A Grammar of Isaalo
Sisaala Western [ssl]

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Abstract

This is the first preliminary grammar of Isaalo (Sisaala Western; ISO-639-3 ssl). It is a work in progress that presents XXXX examples of interlinear glossed text collected during fieldwork in Lambussie, in Northwestern Ghana in 2003.

The data presented here conform to a format that I created as a frame for increasing Web accessible data. IGT data can be extracted, shared on the Web, and merged with Semantic Web resources. Additionally, small tools that increase productivity have been developed.

Acknowledgements

This work would not have been possible without the patient help of Mr. Osman Ba-ang. His love of his language and his drive to document it have provided me with the opportunity and purpose to produce this grammar. I am deeply indebted to Mr. and Mrs. Tong and Vida Wise for giving me several resources that made this research possible. I regret having to leave our last meal together.

Contents

Abbreviations

1S	first person singular marker
2S	second person singular marker
3S	third person singular marker
1P	first person plural marker
2P	second person plural marker
3P	third person plural marker
DET	determiner
FUT	future tense
INDF	indefinite
IPFV	imperfective
NCn	noun class n (where n is an integer, e.g. NC1)
POSS	possessive
PROG	progressive aspect
QUANT	quantifier
REL	relativizer
SG	singular
(n)	indicates a noun
(v)	indicates a verb
?	indicates the form could not be translated into English by the informant
$<$ X	source of borrowing is X
$*$	ungrammatical construction

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1 Introduction

1.1 Sisaala languages

Sisaala is a family of languages spoken in Northern Ghana and adjoining Burkina Faso. The family belongs to the Niger-Congo phylum within the (South-)Western Grusi branch of central Gur (also *Voltaic*, Fr. *Voltaïque*) languages (Manessy 1969, Naden 1989). The internal structure of Sisaala includes at least four mutually unintelligible varieties, each with an unidentified number of dialects.

The Sisaalas are an ethnic group of over 100,000 living predominately in the Upper West Region of Ghana and also in southern Burkina Faso. There are four language groups, three of which are spoken in Ghana. These include the largest Sisaala Tumulung (Tumulung) [sil] spoken by some 100,000 individuals (Gordon 2005b); Sisaala Pasaale (Paasaal) [sig] spoken by approximately 20,000 to the southeast (Mcgill et al. 1999); Sisaala Western (Isaalo) [ssl] spoken in and around the village of Lambussie (Moran 2006b); and Sissala [sld] spoken by 10,000 in Burkina Faso (Blass 1990a, Gordon 2005b). The term *Sissala* is the French form used by government offices and linguists at the University of Ouagadougou (Blass 1990a). *Sisaala* is used when referring to the major dialects spoken in Ghana. Figure 1 shows roughly where the languages are spoken in Ghana: Tumulung Sisaala number 62, Paasaal 52, and Sisaala Western 67 (Gordon 2005b). And Figure 2 shows Sissala, number 51, spoken in Burkina Faso.

1.2 Isaalo language (Sisaala Western)

In this work I refer to the Ethnologue cataloged *Sisaala Western* as *Isaalo*, the term that its speakers use to refer to the language. Isaalo has between 6000 and 30,000 speakers. It is spoken in the Upper West Region in Lambussie and surrounding towns, including Bellaw, Korru, Zinni, Peperimi, Nietɔand Nietie. Each village has its own dialect. Lambussie lies northeast of Nandom, a few miles south of the Burkina Faso border, at N 10 W 2. The dialectal variation within Sisaala has not been studied seriously. The data here represents two natives of Lambussie, speaking the Busilu dialect of Lambussie. The Isaalo language is being transmitted to children. However, complex vocabulary such as numbers is being replaced with English.

1.3 Environment

The region is defined physically as low bush and grassy plains. In 2003 Lambussie was connected by road, but not telephone to Nadon, the closest village with electricity. Two distinct seasons occur in Northern Ghana. A dry season of hot days and relatively cool nights from November through April. And a wet season that peaks in August/September. Most Sisaalas are farmers as they traditionally have been. Staple foods include cassava and rice. Millet is

used to brew the local alchohol /piito/ 'pito'. Other foods include: ground nuts (peanuts), mango, banana, plantain, okra, Guinea fowl, goat and cow.

1.4 Previous and contemporary study

The first descriptive work on Isaalo is Moran's MA thesis *A Grammatical Sketch of Isaalo (Western Sisaala [ssl])* (Moran 2006b). This work provides a detailed phonological description and practical orthography proposal, as well as a brief overview of Isaalo morphology, an interlinear glossed text of free speech and a lexicon. This work was later published (Moran 2008).

A comprehensive linguistic bibliography of Sisaala languages is provided in section 11. Major works include *A grammar of Sisaala-Pasaale* (Mcgill et al. 1999); Sisaala-English, English-Sisaala Dictionary (Blass 1975); and phonologies for Sisaala Tumulung (Rowland and Rowland 1965), Sisaala Pasaale (Toupin 1995) and Sisaala Western (Moran 2008).

1.5 Fieldwork

This research represents the Lambussie dialect of Isaalo, which is referred to as Busilu and Bussie. The sentence data come from Mr. Osman Ba-ang, a native speaker of Isaalo and an English bilingual. Mr. Ba-ang was 29 years old when the data was collected over a four month period from May - August in 2003. There are digital audio recordings[1] of all data presented, although at this time it is not sliced and represents many long elicited interviews that are not time-aligned with the data presented here. Verbal paradigms presented were elicited during the same time period from Mr. Cletus Basing, a 56 year old native speaker of Isaalo and English bilingual. To test hypotheses regarding the loss of contrastive nasalized vowels, forms were elicited from Ebe Balaroo, age 16, and Lucky Wise, age 8 (section 2.3.2). Ebe and Lucky were also consulted in describing the loss of use of the Isaalo numeral system (section 3.6).

The data collected are based on the templates provided by Payne's Describing Morphosyntax (Payne 1997), Comrie and Smith's Lingua descriptive studies questionnaire (Comrie and Smith 1977),[2] and Kaufman and Berlin's manuscript, the South American Indian Languages Documentation Project Questionnaire (Kaufman and Berlin 1987). The structure of this document is based on portions of Heath's (2008) exemplar Jamsay [djm] grammar.

1.6 Notes on the text

The data presented here are written interlinearly in three rows. The style and abbreviations in the interlinear glossed text follow the Leipzig Gloss Rules.[3] The first row is the elicited vernacular form. The second row is composed

[1] These recordings were recorded at a 44.1kHz sampling rate with a 16 bit word length in .WAV format. They are available under copyright from the author.

[2] http://lingweb.eva.mpg.de/fieldtools/linguaQ.html

[3] http://www.eva.mpg.de/lingua/resources/glossing-rules.php

of morpheme-by-morpheme glosses. In some instances the speaker could not provide a gloss for a lexical item. These are marked with a question mark '?' where the morpheme translation would be given. When an Isaalo word has multiple translations in English, these are delimited with a semi-colon ';'. The third line is the literal translation as elicited from the speaker. If there is more than one possible literal translation, these are provided and are delimited by a comma ','. The abbreviations used in the text are presented in table .

Throughout this document I use symbols from the International Phonetic Alphabet (IPA) for the transcription of Isaalo. I diverge slightly from the standard IPA in the case of the palatal approximant /j/. This sound is represented with the symbol <y>. In diphthongs the /j/ may remain, as in /tejbɔl/ 'table' or /vajda/ 'Vida', when its phonological value is clear from the context. I also use /r/ to represent the voiced alveolar flap. In these regards, data presented here are closer to Isaalo's practical orthography.

1.7 Corpus and recording equipment

The Isaalo audio and video corpus that this paper draws from includes over 40BG of native digital audio and video recordings. I recorded all language consultant interviews at a 44.1kHz sampling rate and 16 bit word length in .WAV format with a Nomad brand MP3 player that was purchased in 2003. This hardware was chosen because it could record in the then current recommended 'best practice' format for digital audio archiving. I used a lavaliere microphone that was attached to informants' shirt collars. Nine stories were recorded with the same equipment, but they were also recorded in MPEG video format with the Sony Cybershot digital camera. All recordings are copyright of the author.

2 Phonology

2.1 General

Isaalo's phonemic inventory contains 32 phonemes, which are illustrated in Figures 3 and 4. There are 23 consonant phonemes, these include { p, b, gb, t, d, k, g, f, v, s, z, h, tʃ, ʤ, m, ŋm, n, ɲ, ŋ, l, ɾ, w, j }. And there are nine phonemic vowel qualities { i, ɪ, e, ɛ, u, ʊ, o, ɔ, a }, of which six have a length contrast { iː, eː, ɛː, uː, oː, ɔː }.[4] Isaalo has two labial-velar stops /gb/ and /ŋm/; however, it lacks their voiceless counterpart /kp/ that is phonemic in Sisaala Tumulung and Sisaala Pasaale. /kp/ also does not appear allophonically.

Isaalo is a tone language that uses differences in relative frequency to convey lexical and grammatical distinctions. Tones may be high or low, as is common in Niger-Congo languages (Clements 2000). In Isaalo, high tone is contrastive and is therefore marked on lexical items with an acute accent over the vowel, e.g. <ó>. Phrase or sentence level falling intonation indicates an interrogative in Isaalo. It is marked on clause final vowels with a reverse circumflex, e.g. <ǒ>. Segmental data presented in this chapter are purposely brief. For an in-depth analysis of phonological segments with data see Moran (2008).

2.2 Consonants

There are 23 consonant phonemes in Isaalo: { p, b, gb, t, d, k, g, f, v, s, z, h, tʃ, ʤ, m, ŋm, n, ɲ, ŋ, l, ɾ, w, j }. These are illustrated in Figure 3. All consonants can occur in word initial and medial positions. The nasals /n/ and /ŋ/ occur in all positions. Labial-velars /gb/ and /ŋm/ occur only word initially and Isaalo lacks the voiceless labial-velar /kp/ found in Sisaala Tumulung and Sisaala Pasaale. While /w/ is articulatory a labial velar, it patterns as a labial opposed to labial-velar stops.

Certain sounds and combinations are only associated with loan words. These include word final /m/ and consonant clusters /br/ and /tr/, as shown in examples 1, 3 and 2.

(1) *brum*
blue
'blue' (< English)

(2) *abrobe*
pineapple
'pineapple' (< Ashanti)

(3) *patru*
petrol

[4] In this text I use the symbol <y> to substitute the phoneme /j/ and I substitute <r> for /ɾ/. The voiced and nasal labial-velars appear without a tie-bar, simply as /gb/ and /ŋm/. Vowel length is indicated by two consecutive vowels instead of the length mark, e.g. /ii/ instead of /iː/. These changes are consistent with West African orthographic traditions.

'petrol' (< English)

A word final trill-like sound occurs in the form /sɪr/ in the phrase 'it's dead silent' in 4.[5]

(4) *o* *ka* *sɪr*
3S is dead.silent
'it's dead silent'

2.2.1 Stops (p, b, t, d, k, g, gb)

Isaalo has seven phonemic stops { p, b, t, d, k, g } that occur word initially and medially, but not finally. The labial-velar /gb/ behaves like a stop, but only occurs word initially. Examples are provided in 5 - 17.[6]

(5) *pito*
pito
'pito'

(6) *tam**p**ɛlli*
red.ant
'red ant (on tree, they bite)'

(7) ***b**alla*
man
'man'

(8) *lu**b**i*
intestines
'intestines'

(9) ***t**uwɔse*
vomit
'vomit'

(10) *tɪ**t**o*
night
'night'

(11) ***d**ɛnduku*
walking.stick
'walking stick'

[5]The verb /sɪgli/ 'silent' or 'quiet' is used in a context where one has been told to keep quiet, e.g. /n sɪglu/ 'I'm quiet'.

[6]The local alchohol made from millet.

(12) *me**d**ili*
food
'food'

(13) ***k**ɛssa*
cough
'cough'

(14) *yu**k**se*
lose
'lose'

(15) ***g**aasɛ*
madness
'madness', 'craziness'

(16) *va**g**ɪrru*
bracelets
'bracelets'

(17) ***gb**anna*
evening
'evening'

As mentioned, I have found no occurence of /kp/ in Isaalo, although it is present in other Sisaala Tumulung, Sisaala Pasaal, and is present as an areal feature in neighboring languages (e.g. Dagaare). While in the field, I had informants translate /kp/ entries in Blass' 1975 Sisaala Tumulung-English dictionary. Entries for /kp/ are much fewer than other letters in Sisaala Tumulung and the dictionary contains around 60 entries. Of these, the only pattern to emerge was a /kp/ to /b/ relationship. However, this only occured in two entries, shown in 18 & 19 and 20 & 21.[7]

(18) *kpáa*
share
'to share', 'to divide', 'to distribute'

(19) *baa*
share
'to share'

(20) *kpasa*
chair
'chair', 'stool', 'bench'

[7]This Isaalo word forms a tonal minimal pair with /basa/ 'mat'.

(21) *basá*
chair
'chair'

Other translated forms were mutually unintelligible and showed no phonological patterns.

2.2.2 Fricatives (f, v, s, z, h)

There are six phonemic fricatives in Isaalo { f, v, s, z, h } that all occur word initially and medially, as shown in 22 - 30.

(22) ***f****uo*
sore
'sore'

(23) *bo****f****ɪrulu*
bread.fruit
'bread fruit' (fried dough with spices)

(24) ***v****a*
dog
'dog'

(25) ***s****owɔ*
death
'death'

(26) *tobi****s****i*
girls
'girls'

(27) ***z****atamma*
small.pox
'small pox'

(28) *hɛ****z****oo*
ant.hills
'ant hills'

(29) ***h****alla*
woman
'woman', 'wife', 'egg'

(30) *mo****h****o*
bitter
'bitter'

The phoneme /h/ may occur as the allophone [ɦi] intervocalically. However, it appears [h] word initially and morpheme initally when in intervocalic position in compounds. Compare examples 28, 31 and 32.

(31) *ɦiise*
shame
'shame'

(32) *buɦunsi*
gnats
'gnats'

2.2.3 Affricates (ʧ, ʤ)

Isaalo has two afrricates { ʧ, ʤ } and they occur in word initial and medial positions. Examples are provided in 33 and 34.

(33) *ʧulaʧula*
sharp
'sharp', 'pointed'

(34) *ʤuʤu*
tarantula
'tarantula'

In word initial position [ʧ] and [ʃ] are used interchangeably, as show in 35 and 36.

(35) *ʧiye*
tomorrow
'tomorrow'

(36) *ʃiye*
tomorrow
'tomorrow'

2.2.4 Nasals (m, n, ɲ, ŋ, ŋm)

The five phonemic nasals in Isaalo include { m, n, ɲ, ŋ, ŋm }. All nasals occur word initially and medially, except the labial-velar /ŋm/, which does not occur word medially. The nasals /n/ and /ŋ/ also occur word finally. Examples are provided in 37 - 45

(37) ***m****awa*
mothers
'mothers'

(38) *mi**m**ini*
black.ant
'black ant' (carpenter ant)

(39) ***n**a-suwo*
leg-dead
'lame'

(40) *bi**n**o*
remember
'remember', 'think'

(41) ***ɲ**uma*
blind
'blind'

(42) *dɛ**ŋ**wɪlla*
lazy
'lazy'

(43) ***n**ufalla*
cup
'cup'

(44) *ma**ŋ**ponna*
butterfly
'butterfly'

(45) ***ŋm**anna*
okra
'okra'

In Isaalo the first person singular pronoun is a syllabic nasal, /n/ 'I'. Allophonically /n/ may appear as /m/ or /ŋ/ in partial contact regressive assimiliation, as illustrated in 46 and 47.

(46) *m* *ballo*
1S hunt
'I hunt'

(47) *ŋ* *kiɛrɛn*
1S sit
'I sit'

2.2.5 Glides (w, l, y, ɾ)

The phonemes { l, w, y } appear word initially and medially, as shown in examples 53 - 48.

(48) ***w****aasɛ*
look.for
'look for'

(49) *tu****w****i*
get.down
'get down'

(50) ***l****uuru*
drugs
'drugs', 'medicines'

(51) *wo****l****onna*
afternoon
'afternoon'

(52) ***y****uu*
funeral
'funeral'

(53) *nɔbu****y****ɛ*
rock
'rock'

The phoneme /ɾ/[8] only appears word medially, as in 54. It also appears restrictedly in word final position in the onomatopoeic form /sir/ 'dead silent'. This sound is noticeably trill-like.

(54) *kuo****r****owa*
chiefs
'chiefs'

2.3 Vowels

The vowel chart is provided in Figure 4 and examples are given in 55 - 61. There are nine phonemic vowel qualities { i, ɪ, e, ɛ, u, ʊ, o, ɔ, a }, of which six have a length contrast { iː, eː, ɛː, uː, oː, ɔː }.[9]

(55) *fiɛllo*
moist
'moist', 'damp', 'wet', 'cold'

[8] Represented as <r>.
[9] Length is indicated by two consequtive vowels, e.g. /ii/.

(56) *fiɛlla*
shape
'shape'

(57) *fiɛlle*
rest
'rest'

(58) *ninne*
lights
'lights', 'fires', 'candles'

(59) *ninnu*
light
'light, 'fire', 'candle'

(60) *hɔlo*
charcoal
'charcoal'

(61) *hɔlɔ*
charcoals
'charcoals'

Vowels appear singly in the pronominal system: /e/ second person singular, /o/ third person singular, /a/ first person plural and /é/ second person plural. See examples 62 - 65.

(62) *e*
2SG
'you'

(63) *o*
3PL
'he', 'she', 'it'

(64) *a*
1PL
'we'

(65) *é*
2PL
'you' (plural)

Vowels appear in word initial position in allophones, except /ɛ/, as illustrated by examples 66 - 72.

(66) ***i****saalo*
isaalo
'isaalo' (language of the Sisali)

(67) ***ɪ****lla*
milk
'milk' (general term)

(68) ***e****la*
breasts
'breasts', 'mothers milk'

(69) ***u****lu*
navels
'navels'

(70) ***o****ntolotolo*
warm
'warm'

(71) ***ɔ****duma*
tape.worms
'tape worms'

(72) ***a****tia*
cashew
'cashew'

2.3.1 Short and long vowels

Currently the Isaalo lexicon contains contrastive vowel length for /i/, /e/, /ɛ/, /a/, /u/, /o/ and /ɔ/. These examples are provided in 73 - 82.

(73) *y****uu***
funeral
'funeral'

(74) *y****u***
dip
'dip' (v)

(75) *ok****ɛɛ****le*
small.monkeys
'small monkeys' (Informant: "some variety")

(76) *ok****ɛ****lle*
small.monkey
'small monkey' (Informant: "some variety")

(77) *b**ɔɔ***
grassland
"grassland'

(78) *b**ɔ***
take
"take'

(79) *n* ***ne-e*** *molla*
1S see-2S under
"I understand you'

(80) *n* *n**e*** *molla*
1S see under
"I understand'

(81) *d**aa***
forest
'forest'

(82) *d**a***
stick
'stick'

The tense vowels /ʊ/ and /ɪ/ do not appear to be contrastive within the data set.

2.3.2 Nasal vowels

The terms *nasal vowel* and *nasalized vowel* are used to signify contrastive nasalization and allophonic contrasts, respectively.[10] Nasal vowels occur in many non-Bantu Niger-Congo languages. However, few have a full complement of nasal vowels, and often some oral vowels have no nasal counterpart (Clements 2000). In Isaalo, the nasal vowel /õ/ is grammatically contrastive by older speakers. Examples in 83 - 84 show the allophone variants /õ/ and /ẽ/ 'know'.

(83) *o* *õ* *ŋmɛnna*
3S know road
'he knows the road'

(84) *e* *ẽ* *ŋmɛnna*
2S know road
'you know the road'

[10]Both nasal vowels and nasalized vowels are indicated by a nasal diacritic ˜ over the vowel.

The form 'know' /õ/ contrasts phonemically with the third person singular pronoun /o/ 'he', 'she', 'it', and with the third person singular object pronoun /-o/. Mr. Basing (age 56), the oldest of three informants, used the nasalized close-mid back vowel /õ/ and said the nasalized close-mid front vowel /ẽ/ is also used. Mr. Ba-ang (29), on the other hand, found only the use of the close-mid front vowel /ẽ/ possible. Ebe Balaroo (16) found neither form correct or usable. Nor did Lucky Balaroo (6). Nasal vowels may be lost in younger generations.[11]

Nasalized vowels appear consistently in several phonological environments. Examples 85 & 86 and 87 & 88 show morpheme vowel final nasalization before a nasal initial following morpheme.

(85) *o* *muõ* *make* *isaalo* *nɛ* *gaana* *mɛ*
3S go learn isaalo PROG Ghana in
'he went and learnt sisaali in ghana'

(86) *o* *muo* *make* *isaalo* *nɛ* *gaana* *mɛ*
3S go learn isaalo PROG Ghana in
'he went and learnt sisaali in ghana'

(87) *o* *mɔhõ* *na* *tausɛnd* *sidiz* *ʧana* *nume*
3S has.to earn thousand cedis month this
'he has to earn 1000 cedis this month'

(88) *o* *mɔho* *na* *tausɛnd* *sidiz* *ʧana* *nume*
3S has.to earn thousand cedis month this
'he has to earn 1000 cedis this month'

Vowels in interconsonantal position, where one consonant is a nasal (generally the latter) may be allophonically nasalized, as in examples 89 & 90 and 91 & 92.

(89) *modõn*
one
'one'

(90) *modon*
one
'one'

(91) *hõnsa*
lizards
'lizards' (type of big edible ones)

(92) *honsa*
lizards
'lizards' (type of big edible ones)

[11] Younger speakers are not learning Isaalo numerals, see section 3.6.

Finally, morpheme final vowels may be nasalized after /h/ when the form also contains a nasal. See 93 & 94 and 95 & 96.

(93) *anhõ*
uncle
'uncle' (father's senior brother)

(94) *anho*
uncle
'uncle' (father's senior brother)

(95) *mahõ*
aunt
'aunt' (mother's senior sister)

(96) *maho*
aunt
'aunt' (mother's senior sister)

2.4 Tone

Isaalo has a two tone system, high and low. The low tone is the unmarked case because tone becomes contrastive when a low tone (or unmarked form) receives a high tone. High tone on forms is both lexically and grammatically contrastive. In lexical items, this change in tone triggers semantic differences. For example, the sets of forms 97 'mat' and 98 'chair', and 99 'you' and 100 'y'all' contrast lexically.

(97) *basa*
mat
'mat'

(98) *basá*
chair
'chair'

(99) *e*
2S
'you'

(100) *é*
you.PL
'y'all'

A grammatical contrast for number is exemplified in noun class 9 -V/-´V. Forms with low tone are singular, and forms with high tone are marked for plural. Tonal minimal pairs are provided in examples 101 and 102, and 103 and 104.

(101) *natawa*
sandal
'sandal'

(102) *natawá*
sandals
'sandals'

(103) *puru*
sock
'sock'

(104) *purú*
socks
'socks'

Grammatically, high tone marks past tense, as shown in the tonal minimal pairs in examples 105 and 106, and 107 and 108.

(105) *m* *bo* *ŋmɛnna*
1S travel.PRES road
'I travel'

(106) *m* *bó* *ŋmɛnna*
1S travelled.PST road
'I travelled'

(107) *o* *tuwɔso*
3S vomit.PRES
'he vomits'

(108) *o* *tuwɔsó*
3S vomit.PST
'he vomited'

2.5 Syllable structure

Syllable structure in Isaalo is straightforward: V, N, CV(V), CV(V)C.[12] The simplest phonological word consists of a single vowel (e.g. /o/ 'he', 'she', 'it' or 'yes') or a nasal (e.g. /n/ 'I'). Words can also be an open syllable that consists of a consonant and a vowel, a consonant and a lengthened vowel, or a consonant and vowel diphthong. In closed syllables, codas are restricted to /n/, /m/ and /ŋ/. Only geminates and nasals are allowed in codas.

[12]For extensive data see Moran (2008).

2.6 Geminates and consonant clusters

Isaalo makes productive use of word medial geminates, as shown in Table 1.[13] Words containing geminates often belong to noun class 3 (see sections 2.7.3 and 3.3.3).

Table 1: Isaalo geminates

kk	kazɛkka	'tick'
mm	bumma	'fly'
nn	viɛnna	'ground worm'
ŋŋ	gɔŋŋo	'guinea corn; guinea corns'
ff	ʧɛffulafunnu	'lung'
ss	dɪssanna	'dirty'
zz	fiɛzzo	'ant hill'
ll	halla	'woman'
rr	sɔrro	'frog'

Isaalo also has word initial and medial consonant clusters. Table 2 presents words with consonant clusters of a stop or fricative and a liquid.

Table 2: Stop plus liquid

kw	kwɔlɛ	'noise'
gw	gwala	'dance' (= noun)
sw	sware	'to rot'
tr	patru	'petrol' (< English 'petrol')
br	abrobe	'pineapple' (< Ashanti 'abrobe')
gw	lingwana	'Adam's apple' (laryngeal prominence)

Homorganic consonant clusters are illustrated in Table 3.
And non-homorganic consonant clusters are provided in Table 4.

2.7 Segmental phonological rules

This section presents common segmental phonological processes in Isaalo. Section 2.7.1 describes vowel height harmony across morphemes and the Isaalo s lack of word-level [+/- ATR] vowel harmony, common as an areal feature and also found genetically-related Sisaala Paasle. Metathesis (section 3.3.5), degemination (2.7.3) and gemination (2.7.4) are also described, all morphological processes present in Isaalo noun classes.

[13] No cases of /pp/, /bb/, /tt/, /dd/, /gg/, /hh/, /vv/, /ɲɲ/, /ww/ or /yy/ appear in the Isaalo corpus.

Table 3: Homorganic consonant clusters

ŋk	kiŋkio	'wing'
ŋk	kiŋkirro	'wings'
ŋg	haŋgunnu	'millipede'
ŋg	haŋgunni	'millipedes'
nd	dendullu	'caterpillar'
nd	dendulu	'caterpillars'
mp	hompuwo	'cockroach'
mp	hampurra	'cockroaches'

Table 4: Non-homorganic clusters

ŋp	maŋponna	'butterfly'
ŋp	maŋponse	'butterflies'
nŋ	ɲunŋa	'toad'
nŋ	ɲuŋe	'toads'
ks	yukse	'lose'

2.7.1 Vowel harmony

Vowel harmony is a phonological process that is commonly found in West African languages. It is an assimilatory process involving adjacent and non-contiguous vowel segments. Common in Gur languages is the vowel harmony system +/- ATR. ATR-based vowel harmony systems prototypically divide their vowels into two groups based on the tongue root's position during the vowel's articulation. A retracted tongue root is labelled [-ATR], and a normal tongue root [+ATR]. The vowel inventories of languages that exhibit [+/-ATR] harmony split their vowels into two groups. For example, Vagala, Pasaale, and Dagaare have a close vowel group {i, u, e, o} and an open vowel group {ɪ, ɛ, ʊ, ɔ}. The extent to which vowel harmony appears in the language varies. In Vagala and Dagaare, for example, the two sets of vowels cannot be mixed within the phonological word (Naden 1989, Bodomo 1997). In Sisaala Pasaale, [+/-ATR] vowel harmony exists within the word domain to to a great extent, but it is not strictly implemented through the language (Toupin 1995, Mcgill et al. 1999).

Isaalo does not exhibit +/- ATR vowel harmony at the word level, but it does play a restricted role across morpheme boundaries. Vowel harmony is observable in the future auxilliary form /sɪ/, which appears before the verb. When the following verb is contains only the high front vowel /i/, /sɪ/ appears

as /si/. See examples 109 - 111.

(109) *o* *si* *hinsi*
3S FUT breath
'he will breathe'

(110) *niye* *si* *lini*
water FUT drip
'the water will drip'

(111) *o* *si* *di*
3S FUT eat
'he will eat', 'he will win'

It also appears as /sɛ/ in forms that contain [-ATR] vowels, such as {ɛ, ɔ}, illustrated in 112 and 113 with the two verbs to pour.

(112) *n* *sɛ* *ɔnsɛ* *niye*
1S FUT pour water
'I will pour water'

(113) *n* *sɛ* *bɪsɛ* *niye*
1S FUT pour water
'I will pour water'

The progressive aspect marker /nɛ/ assimilates to /ni/ after monosyllabic verbs containing /i/ in 393 and 115.

(114) *o* *di* *ni*
3S eat PROG
'he is eating'

(115) *o* *wi* *ni*
3S cry PROG
'he is crying'

And it assimilates to /ne/ before monosyllabic verbs ending in /e/ in 116 and 117.

(116) *o* *gbe* *ne*
3S play PROG
'he is playing'

(117) *n* *be* *ne*
1S go PROG
'I am going'

Compare the previous example 117 with 395. Vowel harmony may be blocked.

(118) *o* *be* *bɔkinna* *nɛ*
3S go Burkina PROG
'she is going to Burkina'

Vowel harmony also appears clearly in noun class 2 -v/-sv (see section 3.3.2). An underlyingly underspecified vowel assimilates in height to the preceding vowel within the same form. If the preceding vowel is [+HIGH], the plural morpheme suffix surface's form is /-si/. When the preceding vowel is [-HIGH], the plural suffix is /-se/. Examples are provided in Table 5.

Table 5: Vowel height assimilation in noun class 2 nouns

gloss	*stem*	*singular*	*plural*
'moon'	ʧan	ʧan-a	ʧan-se
'shadow'	ʧun	ʧun-e	ʧun-si

It is also common to hear vowel raising of the second person plural form (also the second person possessive form) /é/ to /i/. This contrasts with the second person singular form /e/ that carries no tone. Compare examples 119 and 120, and 121 and 122.

(119) *e* *wi*
2S cry
'you cry'

(120) *i* *wi*
2P cry
'you.PL cry'

(121) *e* *hinso*
2S.POSS breath
'your breath'

(122) *i* *hinso*
2P.POSS breath
'your.PL breath'

When asked for clarification example 123 was clearly spoken.

(123) *é* *hinso*
2P.POSS breath
'your.PL breath'

2.7.2 Metathesis

The -V/-nV noun class in Isaalo illustrates consonant cluster resolution through metathesis (this noun class is discussed in detail in section 3.3.5). The underlying noun stems in this class end in /-s/. The affixation of the plural suffix /-ne/ creates an /sn/ consonant cluster that is disallowed in Isaalo. This conflict is resolved through the metathesis of /s/ and /n/. Examples are provided in Table 6.

Table 6: Metathesis in [sn] clusters with underlying stems /-nV/

Gloss	*Root*	*Singular form*	*Plural form*
'sitting stool'	bas-	bas-á	ban-se
'salt'	jes-	jɛs-e	jɛn-se
'rag'	gogs-	gogɔs-o	gogɔn-se

2.7.3 Degemination

Isaalo noun class 3 -VCCV/-VCV illustrates a productive phonological process of degemination in number inflection (see section 3.3.3 for noun class 3). The geminates /ll/, /nn/, /rr/, /zz/, and /kk/ degeminate when the plural is formed following the pattern -VCCV#/-VCV#, as shown in Table 7.

Table 7: Degemination in homorganic consonant clusters

Gloss	*Consonant cluster*	*Singular form*	*Plural form*
'well' (drinking well)	/ll/	vɛllu	vɛlu
'fruit'	/nn/	nonno	nono
'thief'	/rr/	garra	gara
'ant hill'	/zz/	hɛzzo	hɛzoo
'tick'	/kk/	kazɛkka	kazɛka

2.7.4 Gemination

Gemination often appears in Isaalo as a surface form phonological pattern. For example, the verbal forms /di/ 'eat' and /bi/ 'think' when followed by the progressive aspect marker /nɛ/, geminate /n/. This is to assist phonological processing, and is illustrated in examples 124 and 125.

(124) *o* *din-ni*
3S eat-PROG
'he is eating'

(125) *o* *bin-ni*
3S think-PROG

However, this is not the case in monosyllabic verb forms that contain more vowel-like consonants. The form /wi/ 'cry' in 126 illustrates this.

(126) *o* *wi* *ni*
3S cry PROG
'he is crying'

2.7.5 Vowel shortening

Vowel shortening appears in the Isaalo data in two occurrences. In word initial position, the long vowel /ee/ and /uu/ are shortened to create the plural forms of 'breast; mother's milk' and 'navel'. This process is illustrated in examples 127 and 128, and 129 and 130.

(127) *eela*
breast
'breast'

(128) *ela*
breasts
'breasts'

(129) *uulu*
navel
'navel'

(130) *ulu*
navels
'navels'

3 Nominal, Pronominal, and Adjectival Morphology

This section examines the nominal, pronominal and adjectival systems in Isaalo. Section 3.1 introduces the Isaalo noun, and section 3.3 provides an analysis of Isaalo's extensive noun class system. Section 3.4 covers basic, object, reflexive, recriprocal and possessive pronouns. Demonstratives are covered in section 3.5 and adjectives in section 3.7. Finally, numerals are covered in section 3.6.

3.1 Nouns

Nouns can be either count nouns, such as 131 and 132, or mass nouns such as 133.

(131) *ʤa*
house
'house'

(132) *ʤa-se*
house-PL
'houses'

(133) *bɛnna*
diarrhea
'diarrhea'

Count nouns belong to classes that inflect for number through singular and plural suffixes. Like almost all languages with noun classes, Isaalo noun classes no longer fit neatly into semantically distinguishable groups.

3.2 Organization of NP constituents

Simple nouns are comprised of a stem and a singular or plural suffix belong to one of Isaalo's many noun classes. Nouns follow the template [STEM(-SG/-PL)], where optional elements are enclosed in parentheses. Noun phrases are constructions that contain this simple noun construction as the NP head, simply referred to here as NOUN. The NP template patterns as [(POSS) NOUN (ADJ(-PL)) (DET) (QUANT)]. Most complex NPs are left-headed and therefore form postpositional phrases. However, there is a small class of prepositions, as discussed in section 6.2, that show interesting qualities such as blocking verb movement in negated clauses.

As mentioned in section 3.7, a small class of adjectives inflect for number. The adjective is followed by the determiner and the determiner is followed by the quantifier in the phrase.

3.3 Noun classes

Isaalo's noun classes are expressed through singular and plural suffixes, and to a lesser extent, tonal contrasts, suppletion, and degemination. The size of the noun classes in the current working lexicon (3095 entries) range in size from 59 to 10 pairs. In total there are currently 12 distinguishable classes and they are presented here in decreasing frequency of occurrences. In this section I expand my preliminary findings by presenting a detailed examination of these 12 noun classes. Much of the following research is borne out of the analysis of Poulson 2007, specifically the reanalysis of preliminary classes, which I describe below.

Proto-Niger-Congo had a grammaticalized noun class system, and comparative studies in Southern Atlantic and Gur branches show noun classes through prefixation (Heine and Nurse 2000). However, noun classes are suffixal in Isaalo and genetically related languages (Sisaala Tumulung (Rowland and Rowland 1965), Vagala [vag] (Naden 1989), Sisaala Pasaale (Mcgill et al. 1999), Chakali (Brindle 2006)). Languages such as Dagaare, which are spoken in the geographic vicinity, but are not Grusi, also express number via suffixation (Bodomo 1997). The shift from prefixes to suffixes was a result of concord element attaching to a final article or demonstrative (Childs 1983, Manessy 1965). Gur noun classes are normally suffixes and in full/reduced systems (Williamson and Blench 2000). The noun classes semantic domains today are unclear. Naden (1989) asserts that the southwestern Grusi languages languages have no agreements and have either changed or simplified the original Grusi noun endings. Vagala nouns, for example, include a number of singular/plural declensions that are not clearly defined (Naden 1989).

In Moran (2006b) I presented a preliminary analysis of Isaalo nouns and identified four noun classes, as shown in Table 8.

Table 8: Preliminary noun classes in Isaalo (Moran 2006)

	Singular	Plural	Process
Class 1	-ø	-wa	suffixation
Class 2	-ø	-ø/ ´σ	high tone on final syllable
Class 3	-a	-e	suffixation
	-a	(-n-)-e	epenthesized nasal plus suffix
	-a	-se	suffixation
Class 4	-VV	-V	shortened long vowel
	-CC	-C	degeminated approximant

Poulson (2007) presented a reanalysis of preliminary Class 3, which I adopt in this section. After identifying and analyzing 312 singular/plural noun pairs, Poulson shows three distinct classes: Class sE, Class sé, and Class ne. In particular, Poulson argues that Class sE and Class sé are distinct and that phonological rules can account for the different surface forms in Class sE. Poulson proposes that the underlying vowel in Class sE represents a tense [+ATR] front vowel,

which is underlyingly underspecified for height. Its two surface forms /-se/ and /-si/ are the result of vowel height assimilation with the preceding vowel in the stem. Vowels that are [+HIGH] receive the suffix /-si/ and [-HIGH] vowels trigger a surface suffix form /-se/. Compare for example, forms 'snake', 'crab', and 'moon', versus 'step mother', 'shadow', and 'dark moon' in Table 9.

Table 9: Noun class: -sE (Poulson 2007)

Suffix	Singular	Plural	Singular gloss
-se	kaka	kakse	'snake'
	ʤe	ʤese	'crab'
	ʧana	ʧanse	'moon'
-si	mabi	mabisi	'step mother'
	ʧune	ʧunsi	'shadow'
	ʧanbinnu	ʧanbinsi	'dark moon'

Isaalo has a lack of +/- ATR vowel harmony that is well documented in Sisaala Pasaale (Mcgill et al. 1999). This vowel harmony is also common in languges in the western Grusi branch (Naden 1989), and is also found in Niger-Congo languages (Bendor-Samuel and Hartell 1989) and in West African languages (Clements 2000). However, the height vowel harmony in Class sE is not documented in related languages.

Poulson points out, however, that suffixes in Class sé are not underspecified for height, so they do not assimilate and always occur as /-sé/. This is shown in Table 10. If the final consonant in the stem is an approximant, the suffixation of /-sé/ creates a consonant cluster that is illicit in Isaalo (see section 2.1 for Isaalo phonotactics). In forms like 'shoe' and 'tobacco', suffixation triggers deletion of the stem final approximant. This process is addressed in detail in 3.3.7.

Table 10: Noun class: -sé (Poulson 2007)

Suffix	Singular	Plural	Singular gloss
-sé	ʧá	ʧásé	'broom'
	va	vasé	'dog'
	nátásúlì	nátàsúsé	'shoe'
	tɔwɔ	tɔsé	'tobacco'
	koŋkoŋŋo	koŋkoŋsé	'coconut'

The third class in Poulson's investigation is the Class ne. Poulson argues that surface forms ending in [nse] belong not to the Class sE, but to the Class ne. All singular forms end in [sV]. Poulson proposes the forms' stems end in [s]. Therefore, the suffixation of /-ne/ creates an illicit /sn/ cluster, which is resolved into a well-formed /ns/ cluster through metathesis. This is illustrated

by ‘sitting stool’, ‘salt’, and ‘rag’ in Table 11.

Table 11: Noun class: -ne (Poulson 2007)

Suffix	Singular	Plural	Singular gloss
-nse	basa	banse	‘sitting stool’
	jɛse	jɛnse	‘salt’
	gogɔso	gogɔnse	‘rag’

3.3.1 Class 1: -ø/-wa

The largest noun class in Isaalo is the -ø/-wa class and the lexicon currently provides 59 example pairs that adhere to this pattern. The noun in its singular form contains no suffix and can stand alone. To pluralize the form, the suffix /-wa/ is added. There seems to be little discernible phonological restrictions on the base. The smallest word in this class is monosyllabic, as shown in 134 and 135. The longest word is five syllables, see 136 and 137.

(134) *ma-ø*
mother-SG
‘mother’

(135) *ma-wa*
mother-PL
‘mothers’

(136) *wawʊlɛnɛrɛ-ø*
spider-SG
‘spider’

(137) *wawʊlɛnɛrɛ-wa*
spider-PL
‘spiders’

The -ø/-wa class is very productive and is commonly used for loanwords, see for example 138 and 139 from British English, and 140 and 141 from Twi.

(138) *lɔlɛ-ø*
lorry-SG
‘lorry’ < English

(139) *lɔlɛ-wa*
lorry-PL
‘lorries’ < English

(140) *katawie-ø*
umbrella-SG
'umbrella' < Twi

(141) *katawie-wa*
umbrella-PL
'umbrellas' < Twi

Table 12 presents several examples from the -ø/-wa class. Note that in the -ø/-wa class, the semantic variation of its members are clear. The noun classes in Isaalo no longer follow clear semantic boundaries.

Table 12: Noun class 1: -ø/-wa

Gloss	*Stem*	SG	PL
'airplane'	alonpɛrri	alonpɛrri-ø	alonpɛrri-wa
'father'	ana	ana-ø	ana-wa
'ear'	dɛlle	dɛlle-ø	dɛlle-wa
'bone'	haŋbɛlɛ	haŋbɛlɛ-ø	haŋbɛlɛ-wa
'chief'	kuoro	kuoro-ø	kuoro-wa
'snail'	koŋkurru	koŋkurru-ø	koŋkurru-wa
'cup'	kɔpu	kɔpu-ø	kɔpu-wa
'watch' (n)	wɔʧe	wɔʧe-ø	wɔʧe-wa

3.3.2 Class 2: -V/-sV

The -v/-sV class appears in 45 pairs in the lexicon. Singular suffixes in this class are a vowel. The plural suffix's underlying form is /-sɛ/ with a tense [+ATR] front vowel that is underspecified for height. The suffix has two surface forms, /-se/ and /-si/. Vowel height is assimilated to the vowel height of the preceding vowel. Vowels that are [+HIGH] receive the suffix /-si/ and [-HIGH] vowels triggers a surface suffix form /-se/. Degemination of the stem's final consonant also appears in the example 'new moon'. Further evidence for the proposed stems can be seen in compounds. The stem form for 'moon' is also the head of the compound 'new moon'. Examples are provided in Table 13.

3.3.3 Class 3: -VCCV/-VCV

There are 42 pairs of singular/plural nouns that are characteristic of the -VCCV/-VCV noun class in the lexicon. However, this number is high because several forms that adhere to this class are productive in compounds. Compare for example 'man' and 'son in law', and 'woman' and 'daughter in law'. Compensatory lengthening of the verb also appears in several forms, such as 'man' and 'woman'. Examples are provided in Table 14.

Table 13: Noun class 2: -v/-sv

Gloss	*Stem*	SG	PL
'water snake'	kak	kak-a	kak-se
'parrot'	dak	dak-uɔ	daku-se
'moon'	ʧan	ʧan-a	ʧan-se
'small stick'	dabi	dabi-i	dabi-si
'female'	tobi	tobii-e	tobi-si
'ankle'	nasuk	nasuk-e	nasuk-si
'shadow'	ʧun	ʧun-e	ʧun-si
'elbow'	negutɔk	negutɔk-o	negutɔk-si
'chameleon'	piluk	piluk-u	piluk-si
'pepper'	namasuk	namasuk-u	namasuk-si
'knee'	nabin	nabin-u	nabin-si
'elbow'	nɛgutuk	nɛgutuk-u	nɛgutuk-si
'large earth pot for cooking'	vitɛkk	vitɛkk-e	vítɛk-si
'new moon'	ʧanbinn	ʧanbinn-u	ʧanbin-si

3.3.4 Class 4: -a/-e

There are 38 pairs of nouns that make up the -a/-e noun class. As in the -u/-i noun class, all stems end in a consonant. Stems take a singular suffix /-a/ or a plural suffix /-e/. Gemination of the final consonant is common in this class. Examples are provided in Table 15. The form 'scorpion' shows /-a/ alternation with /-o/ due to rounding assimilation with /ɔ/.

3.3.5 Class 5: -V/-nV

There are 25 pairs of singular/plural forms in the -V/-nV noun class. It behaves like -v/-sV noun class in that singular forms are marked with a /-V/ suffix and the plural suffix /-V/ undergoes vowel heigh assimilation. If the previous vowel is [+HIGH] the plural suffix's surface form is /-ni/. Alternatively, if the previous vowel is [-HIGH], the plural suffix's surface form is /-ne/.

This class also demonstrates deletion of stem final approximants in plural suffixation formation. Consonant clusters of approximant + /s/ are formed when suffixation of /-sé/ takes place. Geminate clusters in Isaalo are restricted and only geminates and nasals are allowed in codas. Poulson (2007) states that approximants are more sonorous than the fricative /s/, and that by the Sonority Sequencing Principle an approximant + /s/ cluster would not make a well-formed onset in Isaalo. The consonant is therefore deleted to resolve an illicit consonant cluster that is disallowed in codas. The suffixation feed the deletion rule. This is summed up in 3.3.5 and examples are provided in Table

Table 14: Noun class 3: -vccv/-vcv

Gloss	*Stem*	SG	PL
'fruit'	nonno	nonno	nono
'thief'	garra	garra	gara
'shoulder'	vapɛpɛrra	vapɛpɛrra	vapɛpɛra
'vein'	pollu	pollu	polu
'ant hill'	hɛzzo	hɛzzo	hɛzo
'man'	balla	balla	baála
'woman'	halla	halla	haála
'son in law'	tullùballa	tullùballa	tullubaála
'daughter in law'	biihalla	biihalla	biihaala
'eye hair' (eye brow and eye lash)	sɪponna	sɪponna	sɪpona

Table 15: Noun class 4: -a/-e

Gloss	*Stem*	SG	PL
'toad'	ɲuŋ	ɲuŋ-a	ɲuŋ-e
'day'	tapul(l)	tapull-a	tapull-e
'corpse'	lɛl(l)	lɛll-a	lɛll-e
'book'	kɛn(n)	kɛnn-a	kɛnn-e
'scorpion'	nɔn(n)	nɔnn-o	nɔnn-e
'brain'	wɪsɛn(n)	wɪsɛnn-a	wɪsɛnn-e
'lip'	nokɛn(n)	nokɛnn-a	nokɛnn-e
'mud'	pɛpɛr	pɛpɛr-a	pɛpɛre

16. The forms 'hand' and 'rag' show metathesis of /s/ and /n/.

(142) stem ending in s + ne → nse

3.3.6 Class 6: -V/-rrV

There are 22 singular/plural noun pairs in the lexicon that represent the -V/-rrV noun class. The singular suffix may be /-ø/, vowel length, or a vowel. The plural suffix is /-(r)rV/. Examples are provided in Table 17. Gemination of /r/ is shown in examples such as 'leaf', 'antelope', 'thorn', and 'wasp'.

Table 16: Noun class 5: -ne

Gloss	*Stem*	SG	PL
'stream'	fuo	fuo-ø	fuo-ne
'cow'	nõ	nõ-ø	ne-ne
'land'	tie	tie-ø	tie-ne
'hat'	netʃuo	netʃuo-ø	netʃun-ne
'leg'	ná	ná-ø	na-ne
'cave'	bʊɔ	bʊɔ-ø	bʊɔ-ne
'grave'	buɔ	buɔ-ø	buɔ-ne
'river', 'pond', 'lake'	fuo	fuo-ø	fuo-ne
'hand'	nɛs	nɛss-e	nɛn-se
'rag'	gogɔs	gogɔs-o	gogɔn-se
'sitting stool'	bas-	bas-á	ban-se
'salt'	jes-	jɛs-e	jɛnse
'rag'	gogs-	gogɔs-o	gogɔnse

3.3.7 Class 7: -V/-sé

In contrast to the -V/-sE noun class, the plural suffix /-sé/ in class -V/-sé does not assimilate in vowel height. There are 20 singular/plural noun pairs in the present lexicon. Monosyllabic forms do not take a singular suffix. Examples are provided in Table 18.

3.3.8 Class 8: -u/-i

There are 15 singular/plural pairs in the current lexicon that make up the -u/-i noun class. All stems end in a consonant. The singular morpheme is /-u/ and the plural /-i/. Examples are provided in Table 19. There is some phonological variation in that forms like 'liker' and 'millipede' that show gemination of the final consonant. Vowel lengthening of the plural suffix also appears in 'waterfall', perhaps triggered by the long vowel /i/ in the root.

3.3.9 Class 9: -V/-V́

The -v/-v́ class uses a tonal change on the last syllable to mark plurality. The singular forms in this class have no (or low) tone on their final syllable. The plural form is marked with a high tone. There are 12 examples of this class in the lexicon. Table 20 provides some examples.

Table 17: Noun class 6: -v/-rrv

Gloss	*Stem*	SG	PL
'leaf'	pa	pa	pa-rra
'antelope'	be	be	bɛ-rra
'thorn'	so	so	so-rro
'metal'	hɔ	hɔ-ɔ	hɔ-rɔ
'grassland'	bɔ	bɔ-ɔ	bɔ-rro
'sea'	mu	mu-o	mu-ra
'pig'	ki	ki-u	ki-rru
'dragon'	vumuu	vumuu-o	vumuu-ra
'wasp'	vunvu	vunvu-o	vunvu-rra
'wing'	kiŋki	kiŋki-o	kiŋki-rro

3.3.10 Class 10: -nV/-mV

The -nV/-mV appears in 10 pairs in the working lexicon. Final vowels in most forms are the same in the singular /-nV/ and plural /-mV/ suffixes, typically /a/ or /o/. Gemination of the stem final consonant appears in the singular forms. Examples are provided in Table 21

3.3.11 Class 11: -iie/-ie

The -iie/-ie noun class are found in 10 pairs in the lexicon. The singular form is characterized by a lengthened vowel /ii/. The plural form is created by shortening the vowel to /i/. This process seems counterintuitive, but semantically the words that appear in this class are arguably more often used in their plural forms. See for example 'eye balls', 'back bones (vertebrae)' and 'fingers'. Examples are provided in Table 22.

3.3.12 Class 12: -iie/-ɛlle

This class appears often in the lexicon because of the productivity of the diminutive form /biie/ 'baby' or 'child' and its plural form /bɛlle/. There are around 25 pairs of the -iie/-ɛlle class currently in the lexicon. This form can be compounded with animate nouns to create diminutive forms and also appears frequently in Isaalo's kinship system. Diminutives are addressed separately in section 4.2. Each compound uses the form /biie/ or /bɛlle/ as the dependent that modifies its head. This class is perhaps more appropriately considered a class of one, since no other forms in the language seem to follow particular singular/plural for pattern. Examples are provided in Table 23.

Table 18: Noun class 7: -v/-sé

Gloss	*Stem*	SG	PL
'dog'	va	va-ø	va-sé
'broom'	ʧa	ʧa-ø	ʧá-sé
'grass'	ɲɔ	ɲɔ-ø	ɲɔ-sé
'stick'	da	da-ø	da-sé
'duck'	boi	boi-ø	bɔ-sé
'shoulder'	vaʧ	vaʧo-ø	vaʧo-sé
'forest'	da	da-a	da-sé
'year'	bɛn	bɛn-a	bɛn-sé
'horse'	zak	zak-a	zak-sé
'cobra'	koba	koba-a	kaba-sé

3.4 Pronouns

3.4.1 Basic personal pronouns

The basic personal pronouns in Isaalo are those in Table 24. The pronominal system has three persons and no gender distinction. The first person singular form is the syllabic nasal /n/ and may progressively assimilate in place of articulation to the following form. The second person singular and plural forms are contrastive in tone, /e/ 'you' and /é/ 'y'all'. Independent pronouns differ from subject pronouns only in the second person singular and plural forms /ene/ and /éne/. The third person singular form /o/ means 'he', 'she', or 'it'.[14]

Subject pronouns are free morphemes that appear before verbs, temporal adjectives, or before the future tense marker /sɪ/, which appears before verbs. See examples 143, 144 and 145.

(143) *o* *ve* *kɪkɛlɛ*
3S walked quickly
'he walked quickly'

(144) *n* *dii* *ʧo* *piie* *ɲa*
1S yesterday cooked yam DET
'I cooked the yam yesterday'

(145) *e* *sɪ* *wolli* *zo* *ko*
2S FUT can in come
'you can come in'

[14]Examples provided in this work may be glossed 'he', 'she', or 'it', depending on the form was elicited from informants. In most cases the third person singular form /o/ can stand for either gender or 'it'.

Table 19: Noun class 8: -u/-i

Gloss	*Stem*	SG	PL
'stomach'	ful	ful-u	ful-i
'junior sister'	nitul	nitul-u	nitul-i
'latter'	nantʃʊl	nantʃʊl-u	nantʃʊl-i
'rabbit'	ʧuun	ʧuun-u	ʧuun-i
'waterfall'	niitʃur	niitʃur-u	niitʃur-ii
'root'	nalur	nalur-u	naluur-i
'bush'	sow	sow-u	sow-i
'wind'	lin(n)	linn-u	linn-i
'liker'	nitʃol(l)	nitʃoll-u	nitʃoll-i
'sugar'	sɪkɛltum(m)	sɪkɛltumm-u	sɪkɛltumm-i
'lung'	ʧɛffulafun(n)	ʧɛffulafunn-u	ʧɛffulafun-i
'millipede'	haŋgun(n)	haŋgunn-u	haŋgunn-i

Table 20: Noun class 9: -v/-v́

Gloss	*Stem*	SG	PL
'feces', 'toilet'	bɛnna	bɛnna	bɛnná
'sandal'	natawa	natawa	natawá
'sock'	puru	puru	purú
'bombara bean'	siibie	siibie	siibié
'talapia' (flat fish)	pemu	pemu	pemú
'toe'	naniie	naniie	naniié
'witch'	mekarra	mekarra	mekará

3.4.2 Object pronouns

Object pronouns are homophonous with independent pronouns, however, they are bound verbal suffixes. They behave as a single phonological word when affixed to the verb. In complex phrases they appear in first position after the verb. Compare examples 146 with 147, and 148 with 149.

(146) *n* *ne* *molla*
1S see under
'I understand'

(147) *n* *ne-e* *molla*
1S see-2S under
'I understand you'

Table 21: Noun class 10: -nv/-mv

Gloss	*Stem*	SG	PL
'beard'	tɔn	tɔn-no	tɔ-mo
'snake'	don	don-na	do-ma
'arrow'	tohɛn	tohɛn-na	tohɛ-ma
'tape worm'	ɔdun	ɔdun-na	ɔdu-ma
'monkey'	ɔn	ɔn-no	o-mo
'fowl'	zin	zin-nu	zi-mu

Table 22: Noun class 11: -iie/-ie

Gloss	*Stem*	SG	PL
'finger'	nɛnv	nɛniie	nɛnie
'arms'	nɛhv	nɛhiie	nɛhie
'eye ball'	sɪbv	sɪbiie	sɪbie
'plantain'	bɔdv	bɔdiie	bɔdie
'back bone'	hɛdabv	hɛdabiie	hɛdabie

(148) *o* *õ* *balla* *ɲa*
3S know man DET
'he knows the man'

(149) *n* *ne-o*
1S hear-3S
'I understand you', 'I hear you'

This process is clearly shown in the verb /pa/ 'give', where the object pronoun replaces the verb /a/ in the verb. Compare example 150 with examples 151 - 153.

(150) *o* *bɔ* *kɛnna* *ɲa* *pa* *halla* *ɲa*
3S take book DET give woman DET
'he gave the book to the woman'

(151) *n* *sɪ* *p-o* *kɛnna* *ɲa*
1S FUT give-3S book DET
'I will give him the book'

(152) *o* *sɪ* *p-e* *ba* *kɛnna* *ɲa*
3S FUT give-2S take book DET

Table 23: Noun class 12: -iie/-ɛlle

Gloss	*Stem*	SG	PL
'baby', 'child'	bv	biie	bɛlle
'small chicken'	zibv	zibiie	zibɛlle
'small tree'	tubv	tubiie	tubɛlle
'aunt', 'mother's junior sister'	mabv	mabiie	mabɛlle
'small plantain'	bɔdibv	bɔdibiie	bɔdibɛlle

Table 24: Pronouns

Form	Independent	Subject	Object	Reflexive
1S	n	n	-n	-n ti
2S	ene	e	-e	-e ti
3S	o	o	-o	-o ti
1P	a	a	-a	-a ti
2P	éne	é	-é	-e ti
3P	ba	ba	-ba	-o ti

'he will give you the book'

(153) *o* *sɪ* *pa-ŋ* *kɛnna* *ɲa*
3S FUT give-1S book DET
'he will give me the book'

3.4.3 Reflexive pronouns

Reflexive constructions in Isaalo are expressed morphologically and analytically. Morphologically, the verb takes a pronoun object suffix, and analytically, the reflexive form /ti/ 'self' appears in the first position after the verb. Reflexive constructions can be exemplified by analyzing clauses with the verb /sɛsse/ 'wash'. Examples 154 - 159 show the verbal paradigm for the construction /sɛsse gaane/ 'wash clothes'. The verb in these forms are isomorphic.

(154) *n* *sɛsse* *gaane*
1S wash clothes
'I wash clothes'

(155) *e* *sɛsse* *gaane*
2S wash clothes

'you wash clothes'

(156) *o* *sɛsse* *gaane*
3S wash clothes
'he washes clothes'

(157) *a* *sɛsse* *gaane*
1P wash clothes
'we wash clothes'

(158) *é* *sɛsse* *gaane*
2P wash clothes
'you.PL wash clothes'

(159) *ba* *sɛsse* *gaane*
3S wash clothes
'they wash clothes'

However, examples 160 - 167 illustrate the morphological and analytical reflexive processes in Isaalo.

(160) *n* *sɛssɛ-n* *ti*
1S will.wash-1S REFL
'I will wash myself'

(161) *o* *sɛss-o* *ti*
3S will.wash-3S REFL
'he will was himself'

(162) *e* *sɛss-e* *ti*
2S will.wash-2S REFL
'you will wash yourself'

(163) *a* *sɛss-a* *ti*
1P will.wash-1P REFL
'we will wash ourselves'

(164) *ba* *sɛss-o* *ti*
3P wash-3P REFL
'they should wash themselves'

(165) *n* *die* *sɛssɛ-n* *ti*
1S yesterday wash-1S REFL
'I washed myself yesterday'

(166) *e* *die* *sɛss-e* *ti*
2S yesterday wash-2S REFL
'you washed yourself yesterday'

(167) *o* *die* *sɛss-o* *ti*
3S yesterday wash-3S REFL
'he washed himself yesterday'

The analytic form /ti/ 'self' is not simply an additional suffix that attaches after the pronominal object suffix. See example 168, which shows the insertion of the form /wa/ 'all' between the pronominal object suffix and the reflexive form.

(168) *é* *sɛss-i* *wa-ti*
2P wash-2P all-REFL
'you.PL will wash yourselves', 'you.PL should wash yourselves'

Reciprocals in Isaalo are not isomorphic, they are expressed analytically and are addressed in the next section.

3.4.4 Reciprocals pronouns

Reciprocals in Isaalo are expressed analytically with the form /dɔwo/ 'each other', as shown in examples 169 - 172.

(169) *ba* *yeki* *dɔwo*
3P hit each.other
'they hit each other'

(170) *ba* *wo* *dɔwo* *yeke*
3P NEG each.other hit
'they did not hit eachother'

(171) *ba* *bɔlle* *dɔwo*
3P greeted each.other
'they greeted each other'

(172) *ba* *wo* *dɔwo* *bɔlle*
3P NEG each.other greeted
'they did not greet each other'

3.4.5 Possessive pronouns

Possessive pronouns, like object pronouns, may be marked by suffixes on the verb. To distinguish homophony, the second person plural adds the plural affix /wa/. The form /wa/ is also the most frequent plural noun suffix and the noun class -ø/-wa distinguishes between a null singular suffix and the plural suffix /-wa/ (see section 3.3.1). The verb /yukse/ 'lose' illustrates possessive pronouns provided in 173 - 177.

(173) *n* *yuks-e* *hɛmme*
1S lost-2S.POSS keys
'I lost your keys'

(174) *n* *yuks-o* *hɛmme*
1S lost-3S.POSS keys
'I lost his keys'

(175) *n* *yuks-a* *hɛmme*
1S lost-1P.POSS keys
'I lost our keys'

(176) *n* *yuksi-wa* *hɛmme*
1S lost-2P.POSS keys
'I lost your.PL keys'

(177) *n* *yuksi-wa* *hɛmme*
1S lost-3P.POSS keys
'I lost their keys'

Examples 176 and 177 both use the plural object pronoun /-wa/.

When possessive pronouns are in subject position, they appear as free morphemes and share the same form as subject pronouns, as illustrated in 178 - 183.

(178) *n* *nitulu*
1S.POSS sister
'my sister'

(179) *e* *nitulu*
2S.POSS sister
'your sister'

(180) *o* *nitulu*
3S.POSS sister
'his sister'

(181) *a* *nitulu*
1P.POSS sister
'our sister'

(182) *é* *nitulu*
2P.POSS sister
'your.PL sister'

(183) *ba* *nitulu*
3P.POSS sister
'their sister'

Possessive pronouns in subject position do not inflect for number or noun class, see 184 and 185.

(184) *n* *ʤa*
1S.POSS house
'my house'

(185) *n* *ʤa-se*
1S.POSS house-PL
'my houses'

Some verbs are incompatible with possessive object pronoun suffixation, as illustrated in examples 186 - 188. Investigation is needed. The phenomenon could be be semantic (suffixation does not occur with the copula verb /mɛŋ/), or it be phonological, or otherwise.

(186) *dubɔnnuɔ* *ɲa* *mɛŋ* *e* *siɛ*
door DET is.in your front
'the door is in front of you'

(187) *dubɔnnuɔ* *ɲa* *to* *e* *siɛ*
door DET is.not.in your front
'the door is not in front of you'

(188) *n* *mon* *n* *ʤa* *me*
1S am 1S.POSS house at
'I am at my house', 'I am in my house'

3.5 Demonstratives

Demonstratives are an area currently under investigation. Table 25 presents a preliminary outline of their distribution. Nouns do not require a demonstrative, as illustrated in 189 and 190.

Table 25: Demonstratives

number	*proximal*	*distal*
sg	no	ɲa
pl	ne	ɲa

(189) *kuorowa*
chiefs
'chiefs'

(190) *kuorowa* *ɲa*
chiefs DET
'those chiefs'

All demonstratives appear after head nouns and before quantifiers. The proximal demonstratives /no/ 'this' and /ne/ 'these' inflect for number and specify a particular noun or group of nouns as shown in 191 and 192.

(191) *kuoro* *no*
chiefs DET
'this chief'

(192) *kuorowa* *ne*
chiefs DET
'these chiefs'

The distal demonstrative /ɲa/ specifies a particular object, is used equivalently to English 'that' or 'those' as illustrated in 193 & 194 and 195 & 196.

(193) *m* *moŋ* *ʤa* *duwo*
1S am house on.top
'I am on top of the house'

(194) *m* *moŋ* *ʤa* *ɲa* *duwo*
1S am house DET on.top
'I am on top of that house'

(195) *n* *pó* *omo*
1S hunt.PST monkeys
'I hunted for the monkeys'

(196) *n* *pó* *omo*
1S hunt.PST monkeys DET
'I hunted for those monkeys'

It does not inflect for number, as further exemplified in examples 197 and 198.

(197) *kuoro* *ɲa*
chief DET
'that chief'

(198) *kuorowa* *ɲa*
chiefs DET
'those chiefs'

The demonstrative /ɲa/ is also used in succession to stress a particular noun, as shown in 199.

(199) *kuoroné ɲa ɲa*
chief DET DET
'that is the chief'

The Isaalo demonstrative is optional in noun phrases that correspond to English phrases containing 'the'. When explicitly asked for a determiner, Isaalo speakers used /ɲa/. Therefore, throughout this document examples that contain /ɲa/ are typically glossed with 'the'.

3.5.1 No (tu)

The Isaalo form /tu/ 'no' also follows the noun, as in examples 200 and 201.

(200) *kuoro tu*
chief no
'no chief'

(201) *o tu*
3S no
'that person has no life'

The form /tu/ is used in combination with other forms to express such notions as /tulaŋ/ 'not there', as shown in 202, 203 and 204.

(202) *o tulaŋ*
3S not.there
'it is not there'

(203) *kuoro wu tulaŋ*
chief all not.there
'there is no chief here', 'not any chiefs'

(204) *kuoro ondon ma tulaŋ*
chief one and not.there
'not even one chief is there'

3.5.2 Many (kanno, kanna)

The forms /kanno/ and /kanna/ illustrate the quantifier 'many', as in 205 and 206.

(205) *kuorowa ɲa kanno*
chief-PL DET many
'the chiefs are many'

(206) *kuorowa ɲa kanna*
chief-PL DET many
'the chiefs are many'

3.5.3 Some (bala)

The form /bala/ 'some' appears after the object that it modifies. It does not change positions in negated sentences.

(207) *o* *ne* *pɛrrɛkkuwa* *bala*
3S saw pigs some
'she saw some pigs'

(208) *o* *wo* *pɛrrɛkkuwa* *bala* *ne*
3S NEG pigs some saw
'she didn't see some pigs'

The form /bala/ can also be used as 'a few', as in 'a few chiefs'.

(209) *kuoro-wa* *bala*
kuoro-PL bala
'some chiefs', 'a few chiefs'

3.5.4 Universal quantifier (wu)

The universal quantifier /wu/ 'all' appears after nominals or demonstratives, as illustrated in examples 217 and 211.

(210) *kuoro-wa* *wu*
chief-PL all
'all chiefs'

(211) *kuoro-wa* *ɲa* *wu*
chief-PL DET all
'all the chiefs'

The form /wu/ also appears in conjunction with plural person pronouns to reinforce *all* members of the set are involved. This is shown in examples 212, 213 and 214.

(212) *ba* *wu*
3S all
'they all'

(213) *ba* *wu* *sɪ* *felu*
3S all FUT fail
'they will all fail'

(214) *a* *wu* *ɲiɛl* *gasunse*
1P all dry shirts
'we all are drying shirts'

There is a subtle difference between the use of /wu/ for 'all' and /wu/ meaning 'every' or 'each'. Compare examples 215 & 216 and 217 & 218.

(215) *haala* *wu*
women all
'all women'

(216) *haalwu*
woman.every
'every woman', 'each woman'

(217) *kuoro* *wu*
chief all
'all chiefs'

(218) *kuorwu*
chief.every
'every chief', 'each chief'

In these forms, /wu/ is compounded with the root of the nominal, changing its meaning from 'all' to 'every' or 'each'. Also note in example 217 that the singular form /kuoro/ was used by the speaker. This may be vernacular usage.

3.5.5 Numeral quantifiers

Numerals follow the noun or the NP [N DET] that they quantify, as shown in examples 219 and 220.

(219) *kuoro-wa* *bɛlɛ*
chief-PL two
'two chiefs'

(220) *kuoro-wa* *ɲa* *bɛlɛ*
chief-PL DET two
'the two chiefs'

3.5.6 Indefinites

Indefinite constructions appear rarely in Isaalo. Examples are provided in Table 26. There are two distinct morphological changes. The first is final vowel change and the second is the suffixation of the form /rV/. The the form /rV/ also appears in predicate nominals (see section 8.1.1).

Further support that indefinites exist is provided in examples 221 and 222.

(221) *halla* *ɲa*
woman DET
'the woman'

Table 26: Indefinite marking

Gloss	SG *form*	*Indefinite form*	*Morpho change*
'woman'	haala	haale	-a/-e
'man'	baala	baale	-a/-e
'snake'	dunna	dunne	-a/-e
'chief'	kuoro	kuori	-o/-i
'toad'	ɲuŋa	ɲuŋɛ	-a/-ɛ
'child'	bii	biiri	-Ø/-ri
'chair'	basa	basarɛ	-Ø/-rɛ
'dog'	va	varɛ	-Ø/-rɛ
'witch'	mekarra	mekarrɛ	-ra/-rɛ
'frog'	sɔrro	sɔrrɛ	-ro/-rɛ

(222) **haale* *ɲa*
woman.INDF DET
Intended: 'the woman'

3.6 Numerals

3.6.1 Cardinal numerals

Cardinal numerals may function as NPs or they may modify nouns, in which case they follow the noun (and any adjectives and demonstratives). Isaalo's counting system is partially vigesimal; twenty is used as the base number for numbers forty and above.

3.6.2 Numerals 1-10

The simple numerals '1' to '10' are shown in 223.

(223)

gloss	*form*
'1'	modon
'2'	bɛllɛ
'3'	buturu
'4'	bana
'5'	bomoɔ
'6'	babʊ
'7'	bape
'8'	ʧuri
'9'	nɛmɛ
'10'	fi

There is a strong tendency for [modon] '1' to be pronounced with a nasalized /o/, as in /modõn/.

3.6.3 Vigesimal units ('40', '60'...) and combinations ('11', '99')

Isaalo's counting system is partially vigesimal; twenty is used as the base number for numbers forty and above. The forms forty, sixty and eighty are created through compounding of twenty and a simple numeral (forty > twenty + four; sixty > twenty + three; eighty > twenty + four). The interspersed forms fifty, seventy and ninety are three form compounds of forty + ten, sixty + ten, and eighty + ten. The form /mere/ 'twenty' is reduced to its first syllable in forms from forty onwards. The form 'thirty', /mere + fi/, is a simple concatenation of twenty + ten without reduction of twenty to its first syllable. These are illustrated in 224.

(224)

gloss	form	constituents	glosses
'10'	fi	fi	'10'
'20'	mere	mere	'20'
'30'	mɛrɛfi	mere + fi	'20' + '10'
'40'	mebɛllɛ	mere + bɛllɛ	'20' + '2'
'50'	mɛbɛlɛfi	mere + bɛlɛ + fi	'20' + '2' + '10'
'60'	mebuturu	mere + buturu	'20' + '3'
'70'	mebuturufi	mere + buturu + fi	'20' + '3' + '10'
'80'	mebanna	mere + banna	'20' + '4'
'90'	mebannafi	mere + banna + fi	'20' + '4' + '10'

Combinations occur via coordination of a complex base form, the coordinand /aba/ 'and', and a simple numeral from '1' to '9'. Some examples are provided in 225 - 234.

(225) *fi* *aba* *modon*
ten and one
'eleven'

(226) *fi* *aba* *bɛllɛ*
ten and two
'twelve'

(227) *mere* *aba* *modon*
twenty and one
'twenty one'

(228) *mere* *aba* *bɛllɛ*
twenty and two
'twenty two'

(229) *mɛrɛ-fi* *aba* *modon*
twenty-ten and one
'thirty one'

(230) *mɛrɛ-fi* *aba* *bɛlɛ*
twenty-ten and two
'thirty two'

(231) *me-bɛlɛ* *aba* *modon*
twenty-four and one
'forty one'

(232) *mɛ-bɛlɛ-fi* *aba* *nɛmɛ*
twenty-two-ten and nine
'fifty nine'

(233) *me-buturu* *aba* *modon*
twenty-three and one
'sixty one'

(234) *me-banna-fi* *aba* *nɛmɛ*
twenty-four-ten and nine
'ninety nine'

3.6.4 Large numerals

The form /zolo/ 'hundred' is the base form for creating numerals of 100 and greater. The left most element in the phrase, /zolo/ is coordinated with simple and complex numerals. Some examples are provided in 235 - 239.

(235) *zolo*
hundred
'one hundred'

(236) *zolo* *aba* *modon*
hundred and one
'one hundred one'

(237) *zolo* *aba* *fi*
hundred and ten
'one hundred ten'

(238) *zolo* *aba* *fi* *aba* *modon*
hundred and ten and one
'one hundred eleven'

(239) *zolo* *aba* *me-bele-fi* *aba* *modon*
hundred and twenty-two-ten and one
'one hundred eleven'

3.6.5 Numeral use

Numerals with values over one hundred are most commonly used in currency or business transactions, especially in markets where English is the lingua franca for commerce. Counting in English has been adopted to an extent that Sisaala children can no longer count productively in Isaalo. In a brief study I interviewed four speakers of varying ages. These were Mr. Cletus Basing (age 50), Mr. Osman Ba-ang (age 26), Ebe Balaroo (age 16) and Lucky Wise (age 6). Mr. Basing could reportedly count in Isaalo into the tens of thousands and Mr. Ba-ang could count into the thousands. Ebe could count into the hundreds and Lucky could count to about 20 (with some skipping of numbers and incorrect ordering; he could count correctly in English).

3.6.6 Ordinal adjectives

The two ordinal adjectives 'first' /sie/ and 'last' /harra/ are derived from the homophonous nouns meaning 'eyes' and 'back', respectively. Examples 330 and 241 show that the meaning of /sie/ 'first' extends semantically to 'in front' and 'lead'.

(240) *onya ha le siɛ*
one who is first
'the one who is first'

(241) *n le sie*
1S am first
'I am first, i am in front, i am first to enter (have taken the lead)'

Example 242 shows that /duo/ 'second' appears in the quantifier position in the noun phrase.

(242) *toiurʃɪm mede wirru ɲa duo*
woman tall beautiful DET second
'the second beautiful tall gentle young woman'

3.7 Adjectives

Noun modifying adjectives occur after the noun that they modify and before any demonstratives or modifiers. The ordering within the noun phrase is strict, as shown in examples 243, 244 and 245.

(243) *fiila muzeno ɲa*
flowers big DET
'the big flowers'

(244) **muzeno fiila ɲa*
big flowers DET
Intended: 'the big flowers'

(245) **fiila ɲa muzeno*
flowers DET big
Intended: 'the big flowers'

The order within a string of adjectives is less strict. Examples 246 and 247 are both produced by the speaker with 'no difference'.

(246) *ɟılla zoniɛ muzeno ɲa*
flower green big DET
'the big green flower'

(247) *ɟılla muzeno zoniɛ ɲa*
flower big green DET
'the green big flower'

Sequences of adjectives, however, typically compound. They do so in the same NP order, but the order in which the adjectives compound is complex and not yet well understood. Examples 248 and 249 illustrate this.

(248) *ba-zɪnnu ɲa*
man-big DET
'the big man'

(249) *ha-wirru mede ɲa*
woman-beautiful tall DET
'the tall beautiful woman'

Although these examples do no show any overt morphological marking, this is not always the case. Morphological marking in Isaalo adjectives is severely restricted to number concord and the class of adjectives that inflect for number are relatively small. It may be the case that noun-adjective class agreement is diminishing (the noun class system has lost its semantically distinguishable classes), but further investigation is needed to make an explicit claim. For now, the data shows number inflection in a handful of cases that follow noun class plural strategies. Number concord appears between the noun and adjective and each belongs to the same noun class. The adjectives /muzeno/ and /muzensɛ/ 'big', illustrated in 250 and 251, follow noun class 2 plural formation.

(250) *natʃe muzen-o ɲa*
foot.SG.NC2 big-SG.NC2 DET
'the big foot'

(251) *natʃɛse muzen-sɛ ɲa*
feet.PL.NC2 big-PL.NC2 DET
'the big feet'

The examples 252 and 253 that show /mubi/ and /mubisi/ 'small' also follow the plural formation strategy of noun class 2.

(252) *natʃe* *mub-i* *ɲa*
foot little-SG.NC2 DET
'the little foot'

(253) *natʃɛse* *mubi-si* *ɲa*
feet little-PL.NC2 DET
'the little feet'

Denominalized adjectives have a prefix /on-/ that is dropped in [NOUN + ADJECTIVE] compounds. Compare examples 254 & 264 and 256 & 263.

(254) *onlonna*
hot
'hot'

(255) *niɛ-loma*
water-hot
'hot water'

(256) *onfiɛlla*
cold
'cold'

(257) *niɛ-fiɛlla*
water-cold
'cold water'

However, the situation gets more complex when multiple adjectives appear in the same noun phrase, as shown in examples 258, 259 and 260.

(258) *onfiɛnna*
red
'red', 'ripe', 'violet', 'orange'

(259) *kɛn-fiɛnna* *ɲa*
book-red DET
'the red book'

(260) *kɛn-zɪnnu* *fiɛnna* *ɲa*
book-big red DET
'the big red book'

4 Compounding

Compounding is very productive in Isaalo. Compounds are formed by combining two or more nouns, nouns and adjectives, or nouns and verbs (section 4.1). Compounding is not only productive in general, but it appears in diminutive formation (4.2), the kinship system (4.3), numeral formation (4.4) and in cardinal directions (4.5). Endocentric compounds typically reduce the compound's left-most member to its stem. Although either member can be the head of the compound, it is usually the left-most. Exocentric formations combine full roots (4.6).

4.1 Compound members

Compounds commonly consist of a series of nouns, as illustrated with examples 261 and 262.

(261) *tunono*
tuwo-nono
tree-fruits
'tree fruits'

(262) *mebannafi*
mere-banna-bi
twenty-four-10
'ninety'

Compounds can also be formed by combining nouns and adjectives to form N+ADJ compounds, as shown in examples 263 and 264.

(263) *niɛfiɛlla*
niɛ-fiɛlla
water-cold
'cold water'

(264) *niɛloma*
niɛ-loma
water-hot
'hot water'

Compared to N+N compounds, there are relatively few verb containing compounds, such as N+V or V+V. Some notable examples include 265 and 266.

(265) *sɪkɛltummu*
sɪkɛli-tummu
cane-chew
'sugar cane' (lit. 'stalk that they chew')

(266) *ɲuwowɛ*
ɲuwo-wɛ
head-pain(v)
'headache' (lit. 'head pain')

Example 267 appears to be a verb + verb compound, but it is the only example in data set.

(267) *ladi*
la-di
take-eat
'believe'

4.2 Diminutives

The forms /biie/ and /bɛllɛ/, 'baby' and 'babies', play a prominent role in diminutives and kinship terms. This pattern is in fact so common that it constitutes its own noun class, since no other nouns follow its singular/plural formation strategy (see section 3.3.12). Some examples are provided in 268, 269 and 270.

(268) *zi-biie*
zinnu-biie
fowl-baby
'small fowl'

(269) *bo-bɛlle*
bonna-bɛlle
goat-babies
'small goats'

(270) *pi-biie*
pinsu-biie
sheep.SG-babies
'small sheep' (sg)

4.3 Kinship terms

The majority of Isaalo kinship terms are derived through compounding. The specific system of familial relationships and its basic terminological pattern is under investigation. There is clearly a maternal / paternal distinction in the kinship system as shown in examples 271 and 272.

(271) *ɲirra*
maternal.uncle
'uncle' (maternal)

(272) *an-biie*
father-baby
'uncle' (paternal)

Isaalo also distinguishes between relative age in examples 273 & 274 and 275 & 276.

(273) *mabiie*
ma-biie
mother-child
'mother's junior sister', 'aunt'

(274) *mahõ*
ma-hõ
ma-?
'mother's senior sister', 'aunt'

(275) *ɲibɛlle*
ɲi-bɛlle
?-children
'father's junior brothers'

(276) *an-hõ*
father-?
father-brother
'father's senior brother', 'uncle'

An in-law relation is also present. The general term for 'in-law' is /hilla/, or /hillawa/ for 'in-laws'. This form becomes the head of the kinship term, as shown 277 and 278.

(277) *hɪlballla*
hɪla-ballla
in.law-man
'father in law'

(278) *hɪlhalla*
hɪlla-halla
in.law-woman
'mother in law'

4.4 Numerals

The numeral system and numeral construction is covered in detail in section 3.6. Here I point out that the numeral system is vigesimal and encodes its recursion by compounding two or more nouns. For example, the common decimal base form is /fi/ 'ten'. The form for 'twenty' is /mere/. To create 'thirty' these two forms are combined as /merefi/, as shown in 279.

(279) *merefi*
mere-fi
twenty-ten
'thirty'

Similarly the form /mebɛlle/ 'forty' is composed of /mere/ and /bɛlle/, as shown in example 280.

(280) *mebɛlle*
mere-bɛlle
twenty-two
'forty'

The system grows in complexity, as illustrated by 281.

(281) *mebɛlefi*
mere-bɛlle-fi
twenty-two-ten
'fifty'

In 281 there are three nominal forms that combine to create a distinct compound noun.

4.5 Cardinal directions

Cardinal directions in Isaalo are compound forms comprised of /tɔ/ 'day' plus a body part or locative, such as /ɲuwo/ 'head' or 'in front', and /molla/ 'butt' or 'under' (282 & 283) or a direction such as /neduwo/ 'left' & /neguɔ/ 'right' (284 and 285).

(282) *tɔɲuwo*
tɔ-ɲuwo
day-in.front
'northward'

(283) *tɔmolla*
tɔ-molla
day-behind
'southward'

(284) *tɔneguɔ*
tɔ-neguɔ
day-right
'westward'

(285) *tɔneduwo*
tɔ-neduwo
day-left
'eastward'

Examples of the cardinal directions are provided in 286, 287, 288 and 289. They appear as part of a 'be' prepositional phrase follows the transitive verbs /bɔ/ 'travel' and /mɪllɔ́/ 'drive'.

(286) *o* *bɔ* *ŋmɛnna* *be* *tɔ-ɲuwo*
3S traveled road to day-in.front
'he traveled northward'

(287) *o* *bɔ* *ŋmɛnna* *be* *tɔ-molla*
3S traveled road to day-behind
'she traveled southward'

(288) *ba* *mɪllɔ́* *be* *tɔ-neguɔ*
3P drive to day-right
'they drove westward'

(289) *ba* *mɪllɔ́* *be* *tɔ-neduwo*
3P drove to day-left
'they drove eastward'

4.6 Endocentric and exocentric compounds

The basic format of endocentric compounds is that the left-most member is reduced to its stem and it combines with full nouns. Often the left-most member is the head of the compound. Pluralization is handled by the right-most noun in the compound. Examples 290 and 291 show reduction of the bisyllabic form /tuwo/ 'tree' to /tu-/.

(290) *tuwo*
tree
'tree'

(291) *tu-hili*
tu-hili
tree-branch
'tree branch'

Examples 292 and 293 show reduction of the trisyllabic form /kokumu/ 'donkey' to /koku/.

(292) *koku-biie*
kokumu-biie
donkey-baby.SG.NC12
'small donkey'

(293) *koku-bɛlle*
kokumu-bɛlle
donkey-baby.PL.NC12
'small donkeys'

Monsyllabic forms do not undergo any phonological change. Examples 294 and 295 illustrate a right-headed compound.

(294) *va*
dog
'dog'

(295) *va-pona*
va-pona
dog-hair
'dog hair'

In compounds of three nouns, the head noun is reduced and the second nouns remains unaffected, as in examples 296 and 297.

(296) *tu-hili-biie*
tu-hili-biie
tree-branch-baby
'small tree branch'

(297) *tu-hili-bɛlle*
tu-hili-bɛlle
tree-branch-babies
'small tree branches'

Endocentric compounding is more productive than exocentric compound formation and are found throughout the kinship, numeral and diminutive systems. Exocentric compounds are formed by combining full roots. This compounding formation results in a form with a distinct meaning from its component parts. Examples are provided in 298 and 299.

(298) *yuu-binnu*
yuu-binnu
funeral-black
'wet season'

(299) *foli-datwiie*
foli-datwiie
foreigner-mouse
'pig'

5 Coordination

5.1 Phrasal coordination

Noun phrases may be coordinated ad infinitum with the conjunctions /aba/ 'and' or /alo/ 'or' as illustrated in examples 300 and 301.

(300) *n* *nyii* *aba* *n* *maa* *aba* *n* *halla* *aba* *n* *belle*
my father and my mother and my wife and my children
'my father and my mother and my wife and my children'

(301) *n* *nyii* *alo* *n* *maa* *alo* *n* *halla*
my father or my mother or my wife
'my father or my mother or my wife'

Colloquially, in the coordination of nouns or adjectives, /aba/ may be reduced to /bá/, as in (302) and (303).

(302) *vase* *bá* *duma*
dogs and snakes
'dogs and snakes'

(303) *ombinnu* *bá* *ompomma*
black and white
'black and white'

The form /bá/ 'and' forms a tonal minimal pair with locational postposition /ba/ 'with' and with the third person plural pronoun /ba/ (see sections 6.2.3 and 3.4.1).

5.2 Clausal coordination

Phrases within a clause can also be coordinated ad infinitum with the conjunctions /aba/ 'and' or /alo/ 'or' as show in examples 304 and 305.

(304) *n* *nyii* *aba* *n* *maa* *aba* *n* *halla* *aba* *n* *belle*
my father and my mother and my wife and my children
meni-n *ɠame*
be.at-1S house
'my father and my mother and my wife and my children are at my house'

(305) *n* *nyii* *alo* *n* *maa* *alo* *n* *halla* *si* *men* *lan*
my father or my mother or my wife FUT be there
'my father or my mother or my wife will be there'

For sentential constituents, the conjunction form /ka/ (or /ko/) 'but' may be used, as shown in examples (306), (307) and (308).

(306) *o* *sɪ* *be* *wa* *ka* *o* *wo* *wolli*
3S would go Wa but 3S NEG able
'he would go to Wa, but he can't'

(307) *o* *wɔ* *be* *wa* *ko* *o* *sɪ* *wolli*
3S NEG go Wa but 3S will able
'he's not going to Wa, but he's able'

(308) *n* *mɔhin* *ʤa* *bɛrre* *ka* *n* *wo* *ʧo*
1S must house go but 1S NEG want
'I must go home, but i don't want to'

Although glossed as 'but' by the informant, /ka/ is perhaps better thought of as 'and'. More investigation is needed.

Emphasis may also be expressed by using /ka/ 'and' at the beginning of a noun phrase and with /ma/ 'too' phrase finally, as illustrated in (309).

(309) *ka* *va* *no-ma*
and dog this-too
'and this dog too'

6 Adpositions and Adverbs

In Isaalo adpositions appear both as prepostions and postpostions. Postpostional phrases are more common and are used in locational constructions, addressed in 6.1. Interestingly prepositions may affect verb complement order in negated clauses. They are covered in 6.2.

Adverbs display different distributional properties depending the syntactic construction in which they appear. They are addressed in section 6.3. Temporal adverbs immediately precede the finite verb, but they may be fronted for emphasis. In predicate nominal constructions they appear directly after the nominal.

6.1 Locational postpositions

Locational constructions are expressed with postpositions phrases that appear clause finally, as illustrated in examples 316 - 311.

(310) *n* *muo* *make* *isaalo* *nɛ* *gaana* *mɛ*
1S went learnt Isaalo PROG Ghana in
'I went and learnt Isaalo in Ghana'

(311) *kɛnna* *ɲa* *mɛŋ* *tejbəl* *ɲa* *duɔ*
book DET is table DET on
'the book is on the table'

These two examples illustrate locational postpositions that do not appear as independent nouns. However, the distinction between nouns and adpositions is indeterminate for nouns that come from body parts, as illustrated in 312 & 313 and 314 & 315.

(312) *n* *mon* *ʤa* *sie*
1S am house eyes
'I am in front of the house'

(313) *dubɔnnuɔ* *ɲa* *mɛŋ* *e* *sie*
door DET is your eyes
'the door is in front of you'

(314) *n* *mon* *ʤa* *harra*
1S am house back
'I am behind the house'

(315) *n* *mon-niŋ* *ʤa* *harra*
1S am-1S.POSS house back
'I am behind my house'

Sections 6.1.1 - 6.1.3 present location postpositions and 6.1.3 - 6.1.6 illustrate nouns used in locational constructions.

6.1.1 'at', 'in', 'inside' (mɛ)

The form /mɛ/ 'at', 'in' or 'inside' is used to describe a referent's location *at*, or *in*, the focal object. Examples are provided in 316 and 318. Notice that the postpositional phrase in 316 appears after the progressive marker /nɛ/. This does not appear in locational constructions involving nouns.

(316) *o* *muo* *make* *isaalo* *nɛ* *gaana* *mɛ*
3S went learnt Isaalo PROG Ghana in
'he went and learnt Isaalo in Ghana'

(317) *n* *mon* *n* *ʤa* *me*
1S am 1S.POSS house at
'I am at my house', 'I am in my house'

(318) *nantʃuo* *mɛŋ* *e* *tii* *mɛ*
house.fly is.in your tea inside
'a fly is in your tea'

6.1.2 'on', 'above', 'on top' (duɔ)

The locational postposition /duɔ/ 'on', 'above' or 'on top' describes a referent's position *on* or *above* a focal object. These forms are illustrated in 319 - 321.

(319) *ba* *kiɛrrɛn* *n* *hɛmme* *duɔ* *nɛ*
3P sit my keys on PROG
'they are sitting on my keys'

(320) *ninno* *ɲa* *mɛŋ* *tejbəl* *ɲa* *duɔ*
light DET is table DET above
'the light is above the table'

(321) *n* *mon* *ʤa* *duɔ*
1S am house on.top
'I am on top of the house'

6.1.3 'beside' (laka)

The locational postposition /laka/ 'beside' is used to denote an object's position *beside* the focal object. This is shown in examples 322 and 323.

(322) *kɛnna* *ɲa* *mɛŋ* *tejbəl* *ɲa* *laka*
book DET is table DET beside
'the book is beside the table'

(323) *kɛnna* *ɲa* *to* *tejbəl* *ɲa* *laka*
book DET NEG table DET beside
'the book is not beside the table'

6.1.4 'behind' (harra)

The form /harra/ 'behind' is a locational form derived from the noun /harra/ 'back'. It is used to describe a referent's location *behind* a focal object as shown in example 324.

(324) *n* *mon* *ʤa* *harra*
1S am house behind
'I am behind the house'

(325) *dubɔnnuɔ* *ɲa* *mɛŋ* *e* *harra*
door DET is.in your back
'the door is behind you'

(326) *dubɔnnuɔ* *ɲa* *to* *e* *harra*
door DET not your back
'the door is not behind you'

6.1.5 'under' (molla)

The form /molla/ 'under', 'butt', or 'anus' is used to describe a referent's location *under* the focal object, as illustrated in postpositional clause and phrase examples in 327 and 328.

(327) *o* *wɪ* *ŋiyɛ* *molla*
3S swam water under
'he swam under water'

(328) *kɛnna* *ɲa* *mɛŋ* *tejbəl* *ɲa* *molla*
book DET is table DET under
'the book is under the table'

6.1.6 'in front' (sie)

The form /sie/ 'eyes' and can be used to denote a referent's location *in front* of a focal object. It can also be used to state the referent's position. Examples are provided in 329 and 330.

(329) *dubɔnnuɔ* *ɲa* *to* *e* *sie*
door DET is.not your eyes
'the door is not in front of you'

(330) *n* *le* *sie*
1S am first
'I am in front', 'I am first', 'I am first to enter' (have taken the lead)

6.2 Prepositions

There are two classes of prepositions in Isaalo. The first includes the prepositions /pa/ 'for' and /bɛ/ 'to', which cause a local reordering of the prepositional phrase constituent and the finite verb. These data are presented in sections 6.2.1 and 6.2.2. The second includes instrumental /ba/ 'with'. It does not affect verb complement order in negated clauses and is addressed in section 6.2.3.

6.2.1 'for' (pa)

The preposition /pa/ 'for' affects the typical verb complement order in negated clauses. When the auxilliary verb /wo/ 'not' is present, the finite verb appears directly after it or directly after the direct object, and verb the prepositional phrase. Examples are provided in 331 & 332 and 333 & 334.

(331) *n* *e-o* *pa* *koɕo*
1S made-it for Kojo
'I made it for Kojo'

(332) *n* *wo* *e* *pa* *koɕo*
1S NEG made.it for Kojo
'I didn't make it for Kojo'

(333) *o* *e* *gasuu* *ɲa* *pa-ŋ*
3S made dress the for-1S
'he made the dress for me'

(334) *o* *wo* *gasuu* *ɲa* *e* *pa-ŋ*
3S NEG dress DET made for-1S
'he didn't make the dress for me'

6.2.2 'to' (bɛ)

The preposition /bɛ/ 'to' expresses motion in the direction of the focal object. It also affects the typical verb complement order in negated clauses, as illustrated by 335 and 336. The finite verb /ve/ 'walk' in 336 is inflected for negation.

(335) *o* *ve* *kɪkɛlɛ* *bɛ* *stor* *ɲa*
3S walked quickly to store DET
'he quickly walked to the store'

(336) *o* *wo* *kɪkɛlɛ* *veli* *bɛ* *stor* *ɲa*
3S NEG quickly walked to store DET
'he didn't walk quickly to the store'

6.2.3 Instrumental 'with' (ba)

The form /ba/ 'with' is a preposition used in instrumental constructions. The PP that contains /ba/ does cause a local reodering of consituents in negated clauses and the finite verb takes its typical position clause finally. This is shown in 337 & 338 and 339 & 340.

(337) *n* *e-o* *ba* *hama* *nɛ*
1S made-3S with hammer PROG
'I made it with a hammer'

(338) *n* *wo* *ba* *hama* *e*
1S NEG with hammer made
'I didn't make it with a hammer'

(339) *o* *e* *gasuu* *ɲa* *ba* *maʃin* *nɛ*
3S made dress DET with machine PROG
'he made the dress with a machine'

(340) *o* *wo* *gasuu* *ɲa* *ba* *maʃin* *e*
3S NEG dress DET with machine PROG
'he didn't make the dress with a machine'

6.3 Adverbs

Adverbs are still an area of investigation. Here I present a preliminary overview of adverbs in section 6.3.1 and discuss the lax distributional properties of temporal adverbs in section 6.3.2.

6.3.1 Overview

When an adverb modifies a verb it typically appears directly after the finite verb in non-negated clauses as shown in 341 and 342.

(341) *o* *ve* *kɪkɛlɛ*
3S walked quickly
'he walked quickly'

(342) *o* *ve* *kɪkɛlɛ* *bɛ* *stor* *ɲa*
3S walked quickly to store DET
'he quickly walked to the store'

In negated clauses, the adverb often appears after the negation auxiliary verb. Compare 341 & 342 with 343 & 344.

(343) *o* *wo* *kɪkɛlɛ* *veli*
3S NEG quickly walk
'he didn't walk quickly'

(344) *o* *wo* *kɪkɛlɛ* *veli* *bɛ* *stor* *ɲa*
3S NEG quickly walked to store DET
'he didn't walk quickly to the store'

Adverbs appear directly after adjectives that they modify, for example in predicate adjective constructions ([NP ADJ], no copula; see section **??**), as shown in 345 & 346 and 347 & 348.

(345) *o* *ŋmomo*
3S sweet
'it's sweet'

(346) *o* *ŋmomo* *darrɛ*
3S sweet too
'it's too sweet'

(347) *o* *nimo*
3S sour
'it's sour'

(348) *o* *nimo* *darrɛ*
3S sour too
'it's too sour'

6.3.2 Temporal adverbs

In independent clauses the temporal adverb /die/ 'yesterday' appears before the main verb as shown in 349 & 350 and in 351 & 352.

(349) *donna* *ɲa* *domme* *va* *ɲa*
snake DET bit dog DET
'the snake bit the dog'

(350) *donna* *ɲa* *die* *domme* *va* *ɲa*
snake DET yesterday bit dog DET
'the snake bit the dog yesterday'

(351) *n* *ʧo* *piie* *ɲa*
1S cooked yam DET
'I cooked the yam', 'i have cooked the yam'

(352) *n* *die* *ʧo* *piie* *ɲa*
1S yesterday cooked yam DET
'I cooked the yam yesterday'

This order appears regardless of aspect or tense. In 353 and 354 progressive aspect is marked with the progressive particle /nɛ/.

(353) *n* *ʧo* *piie* *ɲa* *nɛ*
1S cook yam the PROG
'I am cooking the yam'

(354) *n* *die* *ʧo* *piie* *ɲa* *nɛ*
1S yesterday cook yam the PROG
'yesterday i was cooking the yam'

However, the temporal adverb position is not restricted to the position before the main verb. They may be fronted within the clause, as shown in 355 and 356.

(355) *o* *die* *pɪnno*
3S yesterday slept
'he slept yesterday'

(356) *die* *o* *pɪnno*
yesterday he slept
'yesterday he slept'

This fronting also occurs when the denominal forms like /tɪto/ 'night' are used as temporal adverbs. Contrast examples 357 - 359.

(357) *e* *tɪto*
2.POSS night
'good night'

(358) *n* *sɪ* *pɛ* *tɪto*
1S FUT sleep in.the.night
'I will sleep in the night'

(359) *tɪto* *n* *sɪ* *pɛ*
in.the.night 1S FUT sleep
'in the night, i will sleep'

Fronting of temporal constituents is not restricted to adverbs. Examples 360 and 361 show fronting of a postpositional phrase with /tapulla/ 'on'.

(360) *n* *waŋ* *be* *wa* *məndej* *tapulla*
1S NEG go Wa monday on
'I will not go to Wa on Monday'

(361) *məndej* *tapulla* *n* *sɪ* *be* *wa*
monday on 1S FUT go Wa
'on Monday i will go to Wa'

More investigation is needed to determine distribution properties of temporal adverbs and adverb phrases. For example, 362 is a well-formed sentence in Isaalo.

(362) *die* *ɲa* *wu* *neŋ* *sɛssɛ-n-ti*
yesterday DET same 1S wash.PST-1S-REFL
'that same yesterday (that) I washed myself'

7 Verbs and the Verb Phrase

The verb and verb phrase are an area still under investigation and this section provides an introduction to these areas. Section 7.1 presents an overview of the Isaalo verb. Section 7.2 addresses the three absolute tenses in Isaalo: non-past (7.2.1), past tense (7.2.2) and future (7.2.3). Aspect is covered in section 7.3 and includes a description of progressive (7.3.1), past perfect (7.3.2) and imperfect progressive (7.3.3) aspects. Auxiliary verbs are presented in 7.5 and include the negation auxiliary and modals. Serial verb constructions are briefly addressed in 7.6. Isaalo verbs also display noun incorporation, this is covered in 7.7.

7.1 Overview

Verbs belong to one of several inflectional classes. The basic underlying form of the Isaalo verb is the unmarked non-past tense. The non-past (363), progressive (364), and future (365) forms are syncretic. The past tense verb form differs from the rest phonologically as shown in 366; compare /lini/ and /lino/.

(363) *ɲiie* *lini*
water drip.PRES
'the water drips'

(364) *ɲiie* *lini* *nɛ*
water drip PROG
'the water is dripping'

(365) *ɲiie* *si* *lini*
water FUT drip
'the water will drip'

(366) *ɲiie* *lino*
water drip.PST
'the water dripped'

The inflectional class determines the surface form of the verb. The most productive inflectional class creates a past tense verb form by adding a high tone to the non-past tense form's final syllable. Final vowel change also occurs, as shown in 363 - 366. A less productive class is medial vowel suppletion. And there is a class for monosyllabic verbs that diphthongize.

Verbs in Isaalo are also inflected in negated clauses. In the Southwestern Grusi languages, verbs are described as having a neutral and an absolute form (Naden 1989). Absolute forms are used in sentence final position, as shown in the Vagala examples in Table 27.

An *absolute* verb form occurs in negated clauses and is illustrated in examples 367 & 368. Investigation is needed to establish the phonological rules that underly this process.

Table 27: Neutral and absolute verb forms in Vagala [vag] (Naden 1989:38)

n faa la yawa	'I went to the market'
n faa laŋŋɔ	'I went'

(367) *hambii ɲa ʧocle wise*
child DET pray god
'the child prays'

(368) *hambii ɲa wo wise ʧoɔlɛ*
child DET NEG god pray
'the child doesn't pray'

The absolute verb is syncretic and does not vary in tense or aspect, as show with the non-past and progressive pairs in 369 & 370 and 371 & 372.

(369) *hambisi ɲa ʧoɔle wise*
children DET prayed god
'the children prayed'

(370) *hambisi ɲa wu wise ʧoɔlɛ*
children DET NEG god prayed
'the children didn't pray'

(371) *hambii ɲa ʧoɔle wisɛ nɛ*
child DET pray god PROG
'the child is praying'

(372) *hambii ɲa wu wisɛ ʧoɔlɛ*
child DET NEG god pray
'the child is not praying'

Notice that the progressive particle disappears in the negated clause. This also occurs in negated future clauses, in which the future auxiliary /sɪ/ is lost.

7.2 Tense

7.2.1 Non-past (present)

The unmarked form of the verb is used for the non-past tense in Isaalo. The verb phrase contains no preverbal markers or clause-final markers found in other tenses and aspects. Verbs have the syllable structure: V, CV(V), CVC(C)V(CV), but not *CVC.[15] Examples are provided in 373, 374 and 375.

[15]The verb /make/ 'show' may occur as /mak/ in imperatives.

(373) *o* *ẽ* *kuoro* *ɲa*
3S knows chief DET
'he knows the chief'

(374) *o* *di* *moiwa*
3S eats rice
'she eats rice'

(375) *n* *dusu*
1S dream
'I dream'

7.2.2 Past

Past differs from finite verb and copula verbs in Isaalo. Finite verbs marks past tense in several ways, depending on the inflectional class that the verb belongs to. The most productive morphological class is final high tone on the underlying verb form, the non-past form. Examples are illustrated in 376 & 377 and 378 & 379.

(376) *o* *ɲuɔ* *niye*
3S drinks water
'he drinks water'

(377) *o* *ɲuɔ́* *niye*
3S drank water
'he drank water'

(378) *o* *turri* *kɛnne*
3S writes letters
'she writes letters'

(379) *o* *turrí* *kɛnna*
3S wrote letter
'she wrote a letter'

Copula verbs inflect for past tense with the particle /faa/ 'was', as shown in 380 and 381.

(380) *o* *faa* *ka* *memakko-rɛ*
3S PST is teacher
'he was a teacher'

(381) *o* *faa* *to* *memakko-rɛ*
3S PST is.not teacher
'he was not a teacher'

This form /faa/ is also used in finite verb clauses to indicate past perfect aspect, see section 7.3.2.

7.2.3 Future

The future tense is marked with the auxiliary verb /sɪ/ 'will' and occurs before the main verb within the clause, as shown in 382 and 383.

(382) *o* *sɪ* *ku*
3S FUT come
'he will come'

(383) *o* *sɪ* *be* *ʤa*
3S FUT go home
'he will go home'

The underlying form for the future tense marker is /sɪ/ and it appears on the surface most often in this form. However, it may also occur on the surface as /si/, /se/, or /sɛ/. The form /si/ appears before verbs that contain only the high front vowel /i/. Examples 384 and 385 illustrate this vowel assimilation in mono- and polysyllabic verb forms.

(384) *n* *si* *di*
1S FUT eat
'I will eat'

(385) *n* *si* *hinsi*
1S FUT breath
'I will breathe'

The future tense marker does not appear in negated future tense clauses. Instead, the auxiliary negation verb /wʊ/ is used and word order remains the same as a future-marked clause. See examples 386 and 387. Typically, when a clause is negated the negative auxiliary verb takes the finite verb's spot and the verb moves to clause final position where its ending inflects.

(386) *o* *sɪ* *ʧoɔlɛ* *wise*
3S FUT pray god
'he will pray'

(387) *o* *wɔ* *ʧoɔlɛ* *wise*
3S NEG pray god
'he will not pray'

No words are allowed between the future auxiliary verb /sɪ/ and the verb it modifies. Temporal adverbs prototypically appear before the main verb and are often fronted for emphasis. In future tense, the preverbal position is occupied by the future marker. The adverb then, appears before the future marker, after the main verb, or fronted in the clause, as shown in 390, 389, and 388.

(388) *a* *ʧie* *sɪ* *ɔse*
we tomorrow will sacrifice
'tomorrow we will sacrifice'

(389) *a* *sɪ* *ɔsé* *ʧie*
we will sacrifice tomorrow
'we will sacrifice tomorrow'

(390) *ʧiyetulaŋ* *n* *sɪ* *be* *Wa*
tomorrow.next 1S FUT go.to Wa
'the day after tomorrow i will go to Wa'

7.3 Aspect

Although aspect is an area under investigation, there are several grammatical means of expressing aspect. Progressive aspect is marked with a progressive particle /nɛ/. Imperfect past is marked with the particle /faa/. Imperfective progressive is marked with both /nɛ/ and /faa/.

7.3.1 Progressive

Progressive aspect in Isaalo is marked by the particle /nɛ/ in conjunction, typically, with the non-past tense form of the main verb. This is illustrated in examples 391 and 392.

(391) *m* *boŋmɛnna* *nɛ*
1S travel PROG
'I am traveling'

(392) *m* *boŋmɛnna* *be* *ʤapan* *nɛ*
1S travel to Japan PROG
'I am traveling to japan'

The auxiliary /nɛ/ appears clause finally. It has two surface forms that are harmonize with the vowel quality found in the preceding word. The progressive auxiliary occurs as /ni/ when preceded by a word containing a front high vowel /i/. This is shown in examples 393 and 394.

(393) *o* *di* *ni*
3S eat PROG
'he is eating'

(394) *o* *wi* *ni*
3S cry PROG
'she is crying'

An alternative surface form /ne/ appears after words containing the mid front vowel /e/, as shown in examples 395 and 396.

(395) *o* *be* *bəkinna* *nɛ*
3S go Burkina PROG
'she is going to Burkina'

(396) *n* *be* *ne*
1S go PROG
'I am going'

In negated progressive aspect sentences, /nɛ/ is dropped and its position is filled by the infinite verb, as shown in example 397.

(397) *o* *wo* *bəkinna* *be*
3S NEG Burkina go
'she is not going to Burkina'

If the sentence contains a serial verb construction, only the first verb, i.e. the main verb, moves to sentence final position. Serial verb constructions are addressed in section 7.6.

7.3.2 Past perfect

The past tense form /faa/ is used with the non-past tense finite verb to indicate plurperfect aspect. The effect indicates a completed action that occured at some point in the past. Examples are provided in 398 and 399.

(398) *o* *turro*
3S itch
'it's itching'

(399) *o* *faa* *turro*
3S PST itch
'it was itching'

The regular past and plurperfect are distinct from one and another, but were elicted as semantically equivalent in these stative forms in 400, 401 and 402.

(400) *o* *manno*
3S sticks
'its sticky'

(401) *o* *menno*
3S sticks.PST
'it was sticky'

(402) *o* *faa* *manno*
3S PST sticks
'it was sticky'

More investigation is needed to determine the exact semantics of /faa/ constructions. Example 403 indicates an action that occurred in the past and has been completed. And example 404 indicates and action that was happening at a particular time in the past.

(403) *o* *faa* *wi*
3S PST cry
'he was crying'

(404) *o* *faa* *wi* *ni*
3S PST cry PROG
'he was crying'

7.3.3 Imperfect progressive

The imperfect progressive aspect indicates an ongoing action that occurred at some point in the past. Examples are provided in 405 and 406.

(405) *o* *make* *isaalo* *nɛ*
3S learn isaalo PROG
'he is learning Isaalo'

(406) *o* *faa* *make* *isaalo* *nɛ*
3S PST learn isaalo PROG
'he was learning Isaalo'

Examples 407, 408 and 409 show the past tense form of /fa/ 'run' in comparison with the progressive and imperfect progressive forms.

(407) *o* *fiu*
3S ran
'he ran'

(408) *n* *fa* *nɛ*
1S run PROG
'I am running'

(409) *n* *faa* *fa* *nɛ*
1S PST run PROG
'I was running'

7.4 Verb inflectional classes

There are at least three distinct verbal inflectional classes in Isaalo. In this section I describe and provide examples from each. The commonality of these classes is that the past tense verb form is distinct from the underlying unmarked verb form that appears in the non-past tense, and in future tense and progressive aspect clauses with the future and progressive auxiliary verbs.

7.4.1 Verb final high tone

The largest verb inflectional class in Isaalo marks the past tense of the verb with high tone on its final syllable. This contrast is shown in examples 410 and 411. The progressive aspect and future tense verb forms shown in 412 and 413 are identical to the non-past verb form.

(410) *hambii* *ɲa* *ʧocle* *wise*
child DET pray god
'the child prays'

(411) *hambisi* *ɲa* *ʧoɔlé* *wise*
children DET prayed god
'the children prayed'

(412) *hambii* *ɲa* *ʧoɔle* *wise* *nɛ*
child DET pray god PROG
'the child is praying'

(413) *o* *sɪ* *ʧoɔle* *wise*
3S FUT pray god
'he will pray'

7.4.2 Verb final vowel change

Another common inflection class is to change the verb's final vowel, as shown in the verbal paradigm for /lini/ 'drips' in examples 414 - 417.

(414) *ɲiie* *lini*
water drip.PRES
'the water drips'

(415) *ɲiie* *lini* *nɛ*
water drip PROG
'the water is dripping'

(416) *ɲiie* *lino*
water drip.PST
'the water dripped'

(417) *ɲiie* *si* *lini*
water FUT drip
'the water will drip'

7.4.3 Suppletion

Suppletion in non-past/past tense distinction accounts for a percentage of the working Isaalo lexicon. It appears less commonly in the data than high tone or vowel final change. Examples 418 and 419 show the non-past verb form /baro/ 'grow' and the suppletive past tense form /bɪro/ that contains vowel heightening.

(418) *bi* *ɲa* *baro*
boy DET grow.PRES
'the boy grows'

(419) *bi* *ɲa* *bɪro*
boy DET grow.PST
'the boy grew'

7.5 Auxiliary verbs

7.5.1 Auxiliary negation verb /wu/

Negation in Isaalo is expressed with the auxiliary verb /wʊ/. It has the morphosyntactic properties of finite verbs, i.e. it appears in the normal position of the main verb (directly after the subject and before the direct object), and it exhibits finite verb inflection. In examples 420, the finite verb /bɔ/ 'take' contains the suffixed first person possesive pronoun /n/. In example 421, the negative auxiliary verb exhibits suffixation of the pronoun and the finite verb occurs in the infinite position after the direct object.

(420) *m* *bɔ-ŋ* *ponna* *kɛnna* *pa* *vajda*
1S take-3S.POSS animal skin give Vida
'I gave my animal skin to Vida'

(421) *m* *wu-ŋ* *ponna* *kɛnna* *bc* *pa* *vajda*
1S NEG-3S.POSS animal skin take give Vida
'I did not give my animal skin to Vida'

7.5.2 Modals

There is a separate set of modal verbs that exhibit unique distributional properties. They occur directly after the subject and before the main verb. When the negation auxiliary is present, the modal verb appears directly after it or clause finally. Examples 422 and 423 illustrate the modal /mɔhin/ 'must' or 'should'.

(422) *n* *mɔhin* *yo* *ɲuwɔ* *ɲa*
1S must shoot crocodile DET
'I must shoot the crocodile', 'I should shoot the crocodile'

(423) *n* *wo* *mɔhin* *yo* *ɲuwɔ* *ɲa*
1S NEG must shoot crocodile DET
'I must not shoot the crocodile', 'I should not shoot the crocodile'

The same modal may also appear in clause final position when the negation auxiliary verb is present, as shown in 424 and 425. In these examples /mɔhin/ exhibits main verb distributional properties and is inflected in its absolute form.

(424) *n* *mɔhin* *ʤa* *bɛrre*
1S must house go
'I ought to go home; i must go home'

(425) *n* *wo* *ʤa* *bɛrre* *mɔhe*
1S NEG house go must
'I ought not to go home; i must not go home'

Modals are also used in dependent clauses, where the independent clause follows it, as shown in 426 and 427. They are in need of further investigation.

(426) *o* *mɔhin* *o* *mɛn* *lɛ* *tɛnnommi*
3S could 3S arrive here this.time
'she could have arrived already', 'she must have arrived already'

(427) *o* *wo* *mɔhin* *o* *mɛn* *lɛ* *tɛnnommi*
3S NEG could 3S arrive here this.time
'she could not have arrived already', 'she must not have arrived already'

7.6 Serial verb constructions

In Isaalo, serial verb constructions contain no independent marking of the subject of the second verb. A productive serial verb construction, /bɔ/ 'take' and /pa/ 'give', is given in 428.

(428) *o* *bɔ* *kɛnna* *ɲa* *pa* *halla* *ɲa*
3S take book DET give woman DET
'he gave the book to the woman'

The clause is negated with the auxilliary verb /wv/ and the first verb /bɔ/ appears after its direct object. It does not take an absolute inflection, as shown in example 429.

(429) *o* *wo* *kɛnna* *ɲa* *bɔ* *pa* *halla* *ɲa*
3S NEG book DET take give woman DET
'he did not give the book to the woman'

The serial verb construction /bɔ/ and /pa/ has a free order, as shown in 430 and 431.

(430) *o* *bɔ* *falla* *pa-ŋ*
3S take calabash give-1S.OBJ
'he gave a calabash to me'

(431) *o* *pa-ŋ* *bɔ* *falla*
3S give-1S.OBJ take calabash
'he gave me a calabash'

Both direct object prounouns and possessive pronouns suffix to the verb. In example 432, the first person singular possessive pronoun /-n/ ([-ŋ]) is suffixed to the first verb /bɔ/ 'take'.

(432) *m* *bɔ-ŋ* *ponna* *kɛnna* *pa* *vajda*
1S take-3S.POSS animal skin give Vida
'I gave my animal skin to Vida'

When the clause is negated, the possessive object pronoun is marked on the auxiliary negation verb /wv/, resulting in /wuŋ/, as shown in 433.

(433) *m* *wu-ŋ* *ponna* *kɛnna* *bc* *pa* *vajda*
1S NEG-3S.POSS animal skin take give Vida
'I did not give my animal skin to Vida'

7.7 Object incorporation

There is a class of verbs in Isaalo that exhibit object incorporation. In their intransitive forms, these VPs drop their direct object and the verb's final vowel is change to the third person singular pronoun /-o/. Examples are provided in 435 and 434 and negative evidence is provided in 436.

(434) *o* *lolɛ* *hambulli*
3S give.birth.PST boy
'she gave birth to a boy'

(435) *o* *lolo*
3S give.birth.PST
'she gave birth'

(436) **o* *lolo* *hambulli*
3S give.birth.PST boy
Intended: 'she gave birth to a boy'

Examples 438, 437, and 439 illustrate the use of /-o/ with the verb /tommo/ 'chew'.

(437) *n* *tummi* *sɪnkan*
1S chew groundnuts
'I chewed groundnuts'

(438) *n* *tommɔ̀*
1S chew
'I chewed'

(439) **n* *tommɔ̀* *sɪnkan*
1S chew groundnuts
Intended: 'I chewed groundnuts'

Tense and aspect play no roll in intransitives being formed with verb final /-o/. Examples 441 and 440 show this phenomenon in present tense.

(440) *o* *duse* *ninno*
3S off light
'he puts off the light'

(441) *o* *duso*
3S off
'it's off'

It also appears in future tense, as in examples 442 and 443.

(442) *o* *sɪ* *duse* *ninno*
3S FUT off light
'he will put off the light'

(443) *o* *sɪ* *duso*
3S FUT off
'he will put it off', 'he will turn it off'

There are not two separate forms for intransitive and transitive progressive aspect, as expected. The progressive aspect form is shown in example 444.

(444) *o* *duse* *ninnu* *nɛ*
3S off light PROG
'he is putting off the light'

8 Clause

8.1 Stative clauses

Stative clauses express a state or condition between objects and attributes, rather than an event or activity. This section describes Isaalo predicate nominals (8.1.1), predicate locatives (8.1.2), existential constructions (8.1.3), and possessive constructions (8.1.4).

Predicate nomainals, predicate locatives and existential constructions use either the copula verb /ka/ or /mɛŋ/. Isaalo uses one invariant negative verb /to/ in predicate nominals, predicate locatives and existential constructions.

8.1.1 Predicate nominals

Isaalo makes no grammatical distinction between equative clauses and proper inclusion (an entity asserted among the class of items as specified in the nominal predicate (Payne 1997)). Predicate nominals take the form [NP COPULA NP] with the copula verb /ka/ 'is'. When the clause is negated, the negative verb /to/ 'is not' is used. There is a class or predicate nominals that require that the object suffixes a phonologically determined form of /rV/. This particle could not be translated by language consultants. In Sisaala Pasaale, a focus marker /rɛ/ is one of the most frequent words in the language (Mcgill et al. 1999). Although no correlation between the two particles has been determined, I mention it here as an avenue of future research. The particle /rV/ does not appear in negated predicate nominal clauses in Isaalo. See examples 445 & 446 and 447 & 448.

(445) *ebe* *ka* *skuu* *bii-ri*
Ebe is school child-?
'Ebe is a student'

(446) *ebe* *to* *skuu* *bii*
Ebe is.not school child
'Ebe is not a student'

(447) *vajda* *ka* *memako-rɛ*
Vida is teacher-?
'Vida is a teacher'

(448) *vajda* *to* *memako*
Vida is.not teacher
'Vida is not a teacher'

Examples 449 and 450 illustrate a possessive construction in a predicate nominal. The possessive pronouns do not lengthen or diphthongize through suffixation with the copula verb, as they often do with finite verbs.

(449) *vajda* *ka* *o* *memako-rɛ*
Vida is 3S.POSS teacher-?
'Vida is his teacher'

(450) *vajda* *to* *o* *memako*
Vida is.not 3S.POSS teacher
'Vida is not his teacher'

In the following examples, the negated forms contain an additional morpheme /la/ that could not be translated by consultants and do not appear in other predicate nominals.

(451) *oŋ* *ka* *kuoro* *ɲa*
3S is chief DET
'he is the chief'

(452) *o* *la* *to* *kuoro* *ɲa*
3S ? is.not chief DET
'he is not the chief'

(453) *oŋ* *ka* *a* *kuoro*
3S is 1P.POSS chief
'he is our chief'

(454) *o* *la* *to* *a* *kuoro*
3S ? is.not 1P.POSS chief
'he is not our chief'

This form does not appear anywhere else in the data set. More investigation is needed.

8.1.2 Predicate locatives

Predicate locatives use the verb /mɛŋ/ 'is' in Isaalo. The locative word appears in final position in object PPs, following the NP. Negation is marked with the negative verb /to/ 'is not'.[16] Examples are provided in 455 - 458.

(455) *kɛnna* *ɲa* *mɛŋ* *tejbəl* *ɲa* *duɔ*
book DET is table DET on
'the book is on the table'

(456) *kɛnna* *ɲa* *to* *tejbəl* *ɲa* *duɔ*
book DET NEG table DET on
'the book is not on the table'

[16] /to/ 'is not' is also the negative verb for the predicate nominal compula /ka/.

(457) *kɛnna ɲa mɛŋ tejbəl ɲa molla*
book DET is table DET under
'the book is under the table'

(458) *kɛnna ɲa to tejbəl ɲa molla*
book DET NEG table DET under
'the book is not under the table'

The form /ne/ also appears with /la wo/ as its negation, as shown in examples 459 and 460.

(459) *kɛnna ɲa ne tokkɛ tejbəl ɲa mɛ*
book DET is next.to table DET ?
'the book is next to the table'

(460) *kɛnna ɲa la wo tejbəl ɲa mɛ tokkɛ*
book DET is NEG table DET ? next.to
'the book is not next to the table'

8.1.3 Existential constructions

Existential constructions are marked through the use of the existential form /ala/, which appears directly after the subject and before the verb. In examples 461 and 462, the locative predicate is used with the existential.

(461) *ɔnno ala mɛŋ gaadɛn ɲa me*
monkey there is garden DET in
'there is a monkey in the garden'

(462) *ɔnno ala to gaadɛn ɲa me*
monkey there is.not garden DET in
'there is not a monkey in the garden'

The existential must agree with the subject in number. The plural form /bala(a)/ 'there' is used with plural subjects, as shown in 463 and 464.

(463) *ɔmmɔ bala mɛŋ gaadɛn ɲa me*
monkeys there is garden DET in
'there are monkeys in the garden'

(464) *ɔmmɔ bala to gaadɛn ɲa me*
monkeys there is.not garden DET in
'there are not monkeys in the garden'

The existential also appears with finite verbs.[17] Examples 465, 466 and 467 show the verb /lɛli/ 'is by'.

[17] I have not established if /ala/ can be used with any finite verb. More investigation is needed.

(465) *maŋgo-tuwo* *lɛli* *fuo* *ɲa*
mango-tree is.by river DET
'a mango tree is by the river'

(466) *maŋgo-tuwo* *ala* *lɛli* *fuo* *ɲa*
mango-tree there is.by river DET
'there is a mango tree by the river'

(467) *maŋgo-tuwo* *ala* *wo* *fuu* *ɲa* *lɛlɛ*
mango-tree there NEG river DET is.by
'there is not a mango tree by the river'

8.1.4 Possessive clauses

Isaalo uses the verb /keŋ/ 'have' in possessive clauses. It shows no agreement in person or number, as illustrated in 468 - 473.

(468) *n* *kɛŋ* *duusi*
1S has strength
'I'm strong'

(469) *e* *kɛŋ* *duusi*
2S has stength
'you are strong'

(470) *o* *kɛŋ* *duusi*
3S has strength
'he has strength'

(471) *a* *kɛŋ* *duusi*
1P has stength
'we are strong'

(472) *é* *kɛŋ* *duusi*
2P has strength
'you.pl are strong'

(473) *ba* *kɛŋ* *duusi*
3P has stength
'they are strong'

There may be overlap between semantic notions expressed through possessive constructions and finite verb clauses, as illustrated with pronouns in 474 & 475, and with nouns in 476 & 477. The adjective /sullu/ and the verb /sɛrra/ are used to indicate that something is slippery.

(474) *o* *kɛŋ* *sullu*
it has slippery
'it is slippery'

(475) *o* *sɛrro*
3S slippery
'it is slippery'

(476) *ŋmana* *kɛŋ* *sullu*
ocra has slippery
'the ocra is slippery'

(477) *tie* *sɛrro*
ground slippery
'the ground is slippery'

The possessive verb /kɛŋ/ is homophonous in the past tense, as illustrated in example 478.

(478) *n* *duso* *n* *kɛŋ* *mobie* *mekanna*
1S wish 1S had money more
'I wish I had more money'

8.2 Polar yes/no interrogatives

In Isaalo, yes-no questions are identical to their corresponding declarative forms, except that they carry a sentence final rising intonation and the final vowel may be lengthened.[18] Examples are provided in examples 479 and 480.

(479) *e* *bɔllo*
2S tired
'you are tired', 'you are weak'

(480) *e* *bɔllŏ*
2S tired
'are you tired?', 'are you weak?'

This phenomenon is not restricted to present tense, as shown in past tense forms in 481 and 482.

(481) *o* *bɛrro*
3S went
'he went', 'he is gone'

[18]Sentential rising intonation is marked on the final vowel with a caron <ŏ>. On long vowels, a falling tone on the first vowel is followed by a rising tone on the second vowel, e.g. <òó>.

(482) *o* *bɛrrŏ*
3S went
'is he gone?'

Examples 483 and 484 shown polar yes/no interrogative rising intonation in the future tense.

(483) *e* *sɪ* *feli*
3S FUT fail
'you will fail'

(484) *e* *sɪ* *felìí́*
2S FUT fail
'will you fail?'

Rising interrogative intonation also appears in progressive aspect clauses as illustrated in 485 and 486.

(485) *o* *ton* *nĕ*
3S work PROG
'where is he working?'

(486) *n* *ton* *nĕ*
1S work PROG
'where am i working?'

8.3 WH-interrogatives

The following sections cover WH (content) interrogatives. There are two main types. The first type is simply WH-interrogatives that occur in clause final position. They carry the rising intonation pattern found in yes/no interrogatives. However, the intent is for the addressee to reciprocate a substantive answer. These constructions are addressed in section 8.3.1. Sections that follow cover WH-interrogative clauses that contain word final WH-interrogatives forms with rising intonation (on the final form) and WH-interrogative forms can be clause initial with rising intonation is at the clause level. Each WH-interrogative is addressed separately.

8.3.1 Intonation

Example 487 illustrates the use of rising intonation to signal a question in greetings. This contrasts example 488, which shows the WH-interrogative form clause initially. When the WH-interrogative appears clause initially, a rising intonation (unmarked here) appears over the entire clause.

(487) *o* *duuwŏ*
3S health
'how is he?'

(488) *ɔne* *errewa*
how.will he.be
'how will he be?'

8.3.2 'Where?' (ne)

The distribution of clause-entire rising intonation is common in WH-interrogative clauses where the WH-interrogative appears clause finally. Examples 489, 490, and 491 illustrate this.

(489) *ebe* *mɛŋ* *ne*
Ebe is where
'where is Ebe?'

(490) *o* *mon* *ne*
3S go where
'where is he going?'

(491) *o* *món* *ne*
3S go where
'where has he gone?'

Alternatively, the interrogative may appear clause initially in interrogative constructions requesting more specific information. This is shown in examples 492 and 493.

(492) *ne* *o* *sɪ* *bɛrrɛ*
where 3S FUT go
'where will he go?'

(493) *ne* *ba* *kana* *a* *mo*
where 3P taking 1P go
'where are they taking us?'

8.3.3 'Who?' (an)

The WH content word for 'who' is /an/ in Isaalo and it typically appears clause initially, as show in examples 494 - 498.

(494) *an* *lɛ*
who there
'who is that?'

(495) *an* *lɛ* *ko*
who that he
'who is he?'

(496) *an* *lɛ* *fa*
who that was
'who was that?'

(497) *an* *lɛ* *e* *na*
who that 2S see
'who did you see?'

(498) *an* *lɛ* *ebe* *na*
who that Ebe see
'who did Ebe see?'

8.3.4 'What?', 'Why?' (be)

The Isaalo WH form for 'what' is /be/ and appears clause initially. Examples are provided in 499 - 502. Examples 499 and 501 show verbless WH constructions.

(499) *be* *anya*
what that
'what is that?'

(500) *be* *fa* *anya*
what was that
'what was that?'

(501) *be* *gbana*
what wrong
'what is wrong?'

(502) *be* *e* *wa* *ko* *a*
what 2S ? are doing
'what are you doing?'

The WH form for 'why' is the same form /be/ and also appears clause initially, as shown in examples 503 and 504.

(503) *be* *e* *sɪ* *bɛrrɛ*
why 3S FUT go
'why will you go?'

(504) *be* *tɪ*
why not
'why not?'

8.3.5 'Which?' (bi, antɛnna)

The WH form for 'which' in Isaalo can be either /bi/ or /antɛnna/ with no apparent difference in semantics. Examples 505 - 507 illustrate the /bi/ form.

(505) *bi*
which
'which'

(506) *malla* *bi*
senior.brother which
'which brother?'

(507) *lorri* *bi*
lorry which
'which lorry?'

Note the examples 506 and 508 which show no difference between /bi/ and /antɛnna/. Examples 508 - 510 show WH constructions with /antɛnna/.

(508) *antɛnna*
which
'which', 'which one'

(509) *malla* *antɛnna*
senior.brother which
'which brother?'

(510) *lorri* *antɛnna*
lorry which
'which lorry?'

8.3.6 'When?' (tapulbi)

The Isaalo form for 'when' /tapulbi/ is a compound of /tapulla/ 'day' and /bi/ ([be]) 'which'. It appears clause initially, as shown in examples 512 and 511.

(511) *tapul-bi* *e* *sɪ* *bɛrrɛ*
day-which 2S FUT go
'when will you go?'

(512) *tapul-bi* *e* *ko* *ta* *lɛ*
day-which 2S ? leave here
'when are you leaving here?'

8.4 Copula clauses

There are two copula verbs in Isaalo. The form /ka/ is used in predicate nominals, shown in 513. In predicate locatives the copula /mɛŋ/ is used, as in 514.

(513) *tɔŋ* *ka* *baporro-rɛ*
Tong is farmer-?
'Tong is a farmer'

(514) *dubɔnnuɔ* *ɲa* *mɛŋ* *n* *neguɔ*
door DET is my right
'the door is to my right'

Both copulas are negated with the particle /to/ 'is not'. This particle is used for negation in both predicate nominals and predicate locatives, as shown in 515 and 516. This differs from Isaalo's typical analytical negation strategy. With finite verbs, the negation verb /wu/ occurs in the normal position of the finite verb, and the finite verb occurs clause finally.

(515) *tɔŋ* *to* *baporro*
Tong is.not farmer
'Tong is not a farmer'

(516) *dubɔnnuɔ* *ɲa* *to* *n* *neguɔ*
door DET is.not.to my right
'the door is not to my right'

8.5 Imperative clauses

Imperative constructions are used to command an addressee to carry out some action. Reference to the second person subject is understood in these constructions. In Isaalo the verb shows no special marking and it appears simply in its unmarked present tense form, as shown in examples 517, 518 and 519.

(517) *waase* *daase*
fetch firewood
'fetch firewood!'

(518) *va* *kɪkɛllɛ*
walk fast
'walk fast!'

(519) *go* *gwala*
dance dance
'go dance!'

Bisyllabic imperative verbs may drop their final vowel to create a CVC structure that is typically restricted in Isaalo phonotactics, as shown in the examples 520 and 521.

(520) *make* *p-o*
show it-3S
'show it to him'

(521) *mak* *p-o*
show it-3S
'show it to him'

The imperative 'show it to X' is interesting because the object appears suffixed to a general 'it' form /po/. This is also illustrated in examples 522, 523 and 524. Note that first person plural and third person plural pronouns are not in their typical form.

(522) *mak* *pa-n*
show it.to-1S
'show it to me'

(523) *mak* *pa-ra*
show it.to-1P
'show it to us'

(524) *mak* *po-wo*
show it.to-3P
'show it to them'

In negated forms verbs appear clause finally and the imperative negation marker is /sɪ/, as shown in examples 525 and 526.[19] These are the only data illustrating negative imperatives in the data set and this phenomenon should be investigated further. Although languages may take special negation in imperative constructions (Payne 1997), here the imperative construction negation is homophonous with the verb form /sɪ/, the future tense auxiliary verb and the verb 'say'.

(525) *ɲiɛl* *gasuwo*
dry shirt
'dry the shirt!'

(526) *sɪ* *gasuwo* *ɲiɛllo*
NEG dry shirt
'don't dry the shirt!'

[19]The difference in the verb is due to a process that changes all clause-final verbs phonologically. See section **??** for more details.

An imperative reading can also be generated by using a second person declarative sentence. In these examples, constructions in the second person are necessarily either a question with rising interrogative intonation (as in example 527) or an imperative (example 528).

(527) *e* *sɪ* *duse* *ninnŏ*
2S FUT put.off light
'have you put off the light?'

(528) *e* *sɪ* *duse* *ninno*
2S FUT put.off light
'you will put off the light'

8.6 Identificational clauses

Isaalo uses juxtaposition structure /ná/ + N to form identificational phrases. These are in the present tense, as shown in examples 529 and 530.

(529) *ná* *dibii-dalla*
here birds-nest
'here is a bird's nest'

(530) *ná* *baŋʗɪrra*
here toilet
'here is the toilet'

Identification clause constructions use /n/ along with the demonstrative /ne/ 'this', 'these'.[20] The stative copula /ka/ 'is' is used in these constructions and negation occurs with the particle /to/. Examples are provided in 531 & 532 and 533 & 534.

(531) *n ne* *ka* *dibiidalla* *nɛ*
this is birds-nest PROG
'this is a bird's nest'

(532) *n ne* *to* *dibiidalla*
this is.not birds-nest
'this is not a bird's nest'

(533) *n ne* *ka* *n* *ʗa*
this is 1S.POSS house
'this is my house'

(534) *n ne* *to* *n* *ʗa*
this is.not 1S.POSS house
'this is not my house'

[20] When asked, consultants could not provide a translation of the form /n/. The form /n/ is also the first person singular pronoun.

8.7 Causative clauses

Causation is a valence increasing operation that is triggered with lexical causatives in Isaalo. Causative constructions take the form: CAUSE(X, P) = X CAUSES P. They always involve one more argument than the caused predicate. This causes an intransitive caused event to become transitive, and a transitive caused event to become ditransitive. Compare examples 535 & 536 and examples 537 & 538 that illustrate the form /lo/ 'made'.

(535) *ebe* *mɔmɛ*
Ebe laugh
'Ebe laughs'

(536) *n* *lo* *ebe* *mɔmɛ*
1S made Ebe laugh
'I made Ebe laugh'

(537) *ebe* *di* *zinna*
Ebe eat bat
'Ebe eats bat'

(538) *n* *lo* *ebe* *di* *zinna*
1S made Ebe eat bat
'I made Ebe eat bat'

Valence increasing operations occur with various verbs, including: 'made', 'believe', 'say', 'want', 'asked' and 'let'. The relativizer /hakka/ may occur between the predicate clause and the matrix clause, as shown in 539 and 540.

(539) *ləki* *sɪŋŋo* *hakka* *ebe* *di* *va*
Lucky believes that Ebe ate dog
'Lucky believes Ebe ate dog'

(540) *ləki* *wo* *sɪŋŋi* *hakka* *ebe* *di* *va*
Lucky NEG believes that Ebe ate dog
'Lucky does not believe that Ebe ate dog'

9 Grammatical Pragmatics

This section provides a preliminary description of pragmatic structures in Isaalo.

9.1 Greetings

Greetings sequences begin with an expression consisting of the second person possessive pronoun /e/ 'your' and a relevant time of day (morning, afternoon, evening, or night).[21] A meaning of 'wish you well' is implicit in the greetings as show in the literal translation lines. Examples 541 and 542 illustrate the morning greeting.

(541) *e* *di* *pɪnnŏ*
2S last.night sleep
'did you sleep well?'

(542) *e-ma* *di* *pɪnnŏ*
2S-and last.night sleep
'yes, what about you?'

Examples 543 and 544 show the afternoon greeting.

(543) *e* *wise*
2S afternoon
'good afternoon'

(544) *wise* *pɛri*
afternoon good
'it's fine, wish you well too'

Examples 545 and 546 the evening greeting.

(545) *e* *gbanna*
2S evening
'good evening'

(546) *gbanna* *pɛri*
evening good
'good evening, wish you well too'

And examples 547 and 548 are used after sun down to wish someone a good night.

(547) *e* *tɪto*
2S night
'good night'

[21] Polar yes/no questions carry a rising sentential intonation and are simply marked here on the final vowel with a caron diacritic. See section 8.2 for polar yes/no questions.

(548) *tɪto* *pɛri*
night well
'good night, wish you well too'

Each exchange contains the greeting and a well defined response from the addressee. After the exchange, the interaction is typically repeated by the addressee. A common greeting that is independent of time, is to ask one about their work. This common interaction is illustrated in examples 549 and 550.

(549) *e* *tomma* *wɛrru*
2S.POSS work nice
'how's work?'

(550) *o* *e-ma* *tomma* *wɛrru*
yes 2S-and work nice
'well, how's your work too?'

Another common greeting is the exchange of names. A typical phrase to ask someone what their name is, is shown in 551. The full answer is shown in example 552. A more commonly used shorthand is shown in 553.

(551) *e* *yɪrra* *ka* *be*
2S.POSS name is what
'what is your name?'

(552) *n* *yɪrra* *n* *ka* *X*
1S.POSS name 1S is X
'my name is X'

(553) *n* *yɪrra* *ka* *X*
1S.POSS name is X
'my name is X'

The politeness expression used by Sisaalas in Lambussie for 'thank you' is shown in examples 554 and 555. Example 555 is provided because the Dagaare form /i barka/ 'thank you' is commonly used by Isaalo speakers. Dagaare is a major language of the Upper West Region and is taught as a government-sponsored testing language in Lambussie schools.

(554) *i* *kentʃwala*
2S thank
'thank you'

(555) *i* *barka*
2S thank
'thank you' < Dagaare

To wish someone well in Isaalo, the literal phrase 'god will bring you good health' is used to express 'get well'. This example is provided in 556.

(556) *wisɛ* *sɪ* *ka* *dusi* *ko*
god FUT is health bring/come
'get well'

9.2 Yes / no

The forms for 'yes' and 'no' are shown in examples 557 and 558. The form /o/ 'yes' is homophonous with the third person singular non-gender specific pronoun /o/ 'he', 'she', 'it'.

(557) *o*
yes
'yes'

(558) *ahyi*
no
'no'

10 Digital Data

10.1 Problem space

Digitally documenting, capturing, and displaying language data on the web necessitates a description of these processes in the traditional print-based publication. Documenting file formats and encodings used in capturing field data is particularly important if these resources are to be made open to the public. Language samples recorded in the field and the digitization of textual data, in my opinion, should be made available via the Web for independent linguistic analysis. However, the resources and manual labor required to undertake these efforts is costly for researchers financially and 'publicationally'. The creation of digital documentation in the forms of accessible databases and annotated multimedia are not traditionally considered publications within the field of Linguistics. There is unfortunately no career-related reward for creating, and sharing, richly annotated data. These issues aside, the digitization process is far from perfect. Digital standards evolve with technological advancements, e.g. video currently has no archival quality recording standard. This is due to the digital storage requirements of lossless video formats. This situation will surely change in the future as advancements in digital storage cheapen (or revolutionize) video recording for the consumer market. Another challenge, particularly for graduate students, is that the price of audio recording equipment is out of their financial reach. However, this does not seem to deter students from undertaking fieldwork. Mailing list discussions are often rife with questions of what specific recording equipment to use. There is no perfect answer for all field situations and hardware suggestions quickly fade to newer hardware.

10.2 Data discovery

At the risk of a monotonous structure, I have attempted to present copious data in a structured format for automatic data collection. As a test case, we are importing the IGT examples presented here to the Online Database of INterlinear glossed text (Lewis 2006). These data will then be discoverable and searchable by Internet users. Additionally, by using Leipzig Glossing Rules as a standard for grammatical markup in these IGT examples, the data will be terminologically mapped to the General Ontology of Linguistic Description. Theoretically, this will provide researchers the ability to search these data through any terminology set in GOLD. These are avenues of Semantic Web research that I have attempted to make the Isaalo data here interoperable with.

10.3 Isaalo data collection and digitization path

The Isaalo data were collected in the field in hand written notebooks with pencil.[22] Out-of-the-field digitization was done using several software programs,

[22]These notebooks will be deposited in the University of Washington Libraries Special Collections Division.

but for this project I mainly used Bare Bones TextWrangler[23] because it saves documents in a plain text Unicode[24] format. Unicode is an important encoding standard, adopted by ISO[25], for computationally encoding textual data. It is the de-facto standard, although not without its issues.[26] While digitizing the Isaalo data, I implemented my own short cuts to increase typing speed. I mapped grapheme sequences to their IPA counterpart systematically and ambiguously. For example, for the IPA phoneme /ɲ/ I used the capitalized grapheme sequence <NY>. This allowed me to write a script to convert these 'shortcuts' to presentation formats, such as those shown in this paper.

10.4 Isaalo digital corpus

There are over 500 unique instances of IGT in this paper and they are available online at http://dogonlanguages.org/sisaala/. This site provides a simplistic database frond end that allows users to query the data. The Sisaala fieldwork audio corpus includes all examples presented in this paper.[27] The audio data were collected in 2003 with a Nomad brand MP3 player with digital recording capabilities of a 44.kHz sampling rate at a 16 bit word length. An Audiophile lavaliere microphone was used with the player. This audio corpus includes over 40GB of elicitation and story telling, which I intend to make available online. Video was taken in MPEG4 format with a Sony Cybershot digital camera that also captured audio.[28] The video corpus includes 2GB of video recordings of narrated stories. Two of the nine stories have been transcribed into interlinear glossed text.

This paper is also intended to be a case study for following best practices and for illustrating that by following some simple metrics, data collected by field linguists can produce accessible digital documentation. Accessible digital data will have a lasting impact on the field, especially when these languages are no longer spoken.

Online available Sisaala Western [ssl] data include an online IGT database[29], an online lexicon[30], raw IGT data in UTF-8 plain text[31] and the comprehensive Sisaala bibliography (including BibTeX and RDF formats)[32].

[23] http://www.barebones.com/products/textwrangler/

[24] http://unicode.org

[25] International Organization for Standards. http://www.iso.org

[26] Particularly ambiguous for linguists is that the IPA resides across several different Unicode character plans.

[27] The current time requirements for segmenting each form from the audio files (typically elicitation sessions between myself and the language informant) is beyond my means. Audio software that segments phonological words is welcome.

[28] Audio recordings were also made with the Nomad for all video recordings.

[29] http://dogonlanguages.org/sisaala/

[30] http://students.washington.edu/stiv/sisaala/ssl_fieldnotes.php

[31] http://students.washington.edu/stiv/sisaala/ssl/sisaala_sentences.txt

[32] http://students.washhington.edu/stiv/sisaala/

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Figure 1: Languages of Ghana (Gordon 2005)

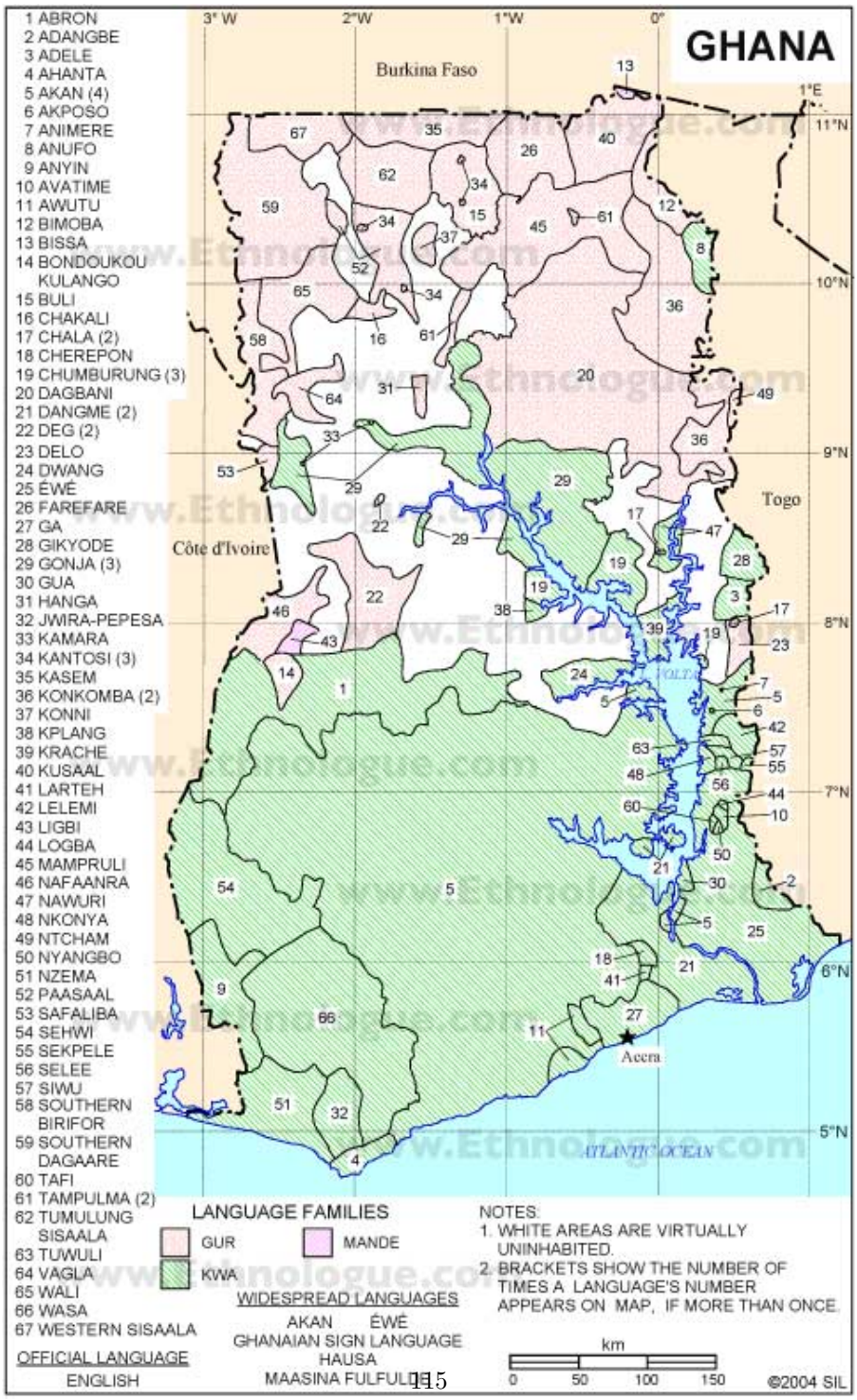

Figure 2: Languages of Burkina Faso (Gordon 2005)

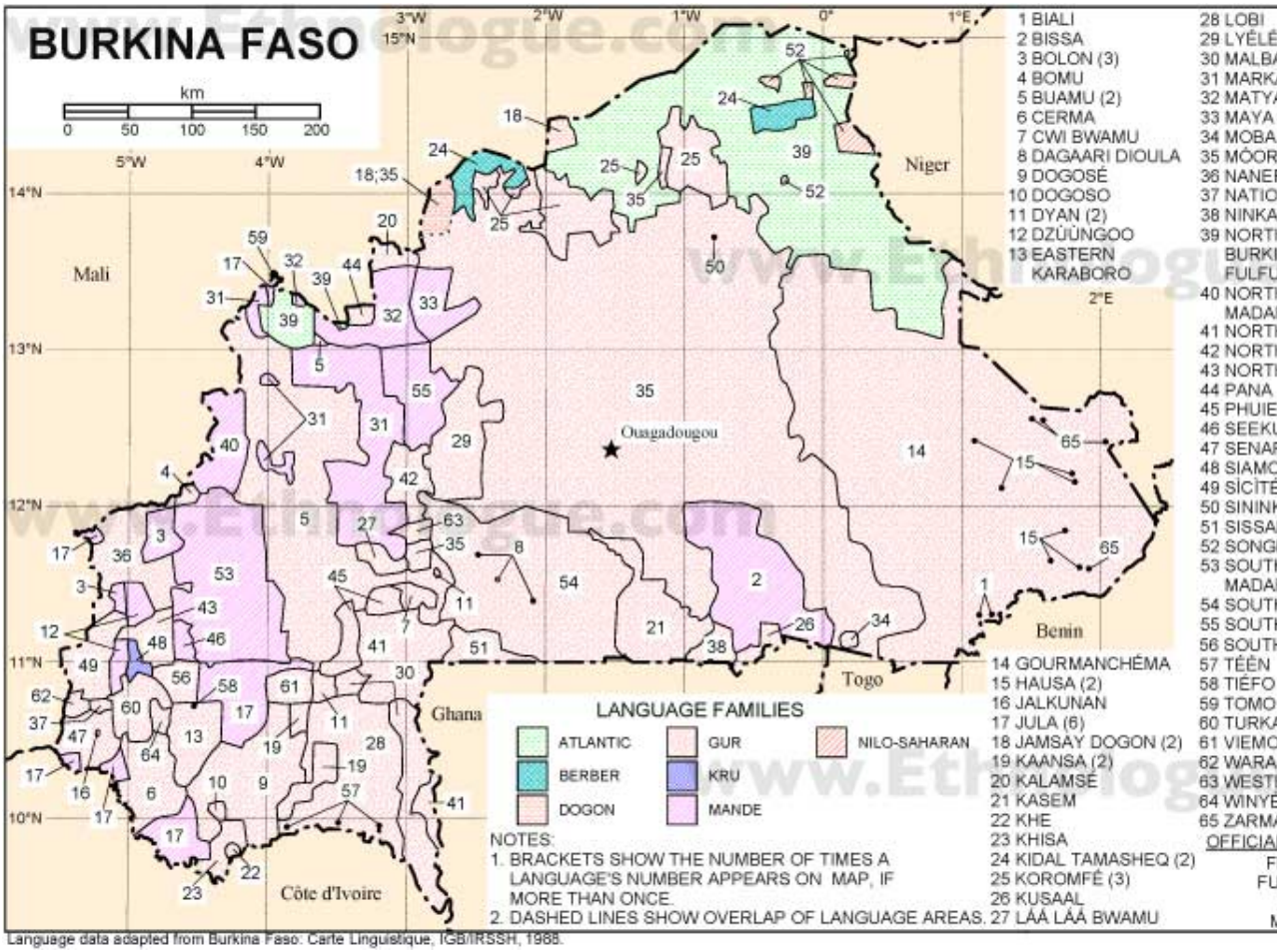

Figure 3: Consonants

	Bilabial	Labial-velar	Labiodental	Alveolar-dental	Palatal	Velar	Glottal
Stops	p b	gb		t d		k g	
Fricatives			f v	s z			h
Affricates				ʧ ʤ			
Nasals	m	ŋm		n	ɲ	ŋ	
Liquids - lateral				l			
Liquids - flap				r			
Semi-vowels	w				y		

Figure 4: Vowels

	front	central	back
high	i ii		u uu ʊ
	ɪ		o oo
mid	e ee		ɔ ɔɔ
	ɛ ɛɛ		
low		a aa	