Linguistic background to the Mara Nilotic corpus languages
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The Mara Region is located in the northwestern part of Tanzania with Lake Victoria to the west, Serengeti National Park to the south and east, and Kenya to the north. The region is home to an incredibly diverse and complex linguistic landscape. At least twenty Bantu language varieties are spoken in the region, along with an additional three Nilotic languages (Datooga, Dholuo, and Maasai) with multiple varieties of their own. Datooga and Dholuo are the two Nilotic languages in the Shetler corpus, and this background study will focus on these language varieties.

1. *Introduction and background*

The Nilotic languages are a part of the *Nilo-Saharan* family. The Nilo-Saharan language family is not as widespread as Niger-Congo, and is largely confined to the northern half of Africa. However, Nilo-Saharan languages do extend as far south as Tanzania. Nilotic is a branch of Eastern Sudanic, with three sub-branches of its own: Eastern, Southern and Western Nilotic. Maasai is a well-known example of an Eastern Nilotic language, while Datooga and Dholuo are Southern and Western Nilotic languages, respectively.

The Southern Nilotic group as a whole can be split into at least two different major subgroupings: Omotik[1]-Datooga and Kalenjin (Dimmendaal 2008: 38; Griscom 2019: 4-5). Please see Dimmendaal (2011) for more on the Kalenjin languages. The Western Nilotic group consists of two major subgroups as well: Luo-Burun and Nuer-Dinka. Dholuo, the variety of Luo we are concerned with in the Mara Region, falls under Luo-Burun > Luo > South Luo (Dimmendaal 2008: 40). This discussion touches on the crucial point that the names "Datooga" and "Dholuo" represent much larger groupings of language varieties. Datooga consists of at least twelve distinct varieties, while Dholuo consists of at least six separate varieties.

The varieties of Datooga most prominent in the Mara Region are called Rotigenga and Isimijega (or Asimjeeg) (Batibo and Rottland 2001; Griscom 2019: 26) Griscom says that "[t]here appear to be more Rootigenga Datooga speakers in this region [Mara] than Asimjeeg Datooga, but it remains to be explored how much interaction there has been between these two groups" (2019: 26). Unfortunately, there is not much in the literature concerning Rootigenga Datooga specifically. Here in this paper I focus on Griscom's (2019) dissertation on Asimjeeg Datooga and supplement occasionally with other sources, including Rottland (1982).

In section 2 I will examine some features of the Datooga language, and then in section 3 explore similar areas of interest in Dholuo. In section 4, I conclude with some generalizations about the Nilotic languages in the Mara region.

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[1] Not to be confused with the Omotic languages of Ethiopia. Moribund language spoken amongst the Maasai, most have shifted to Maasai.

2. *Datooga*

As already mentioned, there is much unexplored linguistic variation in not only the cover term *Datooga* but also within each distinctly labeled language variety like *Asimjeeg*. As this paper is only a linguistic overview, I only touch on these variations occasionally, but they are certainly present across the range of linguistic domains.

2.1. Phonology

Nilotic vowel systems typically have harmonizing sets of vowels that contrast based on the feature [ATR], and often have 9+ vowels with 5 different vowel heights. This is what we find in Dholuo, as in (1) below.

(1)   Dholuo vowel inventory (Swenson 2015: 103)

i	u
ɪ	ʊ
e	o
ɛ	ɔ
a	ʌ*

Datooga has a vowel system that is not typical for Nilotic in that there are only 7 phonemic vowels with 4 different vowel heights, as in (2).

(2)   Datooga vowel inventory ()

i	u
e	o
ɛ	ɔ
a	

It is important here to point out that this type of vowel system instead resembles that of many of the Mara Bantu languages (see Aunio et al. 2019). Rottland says there are clues within the synchronic morphophonological system of an historical 10-vowel ATR system (1983: 217). Other Datooga varieties (Barabaiga and Gisamjanga) have a [+ATR] low vowel (Rottland 1982; Creider and Rottland 1996). Phonemic vowel length does exist in Datooga but only for certain vowels (Griscom 2019: 54-56). For instance, Mitchell argues that Gisamjanga is the only Datooga variety with long mid, -ATR vowels (2015: 42).

        Additionally, the [ATR] vowel harmony process that is feature in Datooga nouns specifically is unlike other Nilotic languages where there is a system of harmonizing [ATR] sets with [+ATR] being the dominant feature, whereas in Datooga nouns "this process is morphologized" (Creider and Rottland 1997: 73).

The Datooga consonant system is also slightly unusual for a Nilotic language in several key respects. The consonant phonemes in Datooga are included below in Table 1.

Table 1. Datooga consonants (Rottland)

Bilabial	Dental/Alveolar	Palatal	Velar	Uvular/Glottal
p	t	c	k	q
b	d	j	g	
f	s	ʃ		h
m	n	ɲ	ŋ	
	r, l			
w		y		

First, the uvular /q/ is atypical of Nilotic and may be an innovation due to contact with neighboring Cushitic languages, as it behaves uniquely within the stop series in Datooga (Griscom 2019: 41-45). Second, the stops in general in Datooga are the subject of some linguistic controversy. As Griscom describes, "Voiceless stops are significantly longer in duration than voiced stops and the former are often the result of the merger of two homorganic voiced stops" (2019: 38). Because voiceless stops can then be analyzed as the product of gemination, they do not necessarily have to be included in the inventory of consonant phonemes (e.g. Hieda 2000). Nonetheless, for the sake of simplicity and completeness here in this paper I have included the voiceless stops in Table 1. However, it should be noted that their status as full phonemes within Datooga is questioned by linguists. As Griscom says, "It is rare for a language to include voiced stops but not voiceless stops in its phoneme inventory (Maddieson 1984: 27), and other Southern Nilotic languages only have voiceless stops, so Datooga certainly stands out in this regard" (2019: 38-39).

The tonal system of Datooga has never been fully analyzed. However, tone is often transcribed in the linguistic literature on Datooga, and is included in the Datooga examples in this paper. For more on tone inventory, some tonal processes in Datooga, and additional references see Griscom (2019). I describe some of the grammatical functions of tone in Datooga as we continue.

2.2. Morphology
Bantu languages are known for their agglutinative morphology, mainly in regard to their often complex verbal morphology. However, Bantu languages are also known for their expansive noun class systems. Nouns in Bantu languages generally have the following structure:

(3)   (Augment/initial vowel)- class prefix - root - final vowel

While a key part of the Bantu noun is the class prefix, in Datooga the root is followed by a series of optional suffixes and enclitics. These optional suffixes include both primary and secondary

suffixes, possessive suffixes, and demonstrative enclitics (Griscom 2019: 78). Some examples of Datooga nouns with primary and secondary suffixes are included below in (4).

(4)   Datooga noun examples (adapted from Griscom 2019: 81)

   ***bìlàŋ**-í-d*   'herding stick'
   ***àgìːràdʒ**-éː-g*   'monitor lizards'
   ***àbìj**-òdʒí-g*   'hyenas'

In example (4) the root is in bold and the primary and secondary suffixes are separated by hyphens. The secondary suffixes *-d* and *-g* correspond to singular and plural, respectively, while the primary suffixes often do not carry consistent meaning or function (Griscom 2019: 79-80, 82). For more on noun classification in Datooga, see Creider and Rottland (1997).

Verbal morphology in Datooga (and Southern Nilotic more generally) resembles Bantu verbal morphological structure in that the verb root is preceded by a series of possible prefix slots, and followed by a series of possible suffix slots. In the examples below, the verb root is highlighted in bold.

(5)   Datooga (Griscom 2019: 124)
   *àm-áː-**bíːg**-ù*   *q-àː-**wùɲ***   *dà-**rám***
   TEMP-1.SG-return-VEN   AFF-1.SG-come:FS   1.SG-fetch

   bèː-g
   water-SS.PL
   'When I return, I go to fetch water.'

(6)   Datooga (Griscom 2019: 127)
   g-ʷà-jéʃ   *àníːn*   *gʷátʃ*   *g-ò-**tʃàg**-d-án-àːn*
   AFF-3-say   1.SG.PRO   that.time   AFF-3-send-ITV-OBL-1.SG

   gʷàláɲ-àn-d
   elder-PS.SG-SS.SG
   'He said that [to] me, at that time, the elder sent me'

In Datooga, some of the verbal prefixes are the conditional, affirmative/negative, and subject prefixes. Some of the verbal suffixes in Datooga include the applicative, directionals, and object markers.

2.3. Morphosyntax: Case

According to Kiessling, Datooga has two systems for grammatical case[2] marking: "a basic one which marks nouns by tone patterns for the role they take in the core predication, and a secondary system of relational nouns and prepositions which serve to introduce non-core adjuncts" (2007: 152). This overall tonal pattern between the nominative and the absolute is shown in (7) below.

(7)   Datooga (Kiessling 2007: 152)

Nominative		Absolute		
ñáawúudá	(HHH)	*ñáawùudà*	(HLL)	'cat'
gúdéedá	(HHH)	*gùdéedà*	(LHL)	'dog'
déedá	(HH)	*déedà*	(HL)	'cow'
qáarèemáŋgá	(HLHH)	*qàarèemáŋgà*	(LLHL)	'youths'

The forms in (7) are illustrated below in a series of example sentences in (8)-(12) from Kiessling (2007: 153).

(8)   *qòo-dâw   ñáawúudá   gùdéedà*
        S3-give   cat.NOM   dog.ABS
        'The cat gave [it] to the dog.'

(9)   *qòo-dâw   gúdéedá   ñáawùudà*
        S3-give   dog.NOM   cat.ABS
        'The dog gave [it] to the cat.'

(10)   *qóo-béedá   déedá   àbà   dàràbèetà*
        S3-break.down   cow.NOM   in   wilderness.ABS
        'A cow breaks down in the wilderness.'

(11)   *gwà-sàréenú   qáarèemáŋgá   déedà*
        S3-carry:CP1   youths.NOM   cow.ABS
        'The youths carry the cow hither.'

(12)   *qwà-dàah-àan   qàarèemáŋgà*
        S3-see-CP2   youths.ABS
        'They see youths moving hither.'

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[2] Grammatical case can be considered a "system of marking dependent nouns for the type of relationship they bear to their heads" (Blake 1994: 1).

This type of case marking is a "well-known feature of Eastern and Southern Nilotic languages" (Kiessling 2007: 152).

3. *Dholuo*

As I discuss in the introduction, Dholuo is a Western Nilotic language and the variety in the Mara Region falls under the South Luo branch. Similar to Datooga, I will discuss phonology, morphology, and then highlight a single issue under morphosyntax.

3.1. Phonology

As discussed in §2.1, Nilotic languages typically have vowel systems with [ATR] harmony, often with 9+ vowels with 5 different vowel heights. Dholuo reflects this tendency, as seen in (13):

(13)   Dholuo vowel inventory (Swenson 2015: 103)

[+ATR]	i	u	e	o	ʌ*
[- ATR]	ɪ	ʊ	ɛ	ɔ	a

There is some debate among linguistic researchers over the exact status of the [+ATR] counterpart to /a/, the [ʌ] vowel, i.e. whether the vowel is merely allophonic or fully phonemic. Some linguists also consider /a/ as a neutral vowel (without [ATR] status) and do not observe the [ʌ] vowel (c.f. Okoth Okombo 1982). Researchers like Tucker (1994) consider the vowel [ʌ] fully phonemic, while others including Swenson (2015) consider it to be allophonic. While I rely on Swenson's (2015) acoustic study of Luo vowels heavily in this section, I make no judgment on the status of the /[ʌ]/vowel here and urge the interested reader to research the matter themselves and come to their own conclusion(s).

Vowel harmony is a complex topic in Dholuo as there are many different types of processes at work (e.g. Jacobson 1978, Swenson 2015: 123ff). For the sake of this general overview, one example of the way these [ATR] harmony processes work is spread from the root to the suffix. The verb roots in (14) are [-ATR] and are shown with the underlying infinitive suffix -ɔ̀. Both (14) and (15) are from Swenson (2015: 125).

(14)   [-ATR]
        a. bɪ́l-ɔ̀   'to taste'
        b. sʊ̌k-ɔ̀   'to braid'
        c. gɛ́ɾ-ɔ̀   'to build'
        d. hɔ́l-ɔ̀   'to borrow'

With [+ATR] roots, however, [+ATR] harmony from the verb root spreads to the infinitive suffix, resulting in -ò, as in (15).

(15)   [+ATR]
        a. pít̪-ō   'to plant'
        b. púk-ò   'to spill'
        c. téd-ò   'to cook'
        d. gól-ò   'to remove'

This is just one type of vowel harmony evident in Dholuo, while other types are also prevalent in the language, e.g. spread from [+ATR] suffixes to [-ATR] roots (Swenson 2015: 123ff).

The consonant system in Dholuo is fairly typical for Nilotic languages. The consonant phoneme inventory in Dholuo is presented here in Table 2.

Table 2. Consonant system for Luo (adapted from Okello 2017: 4)

Bilabial	Dental/Alveolar		Palatal	Velar	Uvular/Glottal
p		t	c	k	ʔ
b		d	j	g	
f	θ ð	s			h
m		n	ɲ	ŋ	
		r, l			
w			y		

The main consideration here with the Dholuo consonants are the phonemes marked as [θ] and [ð]. They are also seen represented in the literature with the phonetic symbols [t̪] and [d̪]. Both the place and manner of articulation of these consonants are disputed among linguistic researchers.

Alveolar fricatives	Okoth Okombo 1982
Dental affricates	Maddieson 1984
Dental explosives	Tucker 1994
Dental fricatives	Okello 2017
Dental stops	Hansson 2001
Interdental affricates	Degenshein 2004
Interdental spirants	Odaga 1997

As can be seen above, researchers have referred to them by at least seven different names, differing in both *place* (dental, interdental, alveolar) and *manner* (stops, fricatives/spirants, affricates) of articulation. For more on Dholuo consonants and consonant harmony, I direct the reader toward Okello (2017).

In the remainder of this section on Dholuo, I continue to include tonal marking and also make occasional reference to grammatical tone processes. For more on both lexical and grammatical tone in Dholuo, please see the in-depth tone study in Tucker (1994).

3.2. Morphology

Complex (vowel and consonant) harmony processes are characteristic of Dholuo number marking. Please see Okello (2017), Swenson (2015), and Tucker (1994) for more in-depth analysis. For my purposes here, we take a look at just a sample of Dholuo plural marking in (16) with the plural suffix -*ɛ*. In each example, the singular is listed, then the plural, and afterwards the English gloss.

(16)   Dholuo plural nouns with -*ɛ* (Swenson 2015: 126)

a.	*gɔ́t*	*gɔ́d-ɛ̀*	'mountain'
b.	*kɔ́m*	*kɔ́mb-ɛ̀*	'chair'
c.	*ŋɛ́tʃ*	*ŋɛ́j-ɛ̀*	'monitor lizard'
d.	*ʈʊ́m*	*ʈʊ́mb-ɛ̀*	'music'
e.	*gók*	*gók-ē*	'shoulder'
f.	*òfúkò*	*òfúk-ē*	'bag'
g.	*mérò*	*mér-ē*	'mother'
h.	*rút*	*rúd-è*	'twin'

We can see both consonant changes (e.g. voicing, /t/ > /d/ in (16a, h)) and vowel harmony (e.g. [+ATR] from root to suffix in (16e-h)) in this example.

There are some interesting connections between verbal morphology in Dholuo and verbal morphology in Bantu languages. Specifically, many Bantu languages have remoteness distinctions especially for past tense marking. Gusii, for example, a neighboring Bantu language to Dholuo, has a four-way tense distinction in the past, as in (17).

(17)   Gusii (Whiteley 1956: 33)
         ń-ná-rúg-à   'I cooked (yesterday)'
         ń-nà-rúg-à   'I cooked (before yesterday)'
         ń-ná-rúg-ètè   'I cooked (earlier today)'
         ń-ná-rúg-étè   'I cooked (some time ago)'

As Dimmendaal says, "In Luo, there is a set of preverbal tense markers which are absent in closely related varieties such as Alur, Lango, or Acholi. Moreover, no comparable tense marking system is found in other Western Nilotic groups [...]" (2011: 193). In fact, these preverbal tense markers in Dholuo can be connected with independent adverbial forms still present in the language, as in (18). The adverbials are listed first, followed by the tense markers, and then the English gloss.

(18)   Dholuo (Dimmendaal 2011: 194)

néndè	>	*nê-*	'earlier today, recently'
nyó↓ró	>	*nyô-*	'yesterday'
yandê	>	*yand(é↓)-*	'a few days ago'
néné	>	*né-*	'long ago'

Dimmendaal argues convincingly that this phenomenon is due to language contact between Dholuo and Bantu languages in the area (2011: 194).

3.3. Morphosyntax: [ATR] and valency
Another interesting feature of Dholuo is that there is a split between "transitive" and "intransitive" verbal constructions that is based on the feature [ATR]. The [ATR] difference in these cases indicates a grammatical difference, as in (19).

(19)   Dholuo (Swenson 2015: 121)

	Transitive	Intransitive	
a.	*lɪr-ɔ law*	*lir-o*	'cut in strips (fabric)'
b.	*pɪd̪-ɔ bɛl*	*pit̪-o*	'plant (sorghum)'
c.	*sʊd-ɔ bɛl*	*sud-o*	'move (sorghum)'

In the above example, underlying [-ATR] verb forms in the infinitive (indicated by the /-ɔ/ verbal suffix) are transitive, while the intransitive forms are [+ATR].

Additionally, while the terms "transitive" and "intransitive" are used quite frequently in the Dholuo linguistic literature, in reality the distinction "is not one of syntax in the strict sense that the former occurs with an object and the latter does not. Rather, when the speaker is referring to an action that has a specific object, he/she may use the transitive form whether or not the object is actually stated in the sentence" (Swenson 2015: 122). Much like the situation with the Dholuo consonants [θ] and [ð] described earlier, linguistic researchers have a host of different names for this phenomenon, including "qualitative", "patient-deleted", and "antipassive" (Andersen 2006; Reh 1996; Tucker 1994).

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