrase (i.e. made up of only a single noun with no modifiers) the demonstrative attaches to the head noun, as in (1a) where /bàdʒ/ 'men' receives the medial enclitic /=ínī/. The phrase structure for this construction is given in (1b).[10]

(1) a.   bàdʒ=**ínī**
           man.PL=**MED**
           'Those men.'

     b.   [[[bàdʒ]ₙ]ₙₚ=**ínī**]ᴅᴇᴍ

If a suffix is added to the head noun, the demonstrative enclitic attaches to the right edge of this, as in (2) where the proximal demonstrative /-(í)nō/ affixes to the third singular possessive suffix /-(í)r/.

(2) a.   kōj-ír=**ínō**
           jar-3M.POSS=**PROX**
           'This jar of his.'

     b.   [[[[kōj]ₙ-ír]ₚₒss]ₙₚ=**ínō**]ᴅᴇᴍ

Opo noun phrases are head-initial, so if other constituents are introduced to the right of the head noun the clitic also shifts to the right. As would be expected of clitics, this results in the demonstratives attaching to constituents of various word classes. In (3) the medial enclitic attaches to the final constituent, the noun /òtón/ 'elder (M)' which is the possessor of the head /kù/.[11] [12]

---

10 Note that throughout this paper I use **bold** to draw attention to particular morphemes in the data and gloss lines.

11 The word /òtón/ is not a simplex noun. It is comprised of the masculine singular participant nominalizer /ò-/, plus the attributive verb /tón/ 'be big SG'. I gloss it as 'elder (M)' for simplicity of presentation. Note that I will do this with several such complex nominals throughout the paper.

12 The means of marking possession here is the "associative construction" (see also Footnote 19), which is the basic N+N modifying relationship in Opo. In Bilugu Opo N1 takes the associative suffix /-(í)/ to the effect of "N1 of N2." Note that example (3) could alternatively be interpreted as 'The house of that elder', in which case the associative construction would be parsed as two

(3) a.   kǔˑ   òtón=ínī
          house:ASC   **M:elder=MED**

     'That house of the male elder.'

     b.   [[[kǔˑ]ₙ:ₐₛ𝒸[**òtón**]ₙ]ₙₚ=**ínī**]ᴅᴇᴍ

In (4) the final constituent of the noun phrase /àtʰápʰá tón/ 'big toad' is an attributive verb functioning as an adjective. Again, since this verb is the rightmost constituent the medial enclitic attaches to it.

(4) a.   àtʰápʰá   **tón=ínī**   dʒà
          toad   **big.SG=MED**   go.SG

     'That big toad went.'

     b.   [[[àtʰápʰá]ₙ[**tón**]ₘₒᴅ]ₙₚ=**ínī**]ᴅᴇᴍ [dʒà]ᵥ]ᵥₚ

Similarly, in (5) the noun phrase /nàkʰā sēsék' t'át'áj ʌʌàn/ 'four long dull spears' has multiple modifiers, but the demonstrative enclitic predictably attaches to the rightmost of these. In this case, the host is the quantifier /hʷàn/ 'four'.

(5) a.   mɪ̋   dȭ   nàkʰā   sē~sék'   t'át'áj   hʷ**àn=ínō**
          1PL.INCL.VOL   take.PL   spear   REDUP-be.long   be.dull:PL   **four=PROX**

     'Let's take these four dull long spears.'

     b.   [mɪ̋]ₚᵣₒ[[dȭ]ᵥ[[nàkʰā]ₙ[sē~sék']ₘₒᴅ[t'át'áj]ₘₒᴅ[hʷ**àn**]ǫᵤₐₙₜ]ₙₚ=**ínō**]ᴅᴇᴍ]ᵥₚ

In the process of attaching to a noun phrase, these clitics and their hosts may undergo various kinds of phonological change, including ATR assimilation, vowel deletion, vowel coalescence, and tonal suppletion. The underlying shape of the demonstratives can be seen when the root of the host has a final consonant preceded by a mid or low vowel /e ɛ o ɔ a/, as was the case in the examples above and also with the noun /dʒàw/ 'rock' in (6) below. Here the attested realizations of the enclitics are /=ínō/ 'PROX', /=ínī/ 'MED', and /=ínī tīrɪ̋/ 'DIST'.

---

adjacent noun phrases within an associative phrase, the demonstrative attaching to the right edge of the second NP, as in:

[[kǔˑ]N:ASC[[[òtón]N]NP=ínī]DEM]NP

(6) base   proximal   medial   distal

dʒàw   dʒàw=ínō   dʒàw=ínī   dʒàw=ínī tīɾí
rock   rock=PROX   rock=MED   rock=MED DIST

'rock'   'this rock'   'that rock'   'that (far) rock'

When the root of the host has a high vowel /i ɪ u ʊ/ preceding a final consonant, the initial vowel of the enclitic will assimilate the ATR value of the host. In (7) and (8) the hosts have the [+ATR] vowels /i/ and /u/ respectively, and so the initial vowel of the demonstrative enclitics is realized as [+ATR] /i/. Contrastively, in (9) the host has a [-ATR] vowel /ɪ/, and so the initial vowel is realized as [-ATR] /ɪ/.

(7) base   proximal   medial   distal

pìb   pìb=ínō   pìb=ínī   pìb=ínī   tīɾí
cow.PL   cow.PL=PROX   cow.PL=MED   cow.PL=MED   DIST

'cows'   'this cow'   'that cow'   'that (far) cow'

(8) base   proximal   medial   distal

kùs   kùs=ínō   kùs=ínī   kùs=ínī   tīɾí
hole   hole=PROX   hole=MED   hole=MED   DIST

'hole'   'this hole'   'that hole'   'that (far) hole'

(9) base   proximal   medial   distal

tís   tís=ínō   tís=ínī   tís=ínī   tīɾí
milk   milk=PROX   milk=MED   milk=MED   DIST

'milk'   'this milk'   'that milk'   'that (far) milk'

When the host ends in a vowel, resulting in vowel hiatus, there are several strategies for resolution. First, if the host ends in non-low vowel /i ɪ e ɛ u ʊ o ɔ/ the initial vowel of the demonstrative enclitic deletes. The initial H tone of the enclitic persists, however, replacing the tone on the final vowel of the host. Thus in (10) and (11), where the host nouns end in the non-low vowels /o/ and /u/ respectively, the attested realizations of the enclitics are /(V́)nō/ 'PROX', /(V́)nī/ 'MED', and /(V́)nī tīɾí/ 'DIST'. Note in (11) that because /kù/ 'house' is monosyllabic and L, there is slight lengthening of the vowel and a rising contour tone is formed.[13]

---

13 This lengthening and contour formation only occurs with open-syllable, monormorphemic, L morphemes. A lexical M is replaced by the H of the enclitic, and a lexical H or X persist, deleting the H of the enclitic.

(10)

base	proximal	medial	distal	
tòbò	tòbónō	tòbónī	tòbónī	tīrí
lion	lion:PROX	lion:MED	lion:MED	DIST
'lion'	'this lion'	'that lion'	'that (far) lion'	

(11)

base	proximal	medial	distal	
kù	kǔ·nō	kǔ·nī	kǔ·nī	tīrí
house	house:PROX	house:MED	house:MED	DIST
'house'	'this house'	'that house'	'that (far) house'	

Second, if the host ends in a low vowel /a/ it will coalesce with the initial /ɪ/ of the demonstrative to form /e/. As with deletion, the H tone of the demonstrative persists on the new coalesced vowel. Thus in (12) and (13), where both hosts end in /a/, the attested realizations of the demonstrative enclitics are /énō/ 'PROX', /énī/ 'MED', and /énī tīrí/ 'DIST'.[14]

(12)

base	proximal	medial	distal	
bàlà	bàlénō	bàlénī	bàlénī	tīrí
banana	banana:PROX	banana:MED	banana:MED	DIST
'banana'	'this banana'	'that banana'	'that (far) banana'	

(13)

base	proximal	medial	distal	
tʃá	tʃénō	tʃénī	tʃénī	tīrí
tree	tree:PROX	tree:MED	tree:MED	DIST
'tree'	'this tree'	'that tree'	'that (far) tree'	

Note from (13) that for monosyllabic nouns such as /tʃá/ 'tree' this means all but the onset is phonologically subsumed by the demonstrative enclitic.

2.2 Demonstrative pronouns

The demonstrative enclitics may also attach to the base forms of the third person pronouns to form demonstrative pronouns. This is in fact the main means of expressing the third person pronouns independently in Bilugu Opo. These pronominal bases are split into two groups: those applied to human referents, and those applied to non-human referents (Smolders 2019).

The human pronominal bases distinguish number and natural gender: /òtà/ '3M', /ɓā/ '3F', and /bìjà/ '3PL'. Since these forms all end in the low vowel /a/, when the demonstrative enclitics attach, the same process of coalescence and tonal replacement applies as seen with nominal hosts in §0. The resulting independent demonstrative pronouns are given in Table 5,

14   As described in Footnote 13, for some speakers both mora and tone persist, and thus a noun like /pà/ 'place' plus /=(í)nō/ 'PROX' would be realized as /pě:nō/

along with their derivations and glosses.

Table 5. Derivations of Bilugu human third person demonstrative pronouns.

Gloss	Proximal	Medial	Distal
3M	**òténō**	**òténī**	**òténī tīrî**
	òtà=(í)nō	òtà=(í)nī	òtà=(í)nī tīrî
	3M=PROX	3M=MED	3M=MED DIST
	'he (here)'	'he (there near)'	'he (there far)'
3F	**ɓénō**	**ɓénī**	**ɓénī tīrî**
	ɓā=(í)nō	ɓā=(í)nī	ɓā=(í)nī tīrî
	3F=PROX	3F=MED	3F=MED DIST
	'she (here)'	'she (there near)'	'she (there far)'
3PL	**bìjénō**	**bìjénī**	**bìjénī tīrî**
	bìjà=(í)nō	bìjà=(í)nī	bìjà=(í)nī tīrî
	3PL=PROX	3PL=MED	3PL=MED DIST
	'they (here)'	'they (there near)'	'they (there far)'

The non-human pronominal bases do not distinguish number or natural gender. Rather, their use is governed by something else, possibly information structure, with /nà/ '3NH' usually used for new information and /*h/ '3NH' for given information (Smolders 2019). The resulting independent demonstrative pronouns and their derivations are given in Table 6.

Table 6. Derivations of non-human third person demonstrative pronouns.

Gloss	Proximal	Medial	Distal
3NH	**nénō**	**nénī**	**nénī tīrî**
	nà=(í)nō	nà=(í)nī	nà=(í)nī tīrî
	3NH=PROX	3NH=MED	3NH=MED DIST
	'it (here)'	'it (there near)'	'it (there far)'
3NH	**hínō**	**hínī**	**hínī tīrî**
	h=(í)nō	h=(í)nī	h=(í)nī tīrî
	3NH=PROX	3NH=MED	3NH=MED DIST
	'it (here) '	'it (there near)'	'it (there far)'

3. Location: locative constructions and spatial relators

The next category of spatial grams I describe are locative constructions, which are used to express the location or position of one entity with respect to another. In this description I follow the terminology of Talmy (1985, 2000) and Levinson (2003), using "Figure" to refer to the object being located and "Ground" to refer to the object with reference to which it is being located.

Thus, in a clause like *the bird is on the rock*, "bird" would bethe Figure and "rock" the Ground. Additionally, for location Talmy uses the term "Path" to designate the site of the Ground which the Figure is occupying (1985:61); in the case of the example above this would be "on". For my description, however, I will instead use the term "locative" to refer to morphemes encoding basic location, and the term "spatial relator" for those encoding the specific site at the ground, the latter corresponding to Talmy's Path.

In this section, I first describe basic locative predicates, which simply locate the Figure *at* the Ground via a locative predicator (§3.1). Next, I show how spatial relators can be added to the basic locative construction to specify a more nuanced location relative to the Ground (e.g. *on, in, under, beside*) (§3.2). I categorize these spatial relators into two types: nominalizations and grammaticalized nouns (the vast majority of which are body part lexemes).[15] Finally, I show how the same grammar of space used for locative predicates is extended to mark the location of non-motion events (§3.3).

3.1. Basic locative predicates

In Bilugu Opo, basic locative predicates are formed by taking the Figure (F) followed by a locative predicator (LP) and then the Ground (G), as schematized in (14).

(14)　　F　　　LP　　　G

There are two common strategies to form a locative predicate. The first utilizes the predicator /ní/ 'PRED' followed by the locative prefix /à-/ 'LOC' affixed to the Ground.[16] This can be seen in (15) where the Figure /àtápàjǐ/ 'hyena' is located at the Ground /dʒèpór/ 'road', and in (16) where the Figure /òtápà/ 'Otapa (personal name)' is located at the Ground /kù/ 'house'.

(15) F　　　　LP　　　G
　　 àtápàjǐ　　**ní**　　**à-**dʒèpór
　　 hyena　　　**PRED LOC**-road

　　 'Hyena, it is on [the] road.'

15　What I describe here as basic locatives correspond to Svorou's BEING REGIONS and locatives plus spatial relators to Svorou's INTERIOR and EXTERIOR REGIONS (1993:18-20).

16　The locative prefix is probably toneless, though it most often surfaces as L, which could be a default insertion. More research is needed here.

(16) F   LP   G

    ὸtápà   **ní**   **à**-kù
    Otapa   **PRED LOC**-house

    'Otapa is at [the] house'

These two morphemes often contract to /á-/ 'PRED:LOC', especially when occurring after an anaphoric clitic referring to the Figure, to which it phonologically attaches (though other syntactic environments clearly show it remains a nominal prefix).[17] Thus, in (17) the Figure, encoded by the non-human clitic /ān/ '3NH', is located via /á-/ 'PRED:LOC' at the Ground /wáŋkʲà/ 'Wanke (the name of a Po village)'. Similarly, in (18), a male referent /ār/ '3M' is located via /á-/ at the Ground /kù/ 'house'.

(17) F   LP   G

    ān=**á-**   wánkʲà.
    3NH=**PRED:LOC**-Wanke

    'It is in Wanke.'

(18) F   LP   G

    ār=**á-**   kù.
    3M=**PRED:LOC**- house

    'He is at/in [the] house.'

Alternatively, both these examples could be expressed with the uncontracted form as seen in (19).

(19) F   LP   G

    ōn=**ní**   **à**-kŭ·   àt'ǎp'ǔ.
    3PL=**PRED LOC**-house:ASC   king

    'They are at/in [the] house of [the] king.'

The second common strategy for forming a locative predicate is to utilize the existential verbs /tò/ 'be present SG' and /ǐ/ 'be present PL', or the verbs /wà/ 'sit SG' and /k'ó/ 'sit PL'. When used alone these are interpretable in more ways than just as a locative predicate, as with /k'ó/ in (20) which could mean 'be at' or 'sit at' or 'live at' depending on the context.

---

17 The phonological separation of this prefix from its head noun is shown in the data and morpheme lines by adding a space between them but retaining the hyphen.

(20) F   LP   G

    ɔ̄n= **k'ó**   wáŋkʲà
    3PL=**sit.PL**   Wanke
    'They are at / sit at / live in Wanke.'

Often, however, for locative interpretations a focus marker precedes the Ground. In (21) this illustrated with the locative predicate /tò/ 'be present SG', and in (22) with /wà/ 'sit SG'.[18]

(21) F   LP   G

    pʰák'á   tò   **tà**   wònè
    shoe   EXIST.SG **FOC**   foot
    'Shoe is on (lit. be) *foot*.'

(22) F   LP   G

    tènè wà   **tà**   t'ākʰārí
    dog   sit.SG **FOC**   doorway
    'Dog is in (lit. sits) *doorway*.'

So far, in all the examples given the Ground has been unmarked, except for focus. This is the case only when the Ground is prototypically locative (e.g. town names, houses, roads) or when a locative interpretation is highly expected (e.g. locating a shoe on a foot in (21)). When the Ground is not prototypically locative it is marked with the oblique particle /bì/. Thus in (23) and (24) neither the Ground /tósáwònè/ 'ankle' nor /k'ɔ̄jítʃá/ 'branch' are inherently locative or contextually expected as locations, and so both are marked with a preceding /bì/.

(23) F   LP   G

    nàtʰīɓíbì tò   tà **bì**   tósáwònè
    bracelet   EXIST.SG   FOC **OBL** ankle
    'Bracelet is at/on *ankle*.'

(24) F   LP   G

    tʃʼétʃá ī́   tā **bì**   k'ɔ̄jítʃá
    leaf   EXIST.PL   FOC **OBL** branch
    'Leaves are at/on *branch*.'

3.2. Locatives with spatial relators.

To describe the location of the Figure in a more nuanced position in relation to the Ground, Bilugu Opo extends the locative predicate with a spatial

---

18   The focus marker is derived from the equative verb /tā/ 'BE'. In its function as a focus marker, the M tone of /tā/ is pulled down to L by a preceding lexical L.

relator (SR), as schematized in (25).

> (25)   F   LP   SR+G

The spatial relators are lexemes placed in an associative relationship to the Ground. This involves placing the lexeme before the Ground and attaching the associative suffix /-(í)/. [19] Because the spatial relator becomes the head noun of a noun phrase, it receives the locative prefix if there is one. Compare (26a) and (26b), where the former is a basic locative construction and the latter adds /wõs/ 'up, top'.

> (26) a.   F   LP   G
>   ān=   ní   à-bì   dʒàw
>   3NH=PRED   LOC- OBL   rock
>   'It is at [the] rock/mountain.'
>
>   b.   F   LP   **SR**   G
>   ān=   ní   **à-wõs-í**   dʒàw
>   3NH=PRED   **LOC-top-ASC**   rock
>   'It is on top of [the] rock/mountain.'

These spatial relator lexemes are of two types: nominalizations and grammaticalized nouns. The first type has already been seen with /wõs/ 'up, top' in the example just given. A list of this and other common nominalized spatial relators and their attested meanings is given in Table 7.

Table 7. *Common nominalized spatial relators.*

Lexeme	Gloss	Attested semantics
wõs	'up, top'	on top of (flat surface, e.g. table, shelf). on high surface (e.g. on mountainside, roof, ceiling). in upper part (e.g. in tree).
ùpʰí	'out, outside'	outside of, external
ēstínē	'below, under'	under (contacting, e.g. undefoot) below, underneath (not contacting, e.g. under water) bottom (e.g. of valley)
dʒèpāj	'beside'	beside (bounded object e.g. house, fireplace)
dǎj	'beyond'	beyond

When functioning as spatial relators in locative constructions these lexemes behave like nominals. This can be seen in that they occupy the

---

19 N-N constructions formed with a H tone morpheme are well-attested in western Ethiopian languages. I have chosen to call these "associative" constructions following M. Ahland (2012:204), C. Ahland (2012:152), Goldberg & Hellenthal (2014:15), and Smolders (2019) rather than "genitive" (cf. Lemi 2010:16, Kievit & Robertson 2012:45) or "possessive" (Mellese 2017). See also Footnote 12.

syntactic head of the noun phrase which constitutes the Ground. Likewise, they receive nominal affixes, namely the locative prefix and the associative suffix. Examples (27), (28) and (29) further illustrate this.

(27) F   LP   SP   G

síní	tò	tà	**wŏs-í**	tàrbézà
cup	EXIST.SG	FOC	**up-ASC**	table

'Cup is *on top of table*.'

(28) F   LP   SP   G

tʃá	tò	tà	**dʒèpāj-í**	kù
tree	EXIST.SG	FOC	**beside-ASC**	house

'Tree is *beside house*.'

(29) F   LP   SP   G

pò	k'ó	tā	**ɗáj-í**	sùdán
people	sit.PL	FOC	**beyond-ASC**	Sudan

'People are *beyond Sudan* (alt. are living).'

However, in other constructions it becomes clear that these lexemes have their source in other word classes. For example /wŏs/ 'up' in (30a) functions as a directional adverb modifying the verb /kòr/ 'climb SG' and is paradigmatically opposed to /tĭnē/ 'down' in (30b).

(30) a.

àr=à-	kòr	**wŏs**
3M=IPFV-	climb	**up**

'He is climbing up.'

    b.

àr=à-	kòr	**tĭnē**
3M=IPFV-	climb	**down**

'He is climbing down.'

As a spatial relator /wŏs/ is zero-derived as the nominal 'top', whereas /tĭnē/ is derived as the nominal 'bottom' by preffixing /ēs/ 'body' (both are common nominalization strategies). As a further example, /dʒèpāj/ is derived from the verb /pāj/ 'be wide, long' by preffixing /dʒè/ 'eye'.

Examples of the second type of spatial relator, grammaticalized nouns, can be seen in (31) with /k'óp/ 'head' and in (32) with /kùs/ 'hole, place'.

(31) F   LP   SP   G

ān=	á-	**k'óp-í**	tàrbézà
3NH=PRED:LOC-		**head-ASC**	table

'It is on top of table.'

(32) F   LP   SP   G

mápò	tò	tà	**kùs-í**	k'àlk'áló
food	EXIST.SG	FOC	**hole-ASC**	bag

'Food is *in bag*.'

It is significant that the vast majority of these grammaticalized nouns are body parts which have been analogously extended to the various areas of the Ground, like how /k'ǿp/ 'head' is taken to mean 'on top' in (31) above.[20] Further examples are given in (33), (34), and (35), and Table 8 gives a list of the most common of these along with their attested semantics. Note that in (33) and (34) the associative suffix /-(í)/ appears only as a H tone on the final syllable of the spatial relator.

(33) F   LP   SR   G

ān=	á-	**pùmá**	tʰòy
3NH=PRED:LOC-		**belly:ASC**	gourd

'It is in the gourd bowl.'

(34) F   LP   SR   G

ān=	á-	**k'ōró**	tʃáwà
3NH=PRED:LOC-		**back:ASC**	chair

'It is behind chair.'

(35) F   LP   SR   G

ān=	á-	**ōs-í**	tàrbézà
3NH=PRED:LOC-		**buttock-ASC**	table

'It is under the table.'

---

20 Svorou notes that body parts are a common nominal source of spatial grams cross-linguistically, and predicts that they will be used, just as they are in Opo, for describing various regional partitions such as FRONT-REGION (face), BACK-REGION (back), TOP-REGION (head), BOTTOM-REGION (buttock) and so forth (1993:70-71).

Table 8*. Common grammaticalized nominal spatial relators.*

Lexeme	Gloss	Attested semantics
k'óp	'head'	on top (of raised surface, e.g. mountaintop) at top (e.g. flag on a pole) over (covering top, e.g. cloth over table)
kùs	'hole, place'	inside (e.g. inside bag, cave, hole). within (enclosure, e.g. fence). beneath (covered by, e.g. cloth).
pùmà	'belly'	on (flat surface, e.g. road, body of water) in (open container, e.g. bowl, basket)
k'ōrō	'back'	behind
ōs	'buttock'	under (main body, e.g. table, chair) at bottom (e.g. tree) beneath (covered by, e.g. cloth)
gàŋgárà	'side of body'	beside (object e.g. beside house, box)
sē	'tooth'	at edge (e.g. of paper, rim of cup) at boundary (e.g. of fire, body of water)
t'āk'óp	'mouth-head'	above (not in contact with, e.g. cloud above mountaintop)
tʃˀātʃˀ	'heart, chest'	in the middle (of flat surface, e.g. cloth) in front of (e.g. a person, in the lap)

The evidence that these nouns are in fact grammaticalized as spatial relators (and not simply complex nouns equated with the Ground) comes from the application of the oblique marker /bì/. As with the non-prototypical locative predicates seen in §3.1, when a body part is being used to describe the literal location of a noun it gets marked as oblique. Compare the nouns /sē/ 'tooth' and /k'óp/ 'head' in (36a) and (37a) where they are used as spatial relators with (36b) and (37b) where they constitute the Ground in their literal sense. Also note (37c) where it is questionable to mark /k'óp/ 'head' with /bì/ 'OBL' when collocated with /tʃá/ 'tree'. This is because no part of a tree is normally referred to as the 'head' in Bilugu Opo and thus it is not normally taken as the literal Ground.

(36) a.
	F	LP		SP	G	
	tʃˀámá	tò	tà	**sé**	sírā	
	blood	EXIST.SG	FOC	**tooth:ASC**	knife	

'Blood is *on the edge of* knife.'

b.
	F	LP			G		
	tʃˀámá	tò	tà	**bì**	**sé**	sírā	
	blood	EXIST.SG	FOC	**OBL**	**tooth:ASC**	knife	

'Blood is *on knife's blade*.'

(37) a. F   LP   SP   G

ān= á-   **k'óp-í**   tʃá
3NH=PRED.LOC- **head-ASC**   tree

'It is *on top of tree*.'

  b. F   LP   G

ān= á-   **bì**   **k'óp-ír**
3NH=PRED.LOC- **OBL**   **head-3M.POSS**

'It is *on his head*.'

  c. ?   F   LP   G

?   ān=á-   **bì**   **k'óp-í**   tʃá
?3NH=PRED.LOC- **OBL** **head-ASC**   tree

? 'It is *on head of tree*.'

There is one use of the oblique marker with a body part lexeme, however, that is in the process of grammaticalization into a spatial relator: /bì+ēs/ 'OBL+body'. Phonologically this has contracted to /bēs/ and semantically it indicates 'on' or 'at' with connotations of 'attached to' or 'in the center of'. Examples of this can be seen in (38), (39), and (40).

(38) F   LP   SP?   G

ān= á-   **bēs-í**   k'ātʃˈŏ
3NH=PRED.LOC- **OBL:body-ASC**   candle

'It is on candle.'   (Said of string tied around candle)

(39) F   LP   SP?   G

ān= á-   **bēs-í**   kʰǎrűm
3NH=PRED.LOC- **OBL:body-ASC**   ceiling

'It is on ceiling.' (Said of insect walking on underside of ceiling)

(40) F LP   SP?   G

ān=á-   **bēs-í**   gēw
3NH=PRED.LOC- **OBL:body-ASC**   wall

'It is on wall.' (Said of a picture hanging on the wall)

Finally, in certain situations spatial relators can be serialized to form an even more nuanced description of space. Consider (41) below, where the speaker was describing the location of a large ball underneath a four-legged chair. Because the position could be conceived as both *within* the enclosure of the legs and seat and *under* the body of the chair, the speaker used both /kùs/ 'hole (within)' and /ōs/ 'buttock (under)'.

(41) F   LP   SP1   SP2   G

     ān= á-   **kùs-í**   **ōs-í**   tʃáwà
     3NH=PRED:LOC- **hole-ASC**   **buttock-ASC** chair

     'It is within, under (the) chair.'

3.3. Location of non-motion events

As a final description of the grammar of location, and as an important prelude to §4 on direction, I will briefly describe how Opo marks the locus of non-motion verbal predicates. In these constructions the event corresponds to the Figure, and the locative prefix /à-/ is then used to mark the Ground. Unlike the locative predicates, /ní/ is unnecessary since the verb itself is functioning as the predicator. Thus in (42) we see the event of 'dancing' taking place at the location 'Wanke', and in (43) the event of 'leashing goats' taking place at an anaphoric location.

(42) F/P   G

     ōn= sījā   **à-wáŋkʲà**
     3PL dance   **LOC-Wanke**

     'They danced at/in Wanke.'

(43) F/P   G

     ōn= dōt   mè **à-pēn**
     3PL= tie   goat **LOC-place:3N.POSS**

     'They tied [the] goats there (anaphoric).'

As with basic locative predicates, a more specific location can be indicated using a spatial relator, marked with the locative prefix and in an associative relationship with the Ground, as seen in (44).

(44) F/P   SP   G

     òn=à-   tā   dǎm **à-kùs-í**   tűt
     3PL=IPFV- do   thing **LOC-hole-ASC** tent

     'They were/are working inside of the tent.'

If the semantics of a given verb has a strong implication that the event locus is a specific site with relation to a Ground (e.g. *on, in, under*), the Ground will be interpreted as such without need for a spatial relator. Thus in (45) the verb /tʃùwà/ 'put PL' implies that the event will occur *on* the Ground (not a general *at* the Ground). The same is true in (46), only note here how the Ground is further interpreted as a site in relation to the object of the verb.

(45) F/P   G

    ōn= tʃùwà=n   **à-**sít'īn-í   àdʒámàl
    3PL= put.PL=3NH   **LOC-**back-ASC   camel

    'They put it *on* camel's back.'

(46) F/P   G

    ār= ɓǎ=r   k'ōj   **à-**ɓījā
    3M= put.SG=3M   hand   **LOC-**neck

    'He$_\alpha$ put [his$_\alpha$] hand on his$_\beta$ neck (lit. he$_\alpha$ put him$_\beta$ hand$_\alpha$ at neck$_\beta$).'

Finally, just as with locative predicates, when the Ground is not prototypically locative the oblique marker /bì/ is employed. In (47) the event of 'obtaining it' occurred in a metaphorical sense *at* or *in* the location 'war', but since this is not a prototypical locative it is marked oblique.[21] Similarly, in (48) since the expected relationship of the Ground to the event with /tʃùwà/ 'put PL' is *on,* as we saw in (45), a prototypical Ground would be something which things are put *on*. Since the Ground /tàmbá/ 'silo' is something which things are generally put *in,* it is also non-prototypical and marked oblique.

(47) F/P   G

    ōn= kàm-ó=ān   **à-bì**   dʒàj
    3PL=find-DD1=3NH   **LOC-OBL**   war

    'They obtained it *at/in* war (and returned here).'

(48) F/P   G

    ōn= tʃùwà=n   **à-bì**   tàmbá
    3PL= put.PL=3NH   **LOC-OBL**   silo

    'They put it *in* [the] silo.'

4. Direction: source, goal, and motion orientation.

The last set of spatial grams I describe are used to express the grammar of motion within the Bilugu Opo verb system. These morphemes encode semantics such as source, goal, and direction. Here again I follow the terminology of Talmy (2000) — who treats motion as the same cognitive category as stationary location (1985:60) — using the term Figure for the

---

21 This example illustrates nicely the phenomenon of associated motion (Belkaldi 2015), which is not covered but is mentioned in this paper with relation to the deictic directional markers (see §4.3). Simply stated, the semantics of returning to the deictic centre here is encoded through the use of a directional suffix on a non-motion verb. Thus, it is a motion event associated with the non-motion event.

entity in motion and Ground for the entity with respect to which it is moving. I will also use Path to refer to the course that the Figure takes relative to the Ground. Thus in a clause like *a bird flew away across the lake*, the Figure "a bird" takes the Path "across" relative to the Ground "the lake".[22] Given these definitions, the idea of "source" indicates a Ground that constitutes the origin of the Path of motion (e.g. *from the city*), and "goal" indicates a Ground that constitutes the endpoint of a Path of motion (e.g. *to the forest*). As will be clearly demonstrated in this section, the grammar of location and the grammar of motion in Opo are related, supporting Talmy's analogy.

Also fundamental to the description of motion is direction, or more specifically "deixis", which is the indication of direction of motion (usually *toward* or *away*) relative to the "deictic center" (DC). The DC is the position from which an event is observed, usually corresponding to the point of view of the speaker but sometimes to a projected perspective (Talmy 2000:68). Taking the clause a *bird flew away across the lake*, the direction of motion is indicated by "away" and shows that the Figure moves from relatively close to the DC (i.e. speaker's location) to relatively further away.

In this final section I describe such aspects of motion in Bilugu Opo as follows: In §4.1 I describe basic 'come' and 'go' verbs, showing that both lexemes are inherently goal-oriented (as opposed to classically *venitive* and *andative*). In §4.2 I discuss the syntax of overt goal and source marking with motion verbs. In section §4.3 I describe the phonology and semantics of the deictic directional markers, a prominent set of paradigmatically opposed verbal suffixes which orient motion relative to the DC, addressee, or a different specified goal. Finally, in §4.4 I discuss the index directional, an adverb used for expressing direction deictically related to the speaker's gestures.

4.1. Lexical direction

Bilugu Opo has two sets of motion verbs roughly corresponding to 'come' and 'go'. Both sets are comprised of suppletive pairs marking singular and plural verbal stems (Smolders 2019): /dʒō ~ dʒā̀ː/ 'come SG ~ PL' and /dʒà ~ ʔʲá/ 'go SG ~ PL'.[23] Although these are the most basic verbs of motion, they do not strictly encode *venitive* (a.k.a. *ventive, centripetal*) and *andative* (a.k.a. *itive, centrifugal*), the former term denoting movement *towards* the DC and the latter movement *away from* the DC. Rather, both are goal-oriented, meaning they encode Path *towards* a Ground. Thus /dʒɔ̀ ~

---

22 The verb "fly" in this example encodes the motion fundamental to this event and also its manner.

23 Historically, these two sets of verbs are likely derived from a single basic verb of motion plus lexicalized deictic directional markers (see §4.3).

d͡ʒã̄:/ 'come' may be described as true venitives, orienting motion *towards* the DC (which is also the *de facto* Ground). /d͡ʒà ~ ʔʲá/ 'go', however, do not conversely orient movement *away from* the DC, but instead fundamentally orient movement *towards* a goal which is not the DC. This can have the effect of an andative if the source of motion is known to be the DC, though andative direction is not encoded *per se*.[24]

In (49) and (50) I give examples illustrating these verbs and their properties. Each is given with both the singular (a) and plural (b) suppletive stems, and each has an unmarked nominal goal.

(49)   Lexical 'come' verbs.

    a.   ār= **d͡ʒō̄**   pà
        3M= **come.SG** home
        'He came home (toward DC).'

    b.   ōn= **d͡ʒã̄**:   pà
        3PL= **come.PL**   home
        'They came home (toward DC).'

(50)   Lexical 'go' verbs.

    a.   ār= **d͡ʒà**   wáŋkʲà
        3M= **go.SG** Wanke
        'He went to Wanke (≠DC).'

    b.   ōn= **ʔʲá**   wáŋkʲà
        3PL= **go.PL** Wanke
        'They went to Wanke (≠DC).'

In contrast to /d͡ʒà ~ ʔʲá/, the motion verb /pòtʰá=ēs/ 'leave' is a true andative: it lexically orients direction *away* from the DC and does not infer a goal. Thus, in (51), since neither goal nor direction are specified, the motion can be interpreted as any or all directions away from the DC.[25]

---

24 Both sets of these verbs are also conflated with manner, namely non-fluid movement along a horizontal plane (e.g. walking). Referents whose basic motion is understood to be smooth or fluid (e.g. birds, vehicles, rivers) use motion verbs which lexically encode manner but not direction (e.g. /wījā ~ só/ 'run SG ~ PL', /pʰāj ~ pʰáj/ 'fly SG ~ PL'). For these verbs, direction is expressed via the deictic directionals or adverbial directionals explained in §4.3 and §4.4.

25 Note that the clitic /ēs/ 'body' is one of several body part lexemes which can be used as verbal particles/clitics to derive new verbs (see Goldberg 2017).

(51) āb= pòtʰés
    3F= leave:BODY
    'She left (from DC).'

4.2. Source and goal

Regardless of whether a motion verb lexically encodes direction, prototypically locative goals remain unmarked. This was seen with the word /pà/ 'home' in (49) and with the proper noun /wáŋkʲà/ 'Wanke town' in (50) when they functioned as goals of the 'come' and 'go' verbs. This can be further seen with the word /kùsítʃá/ 'forest' in (52) and (53) when it functions as the goal of the motion verbs /jàl/ 'return' and /wījā/ 'run SG', neither of which lexically encode direction. The common factor with all these nouns is that they are locations *per se* and are thus expected to take semantic roles such as goal.

(52) ār=dʒō   **jàl**   **kùs-í-tʃá**
    3M=come.SG   **return**   **place-ASC-tree**
    'He came, returned to forest.'

(53) ār=**wījā**   **kùs-í-tʃá**
    3M=**run.SG** **place-ASC-tree**
    'He ran to forest.'

Non-prototypical goals, on the other hand, require the oblique marker /bì/, the same morpheme described in §3 which marks non-prototypical Grounds and literal uses of the spatial relators in locative predicates. Thus in (54) and (55) the word /tʃá/ 'tree' takes /bì/ when used as the goal of /dʒà/ 'go SG' and /wījā/ 'run SG' respectively.

(54) ār= dʒà   **bì**   **tʃ**énī tīrī́
    3M= go.SG   **OBL**   **tree:**MED DIST
    'He went to that distant tree.'

(55) ɗīw wījā   **bì**   **tʃ**énī tīrī́
    bird run.SG   **OBL**   **tree:**MED DIST
    'Bird went (to that distant tree).'

Sources, on the other hand, are always marked with the locative prefix /à-/ 'LOC' (again, the same morpheme described in §3). This can be seen in (56) where the proper noun /ákùlé/ 'Akula town' functions as the source of /dʒō/ 'come.SG', the goal implicitly being the DC because of the lexicalized orientation of the verb.

(56) ār= dʒō **à-ákùlé**
 3M= come.SG **LOC-Akule**
 'He came (toward DC) from Akule.'

If both the source and goal of motion are overt, and thus syntactically two Grounds are presented, the source is given first (presumably because it is both logically and chronologically prior to the goal) and the verb is then repeated or another verb inserted to host the goal. Thus in (58) the source of /dʒō/ 'come SG' is /gàmbélà/ 'Gambella city', and following this, /dʒō/ is repeated and takes the unmarked goal /ákùlé/ 'Akula town.' In (75) the source of /*pʰí/ 'arise SG' is again /gàmbélà/, but here the verb /dʒà/ 'go SG' is inserted to host /níníɲàŋ/ 'Nininyang town' as the goal, presumably because 'arise' does not infer a goal whereas 'go' does in Bilugu. [26] [27]

(57) ār= **dʒō** à-gàmbélà **dʒō** ákùlé
 3M= **come.SG** LOC-Gambella **come.SG** Akule
 'He came from Gambella to Akule (=DC).'

(58) ār= **pʰí-já** à-gàmbélà **dʒà** níníɲàŋ
 3M= **arise.SG-DD3** LOC-Gambella **go.SG** Nininyang
 'He arose from Gambella and went to Nininyang (≠DC).'

Like goals and locatives, non-prototypical sources also get marked with the oblique marker /bì/, which then becomes the host of the locative prefix /à-/. Thus example (59) shows /à-bì/ 'LOC-OBL' preceding the source /tʃénī/ 'that tree' and /bì/ 'OBL' preceding the goal /dʒàwínī/ 'that rock'. Example (60) gives similar data but using different motion verb. In both these examples neither the source nor the goal is equal to the DC.

(59) ār= dʒà **à-bì** tʃénī ɓēr-á **bì** dʒàw=ínī
 3M= go.SG **LOC-OBL** tree:MED arrive-DD2 **OBL** rock=MED
 'He went from that tree, arrived at that rock.'

---

26 Note the differing functions of the marker /à-/ 'LOC' with motion and non-motion verbs. With the former it is used to indicate source (as illustrated in the current section), whereas with the latter it is used to indicate the locus of non-motion events (see §3.3), for example with the verb /sĭk'/ 'rest PL' below:
 mĭ= ʔʲá sĭk' **à-pà** mó k'ās pò
 1PL.INCL.VOL= go.PL rest.PL **LOC-place** REL be.absent people
 'Let us go [and] rest at a place where there are no people.'
27 In example (58) the bound verb root /*pʰí/ has the suffix /-(j)á/ 'DD3', a morpheme which is explained in §4.3.

(60) ɗĩw pʰí-já   **à-bì**   tʃǎ   bàlà   wī| jā   **bì**   tʃá=ɗĕ
     bird arise-DD3   **LOC-OBL**   tree:ASC   banana   run.SG   **OBL**   tree=OTHER

'Bird arose from banana tree, went to another tree.'

4.3. Deictic directional markers

The cornerstone of motion orientation in Opo is a series of verbal suffixes in paradigmatic opposition referred to as the deictic directional (DD) markers, formerly called aspect directionals (AD) (cf. Killian 2015; Otero 2015a, b). These are an important feature of all Koman languages (Otero 2015a, 2018, 2019, 2021; Hellenthal & Asadik 2015; Hellenthal 2018), and similar directionals are also present in Gumuz (Ahland 2012:230) and are in fact common throughout Nilo-Saharan (Creissels *et al.* 2008). Cross-linguistically such morphemes are expected to encode venitive and andative direction, whether deictic or not (Creissels *et al.* 2008:148), like the verbs 'come' and 'go' which are their most common historical source. Otero, however, first analyzed the DD markers in Komo as *goal-oriented* (2015a, 2018), followed by Hellenthal (2018) for Gwama. [28] According to this growing body of evidence, the Koman DD markers are expected to come in a series of three: DDØ, which is unspecified for goal and often unmarked, DD1 which indicates direction toward the speaker or projected DC as goal, and DD2 which indicates direction toward the addressee as goal. In this section I will demonstrate that this pattern is generally true for the DD markers in Bilugu Opo, but that there is also an additional morpheme which I will call DD3 which expresses andative direction (i.e. motion away from the DC).

In Bilugu Opo the DD markers take the following forms: DDØ is formally unmarked and often accompanied by a lexical final vowel, DD1 is underlyingly /-ɔ́/, DD2 is underlyingly /-(j)á/, and DD3 is underlyingly /-(j)há/.[29] These morphemes, their allophones, and their basic semantics with motion verbs are summarized in Table 9.

---

28 This coincides with the goal-orientation observed with the 'come' and 'go' verbs in §4.1, and is good evidence that these may be the historical source of the directionals, or at least that they share a common historical source.

29 These morphemes are not entirely productive and with certain lexemes DD2 collapses with DDØ and/or DD3. Note that DD3 with non-motion verb can denote andative (e.g. /*bār/ 'clear' + /-há/ → /bārhá/ 'clear away', 'dust off') completion (e.g. /sá/ 'eat.SG' + /-há/ → /sáhá/ 'eat up'), and even some unique verbal derivations (e.g. /wà/ 'sit.SG' + /-tʃʰá/ → /wàtʃʰá/ 'remain behind, wait', /ɓǎ/ 'put' + /-tʃʰá/ → /ɓűtʃʰá/ 'place temporarily').

Table 9. *Deictic directional markers in Bilugu Opo.*

Gloss	Form	Allomorphs	Goal / Direction
DDØ	-Ø	unmarked (-Ø) or lexical final vowel (e.g. -ì, -í, é, -ā)	unspecified or ≠speaker / addressee
DD1	-ɔ́	-ɔ́ / -ú / -wɔ́ / -wú	towards speaker / DC
DD2	-(j)á	-á / -já	towards addressee / other goal
DD3	-(j)há	-há / -jʰá / -tʃʰá	away from speaker / DC

The phonological shape of the DD markers depends on the verb root to which they attach. Here we must distinguish vowel-final from consonant-final verb roots, yielding two relevant syllable profiles: (C)V, and (C)VC.[30] Based on these syllable profiles, the surface realizations of the DD markers can be explained by [+ATR] assimilation and processes of semivowel epenthesis, deletion, or fortition.[31]

DDØ is not formally a morpheme, but because verb stems in this form do stand in paradigmatic opposition to stems with the other DD marker, I treat it here like a segmentable element of the stem; thus (C)VCV verb stems are categorized as (C)VC stems plus a final vowel. Given this, DDØ has two attested forms: a zero morpheme on either CV or (C)VC roots (61a-b), or an unpredictable final vowel on a (C)VC root (61c-e). Outside of this section I do not segment and gloss DDØ.

(61) Allomorphs of DDØ.

a.	só-Ø	→	só	(zero morph)
	run.PL-DDØ			
b.	jàl-Ø	→	jàl	(zero morph)
	return-DDØ			
c.	sāk'-ā	→	sāk'ā	(lexical final V)
	carry-DDØ			
d.	tʃàŋ-í	→	tʃàŋí	(lexical final V)
	send-DDØ			
e.	ēb-ē	→	ēbē	(lexical final V)
	fall-DDØ			

The underlying form of DD1 is /-ɔ́/ which can be observed when it is attached to (C)VC verb roots with a [-ATR] or low vowel (62a). When the

---

30 Polysyllabic verb roots are attested (e.g. /dàndàjí/ 'be able, conquer'), but they are less common and will not be addressed in this description.

31 Although I write of [+ATR] and [-ATR], given its phonological behaviour in Opo [ATR] is best understood as a privative feature which spreads only in high vowels.

verb root vowel has a [+ATR] feature this will spread to the suffix (62b). For CV roots, if the final vowel is back-rounded two syllables are preserved by epenthesis of the labio-velar semivowel /w/ (62c), otherwise either the semivowel is epenthesized or a diphthong is formed (62d). For CV verbs with the root vowel /u/ both epenthesis and [+ATR] assimilation occur (62e).[32]

(62)   Allomorphs of DD1.

   a.   sāk'-ó   →   sāk'**ó**   (underlying form)
        carry-DD1

   b.   wīj-ó   →   wīj**ú**   ([+ATR] assimilation)
        run-DD1

   c.   só-ó   →   só**wó**   (SV epenthesis)
        run.PL-DD1

   d.   pā-ó   →   pʰā**ǫ́** / pʰāw**ǫ́**   (diphthong / SV ep.)
        take-DD1

   e.   tʰű-ú   →   tʰű**wú**   ([+ATR] assim., SV ep.)
        give.birth-DD1

The underlying form of DD2 /-(j)á/ can be seen with CV verb roots which have a non-low vowel, as in (63a-b). With both (C)VC roots (63c) and CV roots which have a low vowel /a/ (63d), the underlying semivowel is deleted. Unlike DD1 there is no [+ATR] assimilation, which may be expected given that [ATR] is not contrastive in the mid and low vowels.

(63) Allomorphs of DD2

   a.   só-(j)á   →   só**já**   (underlying form)
        run.PL-DD2

   b.   pʰí-(j)á   →   pʰí**já**   (underlying form)
        arise-DD2

   c.   sāk'-(j)á   →   sāk'**á**   (SV deletion)
        carry-DD2

   d.   pā-(j)á   →   p**ā́**:   (SV deletion)
        take-DD2

The underlying form of DD3 /-(j)ʰá/ can be seen with certain CV verb roots, as in (64a).[33] Here the main difference between this morpheme and DD2 is the presence of heavy aspiration. With (C)VC roots the initial

---

32 Note in (62d) that there is an aspirated feature which appears on the root consonant. This has been observed in several CV verb roots when taking DD1, (e.g. /tā/ 'be, do' + /-ó/ → /tʰāǫ́/ or /tʰāwó/) and /wà/ 'sit.sg' + /-ó/ → /hʷàǫ́/ or /hʷàwó/).

33 Phonetically this form also often surfaces as a voiceless palatal semivowel [j̊] or a glottal fricative with a palatal glide [hʲa].

semivowel of the suffix is deleted but the heavy aspiration persists. If the final C is a voiceless stop, whether unaspirated or ejective, the surface form will be a voiceless aspirated stop at the same place of articulation (64b). With all other consonants the aspiration will be realized as a glottal fricative, as in (64c). With certain CV verb roots the underlying aspirated semivowel will fortify into a voiceless aspirated palato-alveolar affricate /tʃʰ/. The exact phonological motivation for this is unknown, but it is probable that it is due to a historical final C on the verb root which has been lost.[34] [35]

(64)   Allomorphs of DD3.

a.	só-(j)ʰá	→	sójʰ**á**	(underlying form)
	run.PL-DD3			
b.	sāk'-(j)ʰá	→	sākʰ**á**	(SV deletion)
	carry-DD3			
c.	kàr-(j)ʰá	→	kàr**há**	(SV deletion)
	hear-DD3			
d.	dŏ̃-(j)ʰá	→	dŏ**tʃʰá**	(SV fortition)
	take-DD3			
e.	pā-(j)ʰá	→	pāt**ʃʰá**	(SV fortition)
	take-DD3			

Moving on to the semantics of the DD markers, not all verb roots can take each of the four DD markers, and the ultimate effect of these suffixes is actually determined by a complex matrix of the inherent semantics of the verb, the aspectual frame being employed, and pragmatics. In this paper, however, I only discuss basic directional effects with motion verbs, and a select few non-motion verbs of interest. For more discussion of this phenomenon in Opo and other Koman languages refer to Otero (2021).

Many motion verbs take four forms, as illustrated in (65), (66), and (67) below. In such cases DDØ marks an unspecified direction or goal, or a specified goal that is neither the DC nor the location of the addressee (65-67a). DD1, as expected, marks the DC as goal (65-67b), DD2 marks 2nd person as goal (65-67c), and DD3 marks motion away from the DC as source (65-67d).

(65) a.   ār=   sāk'-**ā**   tʃá   (unspecified)
           3M=   carry-**DDØ**   wood
           'He carried wood (anywhere).'

---

34   As evidence for this consider the irregular form of DDØ for the root /*pā/ 'take', which is /pāgā/, compared then with the forms DD1 /pʰāwó/ (62d), DD2 /pá:/ (63d), and DD3 /pātʃʰá/ (64e).

35   Note in (64e) that there is an irregular raising of the tone and vowel of the root.

 b. ār= sāk'-**ó**   tʃá   (goal=speaker/DC)
     3M= carry-**DD1**   wood

     'He carried wood toward here (=DC).'

 c. ār= sāk'-**á**   tʃá   (goal=addressee)
     3M= carry-**DD2**   wood

     'He carried wood toward you (≠DC).'

 d. ār= sāk-**ʰá**   tʃá   (source=speaker/DC)
     3M= carry-**DD3**   wood

     'He carried wood away (e.g. it was here before but now is gone).'

(66) a. ōn= só-**Ø**   pà=dě   (goal= specified other)
         3PL= run.PL-**DDØ**   place=other

         'They ran to another place.'

 b. ōn= só-**wó**   pémá   (goal=speaker/DC)
     3PL= run.PL-**DD1**   place:1SG.POSS

     'They ran to my place.'

 c. ōn= só-**já**   pà   míní   (goal= addressee)
     3PL= run.PL-**DD2**   place   2SG.POSS

     'They ran to your place.'

 d. ōn= só-**jʰá**   (source=DC)
     3PL= run.PL-**DD3**

     'They ran away (e.g. they were there before, now gone).'

(67) a. tènè mèt-**ì**   sūmā   (unspecified)
         dog chase-**DDØ**   animal

          'Dogs chased animals.'

 b. ōn= mèt-**ó**   mè   (goal=speaker/DC)
     3PL= chase-**DD1**   goat

     'They chased the goats here (=DC).'

 c. āgā=á-   mèt-**á**   mè   (goal= addressee)
     1SG=IRR-   chase-**DD2**   goat

     'I will chase [the] goats to you.'

 d. ōn= mèt-**ʰá**   tènè   ùpʰí̠   (source= speaker/DC)
     3PL= chase-**DD3**   dog   out

     'They chased the dogs away.'

  Some motion verbs attest only three forms, lacking DDØ. With such verbs DD1 marks the DC as goal (68a), DD2 marks 2nd person as goal (68b),

and DD3 marks DC as source (68c).[36]

(68) a. kǐ:t-**ú**   kù   (goal=speaker/DC)
         cross.threshold-**DD1**   house

     'Enter the house (I am inside)!'

   b.   kǐ:t-**á**   kù   (goal=addressee)
         cross.threshold-**DD2**   house

     'Enter the house (I am outside and will follow)!'

   c.   kǐ:t-**ʰá**   kù   (source=speaker/DC)
         cross.threshold-**DD3**   house

     'Enter the house (I am outside, but I will go elsewhere).'

Interestingly, for these lexemes the semantics of DDØ is accomplished with DD2. It is not known whether this is because DD2 is simply homophonous with a final vowel /á/, or whether the two forms historically merged, or failed to split, or something else. Whatever the case, depending on the context the same form also marks a specified goal other than the DC or location of the addressee, as in (69).

(69)   ōn= kìt-**á**   kù   (goal=other specified)
        3PL= cross.threshold.PL-**DD2**   house

     'They entered the house.'

The basic goal orientation of verbs like /kǐ:tá/ 'cross threshold' in combination with the locative marker /à-/ to mark source and the DD markers can very efficiently show the relative locations and directions of participants, as seen in (70).

(70) a. ār= kǐ:t-á   kù   à-ùpʰǐ
         3M= cross.threshold-**DD2**   house   LOC-out

     'He entered the house from outside (where I am).'

   b.   ār= kǐ:t-á   ùpʰǐ   à-kù
         3M= cross.threshold-**DD2**   out   LOC-house

     'He exited the house (where I am) to outside.'

   c.   ār= kǐ:t-ú   kù   à-ùpʰǐ
         3M= cross.threshold-**DD1**   house   LOC-out

     'He entered the house (where I am) from outside.'

---

36 Note that in examples (68c-d) there is also implied associated motion (Belkadi 2015) of the speaker either toward the 2nd person goal or away from the DC. This is due in part to the imperative mood. For a complete study of associated motion arising from the DD markers in Koman see Otero (2021).

d.   ār=   kī:t-ú   ùpʰǐ   à-kù
     3M=   cross.threshold-**DD1**   out   LOC-house
     'He exited the house to outside (where I am).'

Other motion verbs attest only three forms but lack DD3. Presumably, these lexemes require a goal and so cannot take an andative sense. With such verbs DDØ marks a specified direction or goal which is neither the DC nor the location of the addressee (71a), DD1 marks the DC as goal (71b), and DD2 marks 2nd person as goal (71c). Attempting an andative form with such verbs is ungrammatical (71d).

(71) a.   ōn=   tʃàŋ-**í**   àdímē   pá   bìjénī   (goal=specified other)
          3PL= send-**DDØ** child   place:ASC   3PL:MED
          'They sent the child to the place of those people.'

     b   ōn=   tʃàŋ-**ó**   àdímē   (goal=DC)
          3PL= send-**DD1**   child
          'They sent the child here (=DC).'

     c.   ōn=   tʃãŋ-**á**   àdímē   (goal=addressee)
          3PL= send-DD2   child
          'They sent the child there (to you).'

     d.   *ōn=   tʃãŋ-**há**   àdímē   *(source=speaker/DC)
          *3PL=   send-**DD3**   child
          *'They sent the child away.'

For certain non-motion verbs which strongly infer a goal, the root is bound and use of either DD1 or DD2 is obligatory. In such cases DD2 once again takes on the role of DDØ (and is indistinguishable from a possible DDØ as a final vowel /-á/), indicating the goal as specified location which is not the DC. For example, in (72a) the root /*ɓēr/ 'arrive' infers a goal and only attests two forms: the DC as goal (DD1) or another location as goal (DD2). Note that the motion component of the event is accomplished by serializing the verb with either /dʒō/ 'come.SG' or /dʒà/ 'go.SG'.

(72) a.   ār=   dʒō   ɓēr-**ó**   pě·nō   (goal=speaker/DC)
          3M=   come.SG   arrive-**DD1**   place:PROX
          'He came (and) arrived at this place.'

     b.   ār=   dʒà ɓēr-**á**   pě·nī   (goal=specified other)
          3M=   go.SG arrive-**DD2**   place:MED
          'He went, arrived at that place.'

Certain other non-motion verbs which do not imply a goal also have a bound root and two forms: in this case DD1 implies a source or location of the action somewhere other than the DC (but in relation to it), and DD2

implies a source or location that is either the DC or elsewhere (i.e. default, unspecified). For example, in (73) the verb root /*pʰí/ 'arise' attests only two forms: arising toward the DC from another location (DD1), or arising elsewhere including the DC (DD2). Note again that the motion component of the event is accomplished by serializing the verb with either /dʒō/ 'come.SG' or /dʒà/ 'go.SG'.

(73) a. ār= pʰí-**wʊ́**   dʒʊ̀   pě·nō   (source≠DC)
         3M= arise.SG-**DD1**   come.SG   place:MED

       'He arose (somewhere not here), came to this place.'

   b. ār=pʰí-**já**   dʒà   pě·nī   (source=DC/other)
         3M=arise.SG-**DD2**   go.SG   place:MED

       'He arose (somewhere, possibly here), went to that place.'

Finally, in complex deictic situations, such as two speakers having an exchange from differing deictic centers, DD2 may be used for clarification. This can be seen in (74), where the scene is two speakers at different locations talking about the direction of a third party. In (74a) the first speaker uses the inherently venitive /dʒō/ 'come.SG' to inquire if the third party is approaching him (i.e. his deictic center (DC)). In (74b) the second speaker responds in the affirmative, projecting the deictic center to the location of the first speaker by using the DD2 form of 'come'.

(74) a. àr=à-   **dʒō**?   (goal=DC)
         3M=IPFV **come.SG**

       'Did he come?'

   b. ē:,   àr=à-   **dʒűwá**   (goal=DC & addressee)
         yes   3M=IPFV   **come.SG:DD2**

       'He came to you (at your place).'

At the beginning of this subsection I noted that the DD markers were the cornerstone of motion orientation in Opo (as well as in other Koman languages). Here, however, I have only shown their most basic function in designating the deictic direction of motion *toward* a goal (whether that be the speaker, the addressee, or another specified goal) or away from the DC (only DD3). Depending on various factors such as verb type, aspect, and pragmatics, their usage and meaning extend beyond this. As was briefly shown, with certain non-motion verbs they can imply goal or location. Another interesting effect they can have with non-motion verbs is that of subsequent "associated motion" (Belkadi 2015, see also Footnotes 21 and 36), but that topic is too complex for the purview of this discussion and the reader is referred to Otero (2018, 2019, 2021) for a description of this phenomenon in Koman.

4.4. Index directional adverb

One final spatial gram used to indicate deictic direction of motion is what I call the "index directional" (IDIR) /gē̄:/ or /gégē̄/. This adverb is likely derived from the verb /gé/ 'be like, resemble'. It is used in conjunction with hand gestures or pointing to indicate a direction or path relative to the deictic center. For example, in (75) it is used to indicate the direction *away from* the deictic center which a group of people recently left.

(75) ōn= pér   **gē̄:**
     3PL= leave   **IDIR**
     'They left that direction (indicated by pointing).'

In (76) it is used to describe the continued path of a man who came through the deictic center and continued in a different direction.

(76) ār= dʒō   dʒà   **gē̄:**
     3M= come.SG go.SG **IDIR**
     'He came and left that way (direction indicated).'

Finally, in (77) it is used three times in the same utterance to indicate three different directions, all relative to the hand gestures of the speaker during the speech event.

(77) bìjà-w   à-só   **gégē̄**,   bìjà-w   à-só   **gégē̄**,   bìjà-w
     3PL-INDEF   IPFV-run.PL **IDIR**   3PL-INDEF   IPFV-run.PL **IDIR**   3PL-INDEF

     à-só   **gégē̄**
     IPFV-run.PL **IDIR**
     'Some were running this way, some were running that way, some were running the other way!'

The IDIR adverb can also be used in conjunction with the DD markers to supplement information about the Path. This can be seen (78) where the subject is described as first passing from the DC in a curve toward and through a forest, and then back to the deictic center. Here motion *away* from the DC forest is encoded by /-(j)ʰá/ DD3, the Path *pass through* in relation to the Ground *forest* is marked by the verb and the locative /à-/, the curve of the Path is indicated by a hand gesture and the IDIR adverb, and finally the redirection to and arrival at the deictic center by /dʒō/ 'come' and DD1 /-ó/.

(78) ār= pàt-**há**   **géē**   à-kùí-tʃá   **dʒō**   ɓēr-**ʊ́**
    3M= pass-**DD3** **IDIR** LOC-place:ASC-tree **come.SG** arrive-**DD1**

    pě˙nō
    place:PROX

    'He passed through that way, via the forest, came back, and arrived here.'

Similarly, when DD2 is used to indicate direction towards the addressee, the IDIR in conjunction with hand gestures specifies the shape of the motion, as in (79).

(79) ār= tò   à-wīj-**á**   **géē**
    3M= EXIST.SG IPFV-run.SG-**DD2** **IDIR**

    'He is running to you this way.'

5. Conclusion and discussion

In this paper I have described several prominent spatial grams in Bilugu Opo related to three categories of spatial relations: distance, location, and direction. I described the demonstrative enclitics, which attest three degrees of distance: proximal /=(í)nō/, medial /=(í)nī/, distal /=(í)nī tīrʿ́/. For location I described how basic locative constructions position a Figure at a Ground via locative predicators, most commonly /ní/ with the locative /à-/, or a verb like /tò/ 'be present SG' or /wà/ 'sit SG' plus /tā/ 'FOC' marking the Ground. I then showed how spatial relators (i.e. nominalizations or grammaticalized body part nouns placed in an associative relationship with the Ground) could be used to specify a particular area of the Ground. For direction, I first described verbs with lexical direction, namely /dʒō ~ dʒāː/ 'come SG~PL' and /dʒà ~ ʔʲá/ 'go SG~PL', showing them to be goal-oriented rather than the expected venitive and andative. I also described the marking of goal and source via syntax and the locative prefix /à-/. Further, I described the very prominent deictic directional suffixes, demonstrating how DDØ marks unspecified direction or direction towards a goal which is neither the DC nor the addressee, how DD1 /-ʊ́/ marks direction toward the DC, how DD2 /-(j)á/ marks direction toward the addressee or in certain contexts toward a different specified goal, and how DD3 /-(j)ʰá/ marks direction away from the DC. Finally, I described a unique adverb, the index directional /gēː/, which can be used with hand gestures to deictically describe direction or specify the shape of the Path.

In the introduction to this paper I stated how fundamental a good understanding of spatial relations can be to an understanding of the whole grammar of a language. This is because abstract concepts such as time and aspect are often described using more concrete concepts such as spatial relations, and in fact many abstract grammatical morphemes themselves are

sourced from spatial grams. As part of the closing discussion, I now give a cursory account of how this is the case with some of the spatial grams just described.

To begin, temporal deixis in Bilugu Opo is often expressed with the help of the demonstrative enclitics described in §2. The proximal demonstrative is used to express time "close" to the deictic present, and the medial or distal indicates "distant" time, either past or future depending on the context. One well-attested construction forms temporal adverbs by applying the locative prefix /à-/ (§4.2) to a calendar word such as /táj/ 'sun, hour', /téjē/ 'day', /àdòj/ 'moon, month', or /pè/ 'year', and then attaching one of the demonstrative enclitics for deixis. For example, in (80) the word /àtéyénō/ 'today' is derived from /à-téjē=(í)nō/ 'LOC-day=PROX', and is used to refer to a present state which, in context, had been going on for over five years. The speaker chose the proximal demonstrative enclitic to indicate that the state was realized in the deictic present.

(80) mìnà   dʒāː   kàm-èj   pà sálà   **à-téjénō**
     1PL.INCL come.SG   find-SBRD   home different   **LOC-day:PROX**

‘We have come to find another home today (i.e. in the present era).’

Compare this with (81) where the word /àtájínī/ 'at that time' is formed using the medial demonstrative with head noun /táj/ 'sun, hour'. In this case /à-táj=(í)nī/ 'LOC-sun=MED' is used to refer to a past state which is no longer realized in the deictic present, and is therefore conceptualized as temporally distant.

(81) **à-táj=ínī**   tʃjàŋ   kāw   àsìmán
     LOC-sun=MED   situation   be.hard   very

‘At that time the situation was very difficult.’

Other temporal concepts can be expressed using the body part spatial relators seen in §3.2. For example, in (82) the concept of 'afterwards', a discourse marker which moves a scene to a chronologically subsequent scene, is expressed using the phrase /àbì k'ōrón/. This phrase is derived from /à-bì/ 'LOC-OBL' and the body part /k'ōrō/ 'back (behind)' with an anaphoric possessive suffix /-(í)n/, showing that chronological subsequence is conceptualized as being 'behind' or perhaps 'from the back of'.

(82) **à-bì**   **k'ōró-n**,   ār=   sá   mãː
     LOC-OBL   **back-3NH.POSS**   3M=   eat.SG   food

‘Afterwards (lit. from its back) he ate food.’

Similarly, in (83) the concept of 'at the beginning' is expressed with the phrase /àk'ópkáj/. This is derived from the locative marker /à-/, the body part

/k'ʊ́p/ 'head (top)' compounded with the verb /káj/ 'begin', suggesting that Opo speakers conceptualize a sequence of time as having a 'head' or 'top' from which subsequent events unfold.[37]

(83) mān=ní-   tā   tā   k'ʊ́p-í   kūrè   **à-k'ʊ́p-káj**
     1PL.EXCL=ASP- make   FOC   head-ASC   sorghum **LOC-head-begin**

  'We would make the sorghum head (beer) at the beginning.'

Tense, aspect, and modality (TAM) in Bilugu Opo is also partially achieved via the repurposing or extension of location and directional spatial grams. For example, the lexically directional verbs /dʒō/ 'come.SG' and /dʒã:/ 'come.PL' are extended to indicate a kind of perfective aspect. The concept of completing an action is framed as 'coming' and arriving at that action. Consider (84), where the speaker is asking if the addressee *had gone* to drink coffee, using the verb /dʒà/ 'go SG' in its literal sense as a motion event but pre-posing /dʒō/ 'come SG' as an aspectual auxiliary verb.

(84) ī   **dʒō**   dʒà   bì   būná   pʰí   ?
     2SG   **come.SG**   go.SG   OBL   coffee   drink

  'Have you gone (lit. come go) to drink coffee?'

Consider also (85), where the speaker is talking about a habitual activity in the past which was forcibly stopped and remains inactive in the deictic present. The speaker shows that the action of stopping /t'āk'á/ is relevant in the deictic present by using the /dʒã:/ 'come.PL' to point toward the temporal deictic center.[38]

(85) à-pénò   ōn= **dʒã**:   t'āk'éj=ān   gē
     LOC-year:PROX   3PL= **come.PL**   stop:SBRD=3NH   DEM.CFP

  'In this generation in which they have stopped [doing] it (lit. come stop)…'

Other examples can be seen in the verbal paradigm given in (86). First, note that the imperfective (86b) and two forms of the continuous (86c-d) are likely derived from the locative constructions seen in §3.1. Syntactically they are very similar: the agent occupies the syntactic space of the Figure, the

---

37 The morpheme /ní-/ is glossed ASP 'aspect' because it has not yet been fully analyzed yet but it is known to occupy the same syntactic slot as other aspectual markers. It is from the Modin dialect, possibly from the same source as /ní/ 'PRED' in Bilugu.

38 This example has morphology yet to be introduced in this paper. The suffix /-ej/ is glossed 'SBRD' because it is often found in temporally subordinated clauses (e.g. "when they had come"). Note also the final morpheme /gē/ 'DEM.CFP' which is related to the IDIR adverb /gégē/, but functions here as a closing particle for a demonstrative relative clause.

aspect that of the locative predicator, and the verbal complement that of the Ground. The imperfective prefix /à-/ could plausibly be derived from the locative prefix /à-/. Likewise, the future/irrealis particle /á/ seen in (86e) could plausibly be derived from /á-/ 'PRED.LOC'.[39]

(86) a. ār=jēp   tʃá   (perfective)
         3M=cut   tree
         'He cut a tree.'

     b. àr=**à-**   jēp   tʃá   (imperfective/habitual)
         3M=**IPFV-** cut   tree
         'He cuts tree(s).'

     c. àr=**tò**   **à**-jēp   tʃá   (continuous)
         3M= **EXIST.SG** **IPFV**-cut tree
         'He is/was cutting tree.'

     d. àr= **wà**   **à**-jēp   tʃá   (continous)
         3M= **sit.SG** **IPFV**-cut tree
         'He is/was cutting tree.'

     e. ār=**á-**   jēp   tʃá   (future/irrealis)
         3M=**IRR-**   cut   tree
         'He will cut tree.'

One final brief example is that of purpose clauses. The same syntactic frame used for spatial goals in Bilugu Opo is analogously extended to indicate purpose. Here the verbal complement occupies the place of the goal, and like non-prototypically locative goals it requires the oblique marker /bì/. Consider the two examples in (87). In (87a) this frame marks a literal motion-goal clause, and the subject ends up physically at the goal /dʒì/ 'water'. In (87b), however, with only the introduction of a verb into the complement of the oblique, it is understood as a motion-purpose clause and that the subject intends to act upon the goal /dʒì/ 'water'.

(87) a. ār= ēb-á   **bì**   **dʒì**
         3M= fall-DD2 **OBL** **water**
         'He fell *into* the water.'

     b. ār= dʒà **bì**   **dʒì**   kʰārí
         3M= go.SG **OBL** **water**   pour
         'He went *in order to* pour water.'

---

39 Another very plausible source is /gá/ a grammatical particle which has broad use as the benefactive marker, quotative, and complementizer, and in some dialects as a locative marker.

In sum, in this final discussion I have touched on how the spatial grams described in the main body of this paper are important for analyzing and understanding other more abstract grammatical concepts in Bilugu Opo. I have briefly illustrated how this is true of temporal deixis, TAM, and purpose clauses. The present description of spatial relations, therefore, is an important foundation for further research both into other areas of spatial relations and their incorporation into other areas of the grammar.

Abbreviations

*	unattested
?	questionable acceptability
1	first person
2	second person
3	third person
alt.	alternatively
ASC	associative
ASP	aspect
ATR	advanced tongue root
BE	equative/identity verb
CFP	clause final particle
DC	deictic center
DDØ	deictic directional 0
DD1	deictic directional 1
DD2	deictic directional 2
DD3	deictic directional 3
DEM	demonstrative
DIST	distal demonstrative
EXCL	exclusive
EXIST	existential verb
F	feminine (singular)
F	Figure
FOC	focus
G	Ground
GOAL	goal
H	high tone
IDIR	index directional
INCL	inclusive
INDEF	indefinite
IPFV	imperfective
IRR	irrealis
lit.	literally
L	low tone
LOC	locative marker
LP	locative predicator
M	mid tone
M	masculine (singular)
MED	medial demonstrative
MOD	modifier

NH	non-human
N	noun
NP	noun phrase
OBL	oblique marker
IPFV	imperfective
IRR	irrealis mood
PL	plural/pluractional
POSS	possessive
PROX	proximal demonstrative
QUANT	quantifier
REDUP	reduplication
SBRD	verbal subordinator
SG	singular
sp.	species
TAM	tense, aspect, modality
VOL	volitive mood
VP	verb phrase
X	extra-high tone

References

Ahland, Colleen. 2012. *A Grammar of Northern and Southern Gumuz*. PhD dissertation, University of Oregon.

Ahland, Michael B. 2012. *A Grammar of Northern Mao (Màwés Aas'è)*. PhD dissertation, University of Oregon.

Belkadi, Aicha. 2015. Associated motion with deictic directionals: a comparative overview. *SOAS Working Papers in Linguistics* 17:49-76

Bender, M. Lionel (ed.). 1976. *The Non-Semitic Languages of Ethiopia* (Monograph 5, Committee of Ethiopian Studies, African Studies Center). East Lansing, MI: Michigan State University.

Bender, M. Lionel (ed.). 1983a. *Nilo-Saharan Language Studies* (Monograph 13, Committee on Northeast African Studies), East Lansing, MI: Michigan State University.

Bender, M. Lionel. 1983b. Proto-Koman phonology and lexicon. *Afrika und Übersee* 66:259-297.

Bender, M. Lionel. 1985. "Gumuz, Mao, Koman, Omotic." In Schuh, Russell G. (ed.), *Prects from the Fifteenth Conference on African Linguistics*. Nilo-Saharan Language Studies (Monograph 13, Committee on Northeast African Studies). East Lansing, MI: Michigan State University.

Bender, M. Lionel. 1989. Nilo-Saharan Pronouns/Demonstratives. In Bender, Lionel M. (ed.), *Topics in Nilo-Saharan Studies*, pp.1-34. Nilo-Saharan Linguistic Analyses and Documentation Vol. 3. Hamburg: Buske.

Bender, M. Lionel. 1994. Comparative Komuz Grammar. *Afrika und Übersee* 77:31-54.

Bender, M. Lionel. 1997. *The Nilo-Saharan languages: a comparative essay*. 2nd edition. Munich: Lincom Europa.

Bender, M Lionel. 2000. "Nilo-Saharan." In Heine, Bernd & Derek Nurse (eds.), *African languages: an introduction*, pp.43–73. Cambridge, UK: Cambridge University Press.

Bender, M. Lionel. 2007. "Koman." In Siegbert Uhlig (ed.), *Encyclopaedia Aethiopica*, 3:416-418. Wiesbaden: Harrassowitz Verlag.

Bender, M. Lionel. 2010. Opuuo language. In Siegbert Uhlig (ed.), *Encyclopaedia Aethiopica*, 4:33-34. Wiesbaden: Harrassowitz Verlag.

Blench, Roger. 2000. Besprechungartikel: The Classification of Nilo-Saharan. *Afrika und Übersee* 83:293-307.

Bowerman, Melissa & Eric Pederson. 1992. "Topological relations picture series." In Stephen C. Levinson (ed.), *Space stimuli kit 1.2: November 1992,* p.51. Nijmegen: Max Planck Institute for Psycholinguistics.

Bybee, Joan, Revere Perkins, & William Pagliuca. 1994. *The Evolution of Grammar: Tense, Aspect, and Modality in the Languages of the World.* Chicago: University of Chicago Press.

Casali, Roderic F. 2008. ATR harmony in African languages. *Language and Linguistics Compass* 2:496-549.

Casali, Roderic F. 2016. Some Inventory Related Asymmetries in the Patterning of Tongue Root Harmony Systems. *Studies in African Linguistics* 45(1&2):95-140.

Corfield, F. D. 1938. The Koma. *Sudan Notes and Records* 21:123-165.

Corfield, F. D. 1940. Vocabularies of Shilluk Dialects. SOAS: Ms 39613. 34pp.

Creissels, Denis, Gerrit J. Dimmendaal, Zygmunt Frajzyngier, & Christa König. 2008. Africa as a morphosyntactic area. In Bernd Heine & Derek Nurse (eds.), *A Linguistic Geography of Africa*, pp.86-150. Cambridge: Cambridge University Press.

Dimmendaal, Gerrit J. 2008. Language ecology and linguistic diversity on the African continent. *Language and Linguistics Compass* 2(5):840-858.

Dimmendaal, Gerrit J. 2011. *Historical linguistics and the comparative study of African languages*. Amsterdam: John Benjamins.

Dimmendaal, Gerrit J. 2014. Nilo-Saharan. In Rochelle Leiber, & Pavol Štekaur (eds.), The Oxford handbook of derivational morphology, 591-608. Oxford: Oxford University Press.

Dimmendaal, Gerrit J. 2017. Areal contact in Nilo-Saharan. In Ray-mond

Hickey (ed.), *The Cambridge handbook of areal linguistics*, 446-470. Cambridge: Cambridge University Press.

Dimmendaal, Gerrit J. to appear a. Nilo-Saharan: General overview. In Bedilu Wakijira et al. (eds.), The Oxford handbook of Ethiopian languages, London: Oxford University Press.

Eberhard, David M., Gary F. Simons, and Charles D. Fennig (eds.). 2022. Ethnologue: Languages of the World, Twenty-fifth edition. Dallas, Texas: SIL International. Online version: http://www.ethnologue.com.

Ehret, Christopher. 2001. *A historical-comparative reconstruction of Nilo-Saharan*. Köln: Rüdiger Köppe Verlag.

Greenberg, Joseph H. 1963. *The Languages of Africa*. Bloomington: Indiana University.

Goldberg, Justin. 2017. *Body Part Lexemes in T'apo: from referring to non-referring*. Paper presented at the 13th Nilo-Saharan Linguistics Colloquium, Addis Ababa, Ethiopia.

Goldberg, Justin & Anne-Christie Hellenthal. 2014. *Notes from the Discover Your Grammar Workshop on the Gwama Language*. Addis Ababa: SIL Ethiopia.

Hellenthal, Anne-Christie. 2018. Semantics of directional verb mor-phology in Gwama. In Helga Schröder & Prisca Jerono (eds.), *Nilo-Saharan issues and perspectives,* 179-192. Köln: Rüdiger Köppe Ver-lag.

Hellenthal, Anne-Christie, & Asadik Habte. 2015. *Direction in the Gwama verb system*. Paper presented at the 12th Nilo-Saharan Linguistics Colloquium, Nairobi, Kenya.

Hellenthal, Anne-Christie & Constance Kutsch Lojenga. 2011. Phonology / Orthography statement for the Gwama language Ttwa Gwama spoken in the Benishangul-Gumuz region, Ethiopia. SIL Ethiopia. Unpublished ms.

Kievit, Dirk & Erika Robertson. Notes on Gwama Grammar. *Studies in African Linguistics* 41(1):39-97.

Killian, Don. 2015. *Topics in Uduk Phonology and Morphosyntax*. Helsinki: University of Helsinki.

Lakoff, George & Mark Johnson. 1980. *Metaphors We Live By*. Chicago, IL: University of Chicago Press.

Lemi Kebebw. 2010. *A Grammatical Description of Opo*. MA Thesis, Addis Ababa University.

Levinson, Stephen C. 2003. *Space in Language and Cognition*. Cambridge, UK: Cambridge University Press.

Mellese Gelaneh. 2017. *Documentation and Grammatical Description of Tapo*. PhD dissertation, Addis Ababa University.

Otero, Manuel A. 2015a. *Directional verb morphology in Ethiopian Komo*.

Paper presented at the 12th Nilo-Saharan Linguistics Colloquium, Nairobi, Kenya.

Otero, Manuel A. 2015b. *Dual Number in Ethiopian Komo*. In Mietzner & Storch (eds.), Nilo-Saharan: Models and Descriptions, pp. 123-134, Cologne: Koeppe.

Otero, Manuel A. 2016. Reconstructing pronominal morphology in Koman languages. Paper presented at the 47th Annual Conference on African Linguistics, Berkeley, CA.

Otero, Manuel A. 2018. Directional verb morphology in Ethiopian Komo. In Helga Schröder & Prisca Jerono (eds.), *Nilo-Saharan issues and perspectives*, 165-177. Köln: Rüdiger Köppe Verlag.

Otero, Manuel A. 2019. *A Historical Reconstruction of the Koman Language Family*. Eugene, University of Oregon PhD dissertation.

Otero, Manuel A. 2021. At the intersection of associated motion, di-rection and aspect in the Koman languages. In Antoine Guillaume & Harold Koch (eds.), *Associated motion (Empirical Approaches to Language Typology [EALT] 64)*, 779-815. Berlin: De Gruyter Mou-ton.

Olejarczuk, Paul, Manuel A. Otero, & Melissa Baese-Berk. 2019. Acoustic correlates of anticipatory and progressive [ATR] harmony processes in Ethiopian Komo. *Journal of Phonetics* 74: 18-41.

Schaefer, Ronald P. & Richard Gaines. 1997. Toward a typology of directional motion for African languages. *Studies in African Linguistics* 26(2):193-220.

Smolders, Joshua A. G. 2019. Nominal and Verbal Number in Bilugu Opo. *Studies in African Linguistics*, 48(1):133-184.

Snider, Keith. 1999. *The Geometry and Features of Tone*. Arlington: University of Texas at Arlington & the Summer Institute of Linguistics.

Snider, Keith. 2017. *Tone Analysis for Field Linguists*. SIL International Publications.

Svorou, Soteria. 1993. *The Grammar of Space*. Amsterdam/Philadelphia: John Benjamins.

Talmy, Leonard. 1985. Lexicalization patterns: Semantic structure in lexical forms. In Timothy Shopen (ed.), *Language typology and lexical description: Vol. 3. Grammatical categories and the lexicon*, pp. 36-149. Cambridge: Cambridge University Press.

Talmy, L. 2000. *Toward a Cognitive Semantics: Vol. I. Concept structuring systems*. Cambridge, MA: MIT Press.

Van Silfhout, Marijke. 2013a. *Opuo: Towards a Phonology*. BA Thesis, Leiden University.

Van Silfhout, Marijke. 2013b. *Opuo: Dictionary*. Unpublished paper, Leiden University.

Wilkins, David & Deborah Hill. 1993. "Preliminary 'come' and 'go' questionnaire." In Stephen C. Levinson (ed.), *Cognition and space kit (version 1.0): July 1993,* pp.29-46. Nijmegen: Max Planck Institute for Psycholinguistics.

Zelalem Leyew. 2004. "The cardinal numerals of Nilo-Saharan languages." In Akinlabí, Akinbiyi M. and Oluseye Adesola (eds.), *Proceedings of the 4th world congress of African linguistics, New Brunswick 2003*. Köln: Rüdiger Köppe Verlag.

Joshua A. G. Smolders
SIL International