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Publisher
The Department of Linguistics and the Center for African Studies
Ohio State University, Columbus, Ohio

Cover Design
Tina Messmer

Journal webpage: http://ling.osu.edu/sal

Studies in African Linguistics is published twice a year. Occasional supplements are published at irregular intervals and are available to current subscribers at reduced rates. It is printed and bound in the United States by Western Newspaper Publishing Co., Inc., Indianapolis, Indiana.

Contributions to the journal should be sent to: The Editor, *Studies in African Linguistics*, Department of Linguistics, 222 Oxley Hall, Ohio State University, Columbus, OH 43210. Contributors please refer to "Guidelines for Contributors" inside the back cover.

Correspondence concerning subscriptions or other business should be sent to: Managing Editor, *Studies in African Linguistics*, Department of Linguistics, 222 Oxley Hall, Ohio State University, Columbus, OH 43210. Subscription rates are the following:

	North America	*Elsewhere*
Individuals	$25.00 per year	$33.00 per year
Institutions:	$50.00 per year	$60.00 per year
Single issue:	one half the yearly rate	
Supplements:	variable price depending on supplement	

Make checks payable to **Studies in African Linguistics.**

Volume 36, Number 2 • 2007

ISSN 00390-3533

Studies in African Linguistics

Volume 36, Number 1 Spring 2007

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Studies in African Linguistics
Volume 36, Number 1, 2007

NOUN PHRASE AND CLAUSAL CONNECTIVES IN AKAN*

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This paper explores the semantics and pragmatics of noun phrase and clausal connectives in Akan (Niger-Congo, Kwa branch), highlighting dialectal variation. In Fante, noun phrases may be conjoined by *nyé* which encodes comitativity, or *nà*, which is underdetermined between comitative and coordinative meanings. Asante, on the other hand, uses the underdetermined noun phrase connective *né*. The interlocutor in Asante thus relies on contextual information to determine the intended interpretation. Clausal conjunction in both dialects is performed by *nà*, but a temporal marker can be aptly used in certain contexts as an alternative to the clausal connective. This situation, where the temporal marker functions as a clausal connective, is more general in Fante where the temporal marker is even used in certain contrastive contexts. This phenomenon demonstrates the close conceptual affinity between temporal markers and clausal coordinators.

1. Introduction.

This paper examines noun phrase and clausal conjunction in the Niger-Congo (Kwa) language Akan, and attempts to trace the origin of the noun phrase connective *n(y)é*. It is observed that its comitative origin is reflected in its contemporary semantics; however, there is significant dialectal variation regarding noun

* I wish to thank Thorstein Fretheim and Kweku Osam for their careful reading and comments on earlier drafts of this paper. I am also grateful to an anoynymous referee and David Odden, for their detailed insightful comments. My informants Fauziatu Tijani, Yvonne Agbetsoamedo, Yvonne Otoo and Frank Amfo deserve my appreciation, as well as my collegues Grace Bota, Clement Appah and Kofi Agyekum for helpful discussions and comments. Any remaining shortcomings are my own.

phrase conjunction in two major dialects of Akan, Asante (Twi) and Fante. This observation is in consonance with Mithun's (1988) suggestion that the most common source of noun phrase connectives[1] is comitative constructions and adverbials meaning 'also'. On the other hand, she attributes the source of clausal connectives to discourse adverbials. It will be shown here that even though Akan has a clausal connective *nà*, the temporal marker *ná / nńà* is gradually assuming functions originally reserved for the ordinary clausal connective.

The noun phrase connective *ne* in Asante may give rise to either a comitative or a coordinative interpretation in its use.

(1) Àkósúá **né** Kòfí sà -è.[2]
Akosua CONJ Kofi dance -COMPL
'Akosua and Kofi danced.'/
'Akosua danced with Kofi.'

Example (1) could be interpreted comitatively, that is, Akosua danced with Kofi as a pair: in other words, they cooperated in that specific act of dancing. On the other hand, (1) could be uttered to describe a situation where on a given occasion Akosua danced as well as Kofi: they may have danced with different partners or on their own.

It is worth noting that comitativity semantically entails coordination. However comitativity involves an additional level of cooperation and accompaniment, which is not necessarily encoded in coordination. In most instances, one of the participants takes a lead role with the other(s) complying and cooperating in the action. For instance, a comitative reading of (1) could suggest, within an appropriate context, that the referent of one of the conjunct noun phrases picked the

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[1] In this paper, I use the label "connectives" in reference to those lexical items which conjoin noun phrases and clauses, while I reserve the term "conjunction" for the whole structure of conjoined phrases and clauses. Tones have been marked in the examples: ` (for low tone), ´ (for high tone) and ꜜ´ (for downstepped high).

[2] The abbreviations used in this paper are as follows: CM=conditional marker; COM=comitative connective; COMPL=completive aspect; CONJ=connective; CONS=consecutive marker; DCM=dependent clause marker; DEF=definite article; FUT=future tense; IMP=imperative; MM=modal marker; MP=motional prefix; N=noun; NEG=Negative morpheme; NP=noun phrase; PERF=perfect aspect; POSS=Possesive marker; REL=relative clause marker; VP=verb phrase.

other out of a crowd for a dance. In other words, one of them was the initiator and controller of the action, while the other complied and cooperated.

As example (1) illustrates, it is not always possible to distinguish a comitative use from a coordinative use of the connective *né*, using only a given utterance as a basis. Is this form a case of polysemy then? In consonance with Carston's (2002) underdeterminacy thesis, characteristic of relevance theory (Sperber and Wilson 1995), I proffer a univocal lexical semantics. This sense generality view is also in conformity with Grice's Modified Occam's Razor, which states that "senses are not to be multiplied without necessity" (Grice 1989: 47). I suggest that this lexical item is underspecified between these two meanings; context-dependent inference at the pragmatic level combined with the semantics of other expressions used in the utterance help in determining the specific meaning intended for a given utterance. Cross-linguistically, the frequent grammaticalization of comitative markers into coordinative markers is an indication of the close affinity between these two semantic domains. This is evidenced by the fact that in many languages, including Ewe (Lord 1973, Heine and Reh 1984); Ga, Yoruba (Lord 1973); Hausa (Abdoulaye 2004) and Miya (Schuh 1998), noun phrase comitative and coordinative connectives have identical segmental form and similar syntactic properties.

The Fante noun phrase connective *nyé*, on the contrary, encodes a comitative meaning and is only used in contexts where a comitative interpretation is intended. What example (2) says is that Esi and Kofi cooperated in the act of playing, participating together in a single (or several) game(s).

(2) Ésí nyé Kòfí dzí-ì àgóŕ.
Esi COM Kofi eat -COMPL game
'Esi played with Kofi.'

When a speaker of Fante intends a coordinative interpretation for a noun phrase conjunction, she resorts to the connective *nà*, which also serves as the clausal coordinating connective in both dialects. Example (3) gives no linguistic indication that Kofi and Esi played together, and they may have played different games or even played with different partners or at different places.

(3) Ésí nà Kòfí dzí-ì àgóŕ.
Esi CONJ Kofi eat -COMPL game
'Esi and Kofi played.'

These facts notwithstanding, the underspecified nature of the conjunction *nà* allows it to be used to conjoin noun phrases in Fante even when a comitative interpretation is intended. Indeed, the inferential relations existing between the noun phrase conjuncts could either be one of accompaniment or of equal ranking.

At the clausal level, the high-toned adverbial marker *ná* may sometimes be an equally good alternative to the usual clausal coordinating connective *nà*. This phenomenon is even more extensive in the Fante dialect (see section 5.2). It is shown there that the adverbial marker and the coordinating connective may sometimes have overlapping functions. This is not altogether surprising considering Mithun's (1988) observation that adverbial markers may often be the source of clausal connectives.

One of the claims of this paper is that the Asante noun phrase connective *né* is underdetermined between a comitative and a coordinative meaning. What it encodes is a "togetherness" relation between the noun phrases it conjoins. As to whether this relation is one of accompaniment (as in a comitative conjunction) or both noun phrases are of equal ranking (as in a coordinative conjunction) is left to pragmatic inference. Fante *nyé* on the other hand encodes an accompaniment relation between the noun phrase conjuncts. I have argued elsewhere[3] that the clausal connective *nà* provides procedural information to the effect that the *nà*-utterance achieves relevance as a single unit and that it indicates that some kind of inferential relations exist between the conjuncts. When *nà* is used as a noun phrase connective in the Fante dialect, what changes is the scope of its operation, from the clause level to the level of the noun phrase.

The rest of this paper is organized as follows: section 2 deals with noun phrase conjunction. The first subsection, 2.1, looks at the comitative and coordinative encoding strategies of noun phrase conjunction. This is followed in subsections 2.2 and 2.3 by descriptions of the nature of noun phrase conjunction in the Fante and Asante dialects respectively. Section 3 examines the origin of the comitative connective. Sections 4 and 5 focus on clausal conjunction, where the former deals with the clausal connective *nà*, and the latter examines the communicative role of the temporal marker *ná*, stressing its overlapping role with the clausal connective *nà*. In subsection 5.1 the role of *ná* in the Twi dialects is established as a temporal marker which provides a temporal constraint on the proposition expressed in the *ná*-clause. In the final subsection 5.2, it is established that the closest Fante equivalent of the Twi temporal marker has more varied

[3] An extensive discussion of clausal conjunction involving the connective *nà* is found in Amfo (2007).

communicative roles which includes acting as an ordinary clausal connective. Section 6 is the conclusion.

2. Noun Phrase Conjunction.[4]

This section focuses on noun phrase conjunction in Akan. Section 2.1 considers the coordinative and comitative encoding strategies of noun phrase conjunction, and 2.2 and 2.3 investigate the semantic and pragmatic variations in Fante and Asante, respectively.

2.1 Encoding strategies. Many languages of the world including a number of Sub-Saharan African ones, use disparate forms to coordinate noun phrases and clauses. As shown in (4) and (5), Ewe, a Kwa language, uses *kple* for noun phrases and *eye* for clauses. For Ga, another Kwa language, it is *kɛ* for noun phrase conjunction and *ni* for clauses, as illustrated in (6) and (7).

(4) Koku kple Aku duɣe.
Koku CONJ Aku dance.PST
'Koku and Aku danced.'

(5) Koku duɣe eye Aku fo ʊu -a -wo.
Koku dance.PST CONJ Aku play.PST drum -DEF-PL
'Koku danced and Aku played the drums.'

(6) Oko kɛ Akwele jo.
Oko CONJ Akwele dance.PST
'Oko and Akwele danced.'

(7) Oko jo ni Akwele ji joo lɛ.
Oko dance.PST CONJ Akwele beat.PST drums DEF
'Oko danced and Akwele beat the drums.'

[4] The Akan data used in this paper is from two dialects, Asante and Fante. They are from written texts, invented examples and tape recordings from radio discussions. The examples are marked as follows: (FT) for Fante text, (AT) for Asante text and (RTR) for radio tape recordings. The various dialects are indicated by (As) for Asante and (Fa) for Fante.

In Standard Hausa, a Chadic language, noun phrases are conjoined by *da* (Newman 2000: 138-140). There is no single overt clausal connective. Conjoined clauses are simply juxtaposed, and may have other markers such as *kuma* ('also, in addition') linking them.[5]

Akan also uses separate markers for noun phrase and clausal conjunction. Welmers' (1973: 372-3) assertion that both noun phrases and clauses and even verbs are conjoined by *nà* or *nńà* is only partly true. First, he was (over)generalizing with data from one major dialect, Fante. Second, even though *nńà* may qualify to a certain extent as a clausal connective (see section 5.2), it does not conjoin noun phrases. Neither form conjoins verbs. Contrary to Welmers' assertion, verbal conjunction in Akan patterns very much like the other languages in his study.

In Asante, *né* is used for noun phrases and *nà* for clauses, as can be seen from examples (8) and (9). Fante uses *nyé* or *nà* for noun phrase conjunction, as in (10), and uses *nà* for clausal conjunction, as shown in (11).[6]

(8) Mààmé Yàá **né** Á!má kɔ́ ásòpítì.
Maame Yaa CONJ Ama go.PERF hospital
'Maame Yaa and Ama have gone to the hospital'/
'Maame Yaa has gone with Ama to the hospital.' (As)

(9) Mààmé Yàá kɔ́ ásòpítì **nà** Á!má kɔ́ sùkúù.
Maame Yaa go.PERF hospital CONJ Ama go.PERF school
'Maame Yaa has gone to the hospital and Ama has gone to school.' (As)

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[5] However Ghanaian Hausa uses *da* for noun phrase conjunction and *shei* for clausal conjunction as in (i) and (ii):

(i) Sule da Fati sun yi rawa
Sule CONJ Fati they.PST do dance
'Sule and Fati danced.'

(ii) Sule ya yi rawa shei Fati ta bugakalangun
Sule he.PST do dance and Fati she.PST drum(s).DEF
'Sule danced and Fati played the drums.'

[6] For ease of presentation, I will restrict myself to conjunctions involving two conjuncts. The semantic and pragmatic implications remain the same irrespective of the number of conjuncts.

(10) Àfèdzì **nyé** **/nà** Ésí kɔ̀ kùróḿ.
Afedzi COM /CONJ Esi go.PERF town
'Afedzi has gone to town with Esi.'/
'Afedzi and Esi have gone to town.' (Fa)

(11) Àfèdzì kɔ̀ kùróḿ **nà** Ésí kɔ̀ skúùl̀.
Afedzi go.PERF town CONJ Esi go.PERF school
'Afedzi has gone to town and Esi has gone to school.' (Fa)

The forms which conjoin noun phrases are mostly of comitative origins, and it has been argued that some of the forms are still essentially (semantically) comitative rather than coordinating connectives, which may be undergoing processes of grammaticalization. In his study of noun phrase conjunction, Stassen (2000, 2003) distinguishes between languages in which noun phrase conjunction is encoded by either a coordinative or a comitative strategy.[7] He refers to languages which use the comitative strategy as the **only** means of encoding a situation in which a single event is attributed concurrently to two different participants, as WITH-languages, citing Akan as an example. Languages which clearly distinguish between comitative and coordinative encoding, like English, he calls AND-languages. Stassen concedes that a few languages show that the comitative/coordinative dichotomy cannot always be pursued faithfully. My suggestion is that Akan, which he categorizes as a WITH-language, is one of these languages. Conjunct noun phrases in an Akan phrasal conjunction do not exhibit any morphosyntactic properties which indicate an unequal structural rank between them. Thus an intended comitative strategy can only be contextually determined. Dialects vary as regards the connectives used. Akan generally does not have subject-verb agreement. Verbs inflect for tense, aspect and polarity, but not for number.[8] As a result, one cannot use subject-verb agreement as a criterion for determining whether or not the conjoined noun phrases form a constituent. In the following subsections, I will give a clearer picture of the Akan situation.

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[7] Stassen (2003: 780) suggests that the coordinative strategies have the following characteristics: NPs have same structural rank and they form a constituent. There is plural or dual agreement on verbs, and a unique coordinative particle. With regard to the comitaitve strategy, the NPs differ in structural rank and do not form a constituent. There is singular agreement on verbs, and a unique comitative particle.

[8] However there are limited cases in which a reduplicated verb needs to have a plural subject or object or both. Such a phenomenon is usually not a mere syntactic requirement but it is also of some semantic and or pragmatic significance.

2.2 The Fante situation. A Fante speaker has the option of conjoining two noun phrases with either *nyé* or *nà*.

(12) Èwìmbír bí Pàpá Kɔ̀bénà ꜜSíẃ nyé né yéř Màámé Ésí
Evening some Papa Kɔbena Siw COM POSS wife Maame Esi
Bàdúwá sùsú -ù Nànà n'ásɛ́m nó hó.
Baduwa discuss-COMPL Nana POSS'case POSS skin
'One evening Papa Kɔbena Siw discussed Nana's suggestion with his wife Maame Esi Baduwa.' (FT)[9]

The use of *nyé* may be said to signify at least two things. First, the action described by the verb *susuu* (discussed) is considered to have been jointly performed by the referents of the two conjoined proper nouns — Papa Kɔbena Siw and Maame Esi Baduwa. In other words, there is a cooperative relation between the two conjoined subjects and the event described. Second, with the aid of contextual information it can be said that one of the participants, in this case the wife, is 'backgrounded' in the event described here. Papa Siw is presented as the initiator and controller of the discussion and indeed the protagonist of that portion of the narration.

The choice between *nyé* or *nà* depends on whether or not a speaker of Fante intends to encode a comitative interpretation. In (13), it is quite obvious that Papa Siw, who is the father of Kodwo and Araba, is seen as the initiator and performer of the action of going to school, with Kodwo and Araba being obliged to come along.

(13) Pàpá Síẃ **nyé** Kòdwó **nà** Árábá kɔ́ -ɔ̀ skúùl̀ hɔ́.
Papa Siw COM Kwadwo CONJ Araba go -COMPL school there
'Papa Siw went with Kwadwo and Araba to the school.' (FT)

Kodwo and Araba form an inner coordinative conjunction which is then conjoined comitatively with Papa Siw, and they all together form a conjoined subject for the verb *kɔɔ* (went) as shown in (14). The first proper noun is on a different

[9] For ease of presentation, (12) has been simplified; the original sentence is the following: *Ewimbir bi Papa Kɔbena Siw frɛɛ ne yer Maame Esi Baduwa nye no susuu Nana n'asem no ho* ('One evening Papa Kɔbena Siw called his wife Maame Esi Baduwa and discussed Nana's suggestion with her').

level than the other two; (15) and (16) represent ungrammatical alternatives to the outer NP structure of (14).[10]

(14) [N nye [N na N]$_{NP}$]$_{NP}$ VP

(15) *[[N nye N]$_{NP}$ na N]$_{NP}$ VP

(16) *[N nye N na N]$_{NP}$ VP

If a tripartite noun phrase conjunction involves a comitative as well as a coordinative interpretation, then the conjunct noun phrase which is involved in the comitative interpretation must be the first or last member of the conjunction

The use of *nyé* indicates some form of accompaniment, which can only be deduced contextually when *nà* is used. For instance, in (17), what is communicated linguistically is that Araba has gone to church, as has Akyerɛ.

(17) Árábá nà Àkyèrɛ́ kɔ̀ àsɔ́r.
Araba CONJ Akyerɛ go.PERF church
'Araba and Akyerɛ have gone to church.' (Fa)

The fact that the interlocutor may interpret the speaker to mean that the two have gone to church in the company of each other may be the result of extra-linguistic information. The use of *nà* gives rise to the possibility that the two ladies mentioned might have left home at different times, going to different churches. Even if they did go together, the relevance of a token of (17) would not necessarily be affected by the interlocutor's choice of the stronger or the weaker explicature[11] interpretation.

An interpretation that the ladies left at separate times or went to separate churches is ruled out when *nye* is used in place of *nà*, as in (18).

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[10] Example (14) is intended as a syntactic representation of (13) and not a general representation of any possible tripartite conjunction involving *nyé* and *nà*. What determines which two conjunct NPs in a tripartite conjunction, involving both *nyé* and *nà*, form a closer constituent does not depend solely on the choice of a particular connective or syntactic position but also on pragmatic factors.

[11] An explicature, according to Carston (2002: 377). is "an ostensively communicated assumption which is inferentially developed from one of the incomplete conceptual representations (logical forms) encoded by the utterance". It is contrasted with an implicature which is derived purely inferentially.

(18) Árábá nyé Àkyèrɛ́ kɔ̀ àsɔ́ɔ́r.
Araba COM Akyerɛ go.PERF church
'Araba has gone to church with Akyerɛ.' (Fa)

The very existence of the opposition between *nà* and *nyé* in a pair like (17-18) presumably makes the separate events interpretation relatively more accessible than the stronger, joint action interpretation when the connective is *nà* as in (17). One might expect the unambiguous *nyé* to be used if the stronger interpretation is intended.

In summary, when *nà* is used to conjoin noun phrases, the choice between a coordinative and a comitative interpretation is determined by other contextual information such as previous knowledge or even perception. On the other hand, *nyé* linguistically encodes a comitative meaning; the two participants will have to be involved simultaneously in the event described, with one of the participants being backgrounded. Thus Fante falls in line with Stassen's assertion that languages with comitative as well as coordinative noun phrase encoding strategies typically use different markers for these purposes. However, even though *nyé* does not seem to be an option when a coordinative interpretation is intended, *nà* is compatible with a comitative interpretation.

2.3 The Asante situation. Asante has a single marker *né* which conjoins noun phrases. Consequently, a comitative vs. a coordinative interpretation can only be determined from the context. The Asante version of (13) will be rendered as (19) below.[12]

(19) Pàpá Síẃ **né** Kòdwó **né** Árábá kɔ̀ -ɔ̀ sùkúù hɔ́.
Papa Siw CONJ Kodwo CONJ Araba go -COMPL school there
'Papa Siw went with Kodwo and Araba to the school.'

In (19), the knowledge that Papa Siw is the initiator of the event described here, with Kodwo and Araba simply complying and coming along, can be deduced as a result of knowledge acquired from the context. The fact that Papa Siw is the father here, the older and more authoritative person, combined with knowledge of the fact that he had earlier decided with his wife that they are sending the children

[12] The first *né* in (19) could be omitted when a coordinative interpretation is intended. This is not possible when a comitative interpretation is intended.

to school, will be the contextual input for the interlocutor in opting for a comitative interpretation for the first instance of *né* in (19).[13] Also, the fact that Papa Siw is the first member of the tripartite noun phrase conjunction is a relevant structural feature which aids in accessing a comitative interpretation.[14] Similar background information is what motivates the interlocutor in choosing a coordinative interpretation for the marker *né* conjoining Kwadwo and Araba.

The two noun phrases in (20) are both inanimate (abstract) nouns. Hence a coordinative rather than a comitative interpretation would be the one intended for that conjunction, since one of them cannot be seen as an accompaniment to the other. For a comitative reading to be possible, both noun phrases will have to be animate.

(20) ɔ̀kɔ́ḿ **né** àníìnyá'nné yí nyìnáá á'kyí nó ...
Hunger CONJ torments PDD all back DCM
'In addition to all this hunger and torment...' (AT)

3. Origin of the Comitative Marker.

It has been suggested that comitative connectives in a number of languages may have originated from verbs. Abdoulaye (2004) assumes that the Hausa comitative marker *da* can be traced to the existential verb *da*. Lord (1973) supposes verbal origins for the Yoruba, Ga and Ewe noun phrase connectives.[15] Stassen (2000,

[13] Another comitative strategy in Akan is to use the defective verb *d(z)e* (take), which also has an instrumental or manner function. (19) could be correctly rendered as *Papa Siw de Kodwo ne Araba kɔɔ sukuu hɔ*. In cases where the noun phrases involved are animate and inanimate, *de* has a manner or instrumental interpretation as in *Abofra no de osu yɛɛ adwuma no* ('The child did the job in tears') and *Maame no de sekan twaa nam no* ('The woman cut the meat with a knife').

[14] On the comitative interpretation, (19) is still vague as to whether Papa Siw went with Kwadwo at one time and with Araba at another time, or whether he went with Kwadwo and Araba at the same time. As always, contextual information will be crucial in resolving this vagueness.

[15] *Kple*, according to Lord (1973), is characterized as a verbid by Ansre (1966), and it is the only verbid which lacks a homophonous regular verb counterpart. Given this situation and its syntactic behaviour, Lord speculates that *kple* could have existed as a regular verb during an earlier period with similar semantics as the Yoruba verb *kpɛlu* ('be together with'). This speculation is confirmed by Heine and Reh's (1984) analysis which suggests that *kple* might

2003) suggests that noun phrase connectives in Choctaw, Korean and Classical Mongolian have their sources in the verbs meaning 'to be' or 'to exist'. It is quite evident that the Akan comitative marker *n(y)é* has evolved out of a verb. Indeed this marker still exhibits some traces of verbal morphology, and more so in Fante than in Asante.

The only thing indicative of the verbal status of Asante *né* is the fact that it can take some pronominal prefixes as shown in (21).

(21) ɔ̀ **-né** máàmé rè -nòá àdùàné.
s/he -CONJ mother PROG -cook food
'S/he is cooking with mother.' (As)

As part of their morphology, verbs in Akan take on tense, aspect, polarity and subject pronominal affixes.[16] The use of the pronominal prefix ɔ- in (21) could be taken as a trace of the original verbal status of the form *né*. This is against the backdrop that connectives do not take on pronominal affixes. On the other hand the orthographic convention of not prefixing other pronouns like the first person singular pronoun to *né* as in (23) below, plus the general absence of tense-aspect markers on this form, is an indication of the categorial shift of this word. Moreover, the rigidity of the syntactic position of *né* may be a relic of its verbal status. As a comitative marker *n(y)é* (together with its complement) cannot take other positions such as the adverbial position in the clause.

In Fante, *nyé* displays more verbal morphology than its Asante counterpart. In addition to taking on the pronominal subject prefixes, *nyé* can also have the negative (nasal) marker affixed in negative sentences. Indeed, in the negative form, *nyé* may take on other tense-aspect markers such as the completive aspect marker. Thus in a typical serial verb construction style (22), the main verb *kɔ* ('go') is negated and has the completive aspect marker just as *nyé* does, while the

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have developed from the verbs *kpe* ('meet') and *ɖe* ('get to'). The verbal status of *kɛ* is argued for by Trutenau (1973) and confirmed by Dakubu's (1970) auxiliary verb label.

[16] The subject pronouns in Akan are the following *me* ('I'), *wo* ('you singular'), *ɔno* ('s/he'), *ɛno* ('it'), *yɛn* ('we'), *mo* ('you plural'), *wɔn* ('they'). These full forms are used in isolation or when they are followed by focus markers or connectives, as in the following Fante sentences: *ɔ́nó ńsó báà há* ('s/he also came here'); *ɔ́nó nà Kòfí kɔ́ɔ̀ kùróḿ* ('s/he and Kofi went to town'). When the pronouns are immediately followed by verbs, then the prefixes are used. The single syllable pronouns remain the same but the second syllable of the disyllabic ones are dropped so that *ɔno* becomes ɔ-, *ɛno* becomes ɛ-, *yɛn* becomes *yɛ*- and *wɔn* becomes *wɔ*-.

Asante version in (23) negates only the verb *kɔ* ('go'), the double negation and completive form of (24) corresponding to Fante (22) being ungrammatical.

(22) Mè **-à** **-ǹ** **-nyé** nó **à** **-ǹ** -kɔ́.
I -COMPL -NEG -COM her COMPL -NEG -go
'I didn't go with her.' (Fa)

(23) Mè **né** ꜜnó **à** **-ǹ** -kɔ́.
CONJ her COMPL -NEG -go
'I didn't go with her.' (As)

(24) *Mè**-à** **-ǹ** **-né** ꜜnó **à** **-ǹ** -kɔ́.
I -COMPL -NEG -CONJ her COMPL -NEG -go
*'I didn't go with her.' (As)

Thus one can conclude that *n(y)é* has verbal origins and is evolving as a connective. The grammaticalization process can be said to be quite advanced for Asante *né*; however, the same cannot be said for Fante *nyé*. In the language of most Fante speakers *nyé* does inflect in the negative form, though it is not uncommon to find some younger speakers omitting some tense-aspect inflection on *nyé*.

Given that the Akan comitative marker originated from a verb, the next puzzle concerns the semantic nature of that verb. Mithun (1988) suggests that a regular source of noun phrase connectives is adverbials and comitative verbs. Stassen (2003) submits other diachronic possibilities. These include numerals or quantifiers such as 'two', 'both' and 'all', as well as non-finite forms of verbs meaning 'to be' or 'to exist'. If Stassen's assertion is correct, then it is not surprising to find that there is an identificational copula in the language identical to the comitative marker. This identificational copula may well be the source of the comitative marker in Akan.

As a verb, *n(y)é* may be used to introduce indirect speech in narrations. In the Fante example (25), the writer reports about what happened at a meeting with the Chief of Mensakurom. He narrates what the chief said by introducing it with *nyé* plus the complementizer *dɛ*, to indicate that he is not responsible for the content of the indirect speech to follow. In (26), both the speaker (narrator) and interlocutor (readers) are aware that since a question has been asked an answer was given, justifying the use of *né*.

(25) Dzàà Nànά ká -à bíò **nyé** dɛ́ òbíárá mˊ -fá
What Nana say -COMPL again be COMP everyone IMP -take
né bà mˊ -brá má wɔ́ -ń -kyérɛ̀w né dzín
POSS child IMP -come give they -IMP -write POSS name
wɔ̀ skúùl̀ nó mù.
be.at school DEF inside

'What Nana said again was that everyone should send the child to be registered at school'. (FT)

(26) M̀mùàé á ɔ̀ -má -è **né** sɛ́, ɔ́ -ń -tó
Answer REL he -give -COMPL be COMP she -IMP -throw
nè bó àsè.
POSS chest down

'His answer was that she should be patient.' (AT)

What *né* as an identificational copula and as a verb introducing indirect speech have in common is that the use of either presumes the existence of the entity it introduces. For instance, the speaker of (27) uses *né,* rather than *yɛ*, because there is the presupposition that Otieku has a mother, who was probably expected at the scene of the utterance.

(27) Yɛ̀frɛ́ mè Yàá Sɛ̀ɛ̀wáá. Mé né Òtí!ékú màámé.
We-call me Yaa Serwaa. I be Otieku mother
'I am Yaa Serwaa. I am Otieku's mother.' (As)

One piece of syntactic evidence linking the identificational copula *n(y)é* to the connective *n(y)é* is that, as observed by Ellis and Boadi (1969), *n(y)é* occurs in the syntactic frame NP__NP, whereas *yè*, another identificational copula,[17] occurs in either one of these three frames: NP__NP, NP__Adjective or NP__Numeral. The syntactic frame for the copula *n(y)é* is the same as that for the noun phrase connective *n(y)e*. *Yɛ̀* can be followed by an adjective or a numeral but both copula *n(y)é* and connective *n(y)é* are only followed by noun phrases.

[17] As an existential copula, *n(y)é* contrasts with *yè*. *Yɛ̀* is used in contexts where the speaker does not have any presuppositions; the information given is simply asserted. On the other hand, *n(y)é* can only be used when both the speaker and the interlocutor presuppose the existence of the entity being introduced, even though the interlocutor may not be familiar with it.

Given that noun phrase connectives in some languages have originated from non-finite forms of identificational or existential copulas, and given what obtains in Akan as described above, one can thus extrapolate to the conclusion that the noun phrase connective *n(y)é* in Akan has its source in the same identificational copula. Akan can thus be added to Stassen's list of languages which may have derived its noun phrase connective from the verb 'to be'.

4. Clausal Conjunction.

In Akan, clauses are conjoined with the low-toned *nà* as illustrated in (28) below.

(28) Mè dìdí -ɪ́ nà mè dá -è.
I eat -COMPL CONJ I sleep -COMPL
'I ate and I slept.' (As)

As suggested in Amfo (2007), a *nà*-conjoined utterance achieves optimal relevance as a single unit. Thus *nà* is a signal to the interlocutor to look for certain inferential relations between the various conjuncts. A particular inferential relation existing between conjuncts of a given *nà*-utterance will have to be contextually determined by combining the encoded meaning of *nà* with other linguistic features of the conjuncts as well as extra-linguistic information derived from the context. These inferential relations as outlined in the above-mentioned publication are temporal, causal, contrastive, parallel and explanatory. This paper will only focus on the temporal relations that exist between *nà*-conjuncts. In (28), the activity described in the second conjunct will be interpreted as having followed the activity described in the first. Given the nature of the activities, a simultaneity reading is ruled out. One kind of *nà*-utterance which typically favors a temporal as well as a causal interpretation is one in which the first conjunct contains the dependent clause marker *nó*.[18] In (29 =Amfo 2007 (9)) Ama's quitting school follows her father's death, and the latter is inferred to be the cause of the former.

[18] Since causality often implies temporality such a state of affairs is not surprising.

(29) Á!má né pàpá wú-ì nó nà
Ama POSS father die -COMPL DCM CONJ
ò -gyáé -è sùkúù.
she -stop -COMPL school
'When Ama's father died, she quit school.' (As)

The next section focuses on a segmentally identical but high-toned temporal marker *ná*, which can often be translated as 'then' (at that time). It will be argued that in the Fante dialect, the equivalent of this marker, *nńà*, is gradually taking on most of the functions which can be associated with the ordinary clausal connective *nà*. The situation in Fante is in accordance with Mithun's (1988) prediction that markers which convey meanings such as 'also', 'then', 'and so', 'and now' frequently develop into markers of mundane clausal conjunction.

5. Temporal Marker *ná*.

The temporal marker *ná* contrasts with the low-toned clausal connective. As mentioned in the previous section, one of the pragmatic relations between conjuncts that the use of the clausal connective *nà* gives rise to is a temporal one.[19] Whereas temporality is inferred by the use of *nà*, it is explicitly encoded by *ná*. Given that the language possesses an almost identical form which encodes temporality, it is not surprising that native speakers may use either of these forms in contexts where some form of temporality is intended to be communicated. That is, native speakers have the choice of encoding the intended temporality or leaving it to pragmatic interpretation. One consequence of this is that either a high-toned or a low-toned *na* could be used felicitously in certain (temporal) contexts. This trend of a temporal adverb assuming the role of a coordinating connective may be cognitively inspired. Mithun recognizes the significance of the flexibility of the boundary between what she calls discourse adverbials and coordinating connectives. Also, evidence from the Oslo Multilingual Corpus (OMC) pointed out to me by Thorstein Fretheim (p.c.) indicates, for instance, that the French temporal adverb *puis* (then) can be used as a coordinating connective conjoining two predicates and even two noun phrases.

In this section, I take a look at the high-toned temporal marker *ná*, in light of its sometimes overlapping pragmatic functions with the clausal connective *nà*.

[19] Temporality is used broadly to include sequentiality as well as simultaneity.

This form is mostly used in the Twi (Asante and Akuapem) dialects. In the Fante dialect, its corresponding form is *nńà*.[20] Even though it can be rightly said that the equivalent of *ná* in Fante is *nńà*, their functions in the two dialects are not identical. Fante *nńà* appears to have taken on some of the functions traditionally reserved for the low-toned clausal connective. This will be discussed in section 5.2, but first, I look at the communicative role of Twi *ná*.

5.1 Twi *ná*. The high-toned *ná* is a temporal discourse marker with the meaning of 'at that time'. As a temporal marker, the procedural information it provides is for the interlocutor to find a time period expressed in the immediately preceding discourse within which the event described in the *ná*-clause took (or will take) place. The time period that *ná* refers to could come in the form of a pre-posed temporal or conditional clause as in (30) and (31) respectively. It could also be expressed as a temporal adverbial preceding the *ná*-clause, as illustrated in (32). Finally, the time period which *ná* makes reference to may be located in the immediately preceding discourse, as in (33).

(30) Kwámè dú -ù Ǹkràn̄ nó, **ná** àbòfrá
Kwame arrive -COMPL Accra DCM, then child
nò à -ꜜdá.
DEF PERF -sleep
'When Kwame got to Accra, (at that time) the child was asleep.' (As)

(31) Sɛ̀ wó hú Àgyèmàn̄ à, **ná** wó -á -frɛ́ mé.
CM you see Agyeman CM, then you -CONS -call me
'Call me if you see Agyeman.'/ 'If you see Agyeman, then call me' (As)

(32) Tètè nó, **ná** ànkà yɛ̀ -nàntɛ́ firi Àbààsá kɔ́ Mán̄dò.
Ancient.times DEF, then MM we -walk leave Abaasa go Mando
'In ancient times, we used to walk from Abaasa to Mando.' (As)

[20] High-toned *ná* is used in certain Fante constructions such as imperatives, as in the following example: *hwehwɛ no ná bisa no* (look for him and (then) ask him). *Ná* in such contexts typically communicates a temporal ordering of events — do this and then do that. I owe this observation to Kweku Osam.

(33) a. Kwàsíádá yí mè-à -ǹ -hú wò wɔ̀ àsɔ́ré.
Sunday this I -COMPL -NEG -see you be.at church
'I didn't see you at church this Sunday'

b. **Ná** mè yáré.
Then I be.ill
'I was ill then.' (As)

When *ná* is used, the interlocutor has to look for a reference time period activated during the discourse, within which the action described in the clause introduced by *ná* took place or is expected to take place. In (30), what is communicated by the use of *ná* is that Kwame arrived at Accra and at the time he arrived, the child was asleep. The event described in the second clause is situated in the temporal period provided by the first clause which *ná* points out to the interlocutor. When the clausal conjunction *nà* is used in an almost identical sentence (34), what is most likely to be communicated, in the absence of any contextual indication to the contrary, is a temporal succession of events; Kwame arrived in Accra first, and subsequently the child fell asleep.

(34) Kwámè dú -ù Ǹkràn nó, **nà** àbòfrá nó dá -è.
Kwame arrive -COMPL Accra DCM, CONJ child DEF sleep -COMPL
'Kwame arrived in Accra, and then the child fell asleep.'
(The child fell asleep after Kwame arrived in Accra.) (As)

Ná cannot be felicitously used in an utterance like (35), which is a Twi adaptation of an utterance from the Fante text "Woana nye Araba nyinsenii" ('Who impregnated Araba'). The intervening clause *annkyɛ* ('it did not take long') disallows an interpretation where the event described in the second conjunct took place within the time period described by the first conjunct. The meaning of *annkyɛ* ('it did not take long') prevents the interlocutor from situating the event described in the following clause within the temporal period described in the preceding clause; the event in the second clause can only be subsequent to the one in the first. As a result, a speaker of Twi cannot opt for a high-toned *ná* in such a context.[21] Also the events described in (35) are such that the events in the second clause cannot occur during the same time period as the event described in the first clause.

[21] However the situation in Fante is somewhat different. See section 5.2.

(35) Àkɔ̀kòrá Kòfí Mèn!sá bá -à hɔ́ nó à -ǹ
Old.man Kofi Mensah come -COMPL there DCM COMPL -NEG

-kyɛ́ **nà** nímpá bínóḿ bɛ́ -ká -à nè hó
-take.long CONJ people some.PL MP -add -COMPL POSS self

'When Oldman Kofi Mensah settled there, a short time passed and then some people joined him' (As)

The time period referred to by the marker *ná* simply provides a temporal reference point for the event described in the clause preceded by *ná*. Pragmatic relations such as temporal (i. e. sequential) and causal relations which can be inferred from *nà*-conjunctions are blocked from *ná*-constructions as illustrated by the following set of examples (29), repeated here, and (36-37).[22]

(29) Á!má né pàpá wú -ì nó, **nà**
Ama POSS father die -COMPL DCM, CONJ

ò -gyáè -è sùkúù.
she -stop -COMPL school

'When Ama's father died, she quit school.'
(i.e. Ama quit school as a result of her father's death) (As)

(36) Á!má né pàpá wú-ì nó, **ná**
Ama POSS father die -COMPL DCM, then

ò -à -gyáé sùkúù.
she -PERF -stop school

'When Ama'a father died, she had quit school.'
(Ama had dropped out of school at the time her father died) (As)

[22] Certain tense-aspects dynamics involved in this set of examples are much too complex to be handled effectively within the scope of this paper. However note that in the context of temporal clauses such as the initial clauses in (29), (36) and (37), *no* is not optional and this marker is used when the event described is either a past event or a future event which is expected with certainty. It cannot refer to an event which is in progress or one which is continuing in the present time. Also the event described by the *ná*-clause cannot be completive.

(37) Á!má né pàpá wú -ì nó, **ná**
Ama POSS father die -COMPL DCM, then
ò -rè -bè -gyàé sùkúù.
she -PROG -FUT-stop school
'When Ama's father died, she was about to quit school.'
(Ama had decided to drop out of school at the time her father died) (As)

If there is no extra-linguistic information to the contrary, example (29) will be interpreted as indicating that Ama's father died, and she dropped out of school as a result. In (36) and (37), the time/period of Ama's father's death provides a temporal setting for the information provided in the second clauses: she had dropped out of school in (36), and was about to drop out of school in (37).

It may be concluded that the use of *nà* encodes the information that the conjunction is relevant as a single unit. It follows, then, that diverse pragmatic relations, including temporal ones, can be inferred between the conjuncts. *Ná*, on the other hand, is a temporal marker. It indicates a temporal frame within which the *ná*-utterance takes place.

5.2 The situation in Fante. As mentioned at the beginning of this section, the closest Fante equivalent of the temporal marker *ná*, is *nńà*. However, *nńà*, compared to its Twi counterpart, is used in a wider range of situations. The first function that can be attributed to *nńà* is parallel to its Asante counterpart, *ná*. *Nńà* will be the most appropriate form in the place of Asante *ná* in examples (30) to (33), (36), and (37).

In addition to its similarity in function to Asante *ná*, *nńà* has other functions which overlap that of the low-toned clausal connective *nà*. Some pragmatic relations which can be inferred between conjuncts by the use of the clausal connective *nà* are communicated with the use of *nńà*. These relations could be sequential, causal/consequential, simultaneous, or contrastive.

(38) Mò -hóŕ -ŕ àdzé **ńnà** mó-nóá -à èdzìbàń.
I -wash -COMPL thing then I -cook -COMPL food
'I did some laundry and cooked.' (Fa)

The use of *nńà* in (38) strongly communicates a sequential relation between the two clauses. That is, the activity described in the first clause occurred before the

one in the second clause, within a certain time period. As an answer to a question 'what did you do at home today?', the interlocutor will understand that the speaker of (38) first did some laundry and then cooked some food. The alternative connective *nà* can be used in such a context. Then the fact that the laundry was done before the cooking is attributed to inference. Though this sequential order may be the unmarked interpretation, it can be ruled out with a follow-up utterance. On the other hand, the use of *nńà* as in (38) forces a sequential interpretation of the order of events as presented. An attempt to immediately follow (38) with an utterance translated as 'but I cooked before I did the laundry' is odd. One can thus conclude that temporality is encoded by *nńà*, while it is inferred with the use of *nà*.

Another relation between conjuncts that arises as a result of the use of *nńà* is causality. Example (39) could be an appropriate response to the question 'how come Ebo has a cut on his mouth?'. The communicated message in (39) is that Kojo beat up Ebo, and Ebo had a cut as a result of that beating. In other words, Ebo had a cut on his mouth during that thrashing. Again this utterance is equally apt with the connective *nà*. Given the relation between violence and wounds, such an utterance is enriched in online interpretation to communicate the information that the cut was as a result of the beating. As in (38), *nńà* in (39) encodes temporality. The conjunct which precedes *nńà* occurred first. However this temporality is enriched in context so that the interlocutor infers a cause-consequence relation between the conjuncts.

(39) Kòjó bóŕ -ŕ Èbó nó, **ńnà** n' á¦nó pá -è.
Kojo beat -COMPL Ebo DCM, then POSS' mouth cut -COMPL
'Kojo beat Ebo and he had a cut.'
(Ebo had a cut on his mouth as a result of Kojo's beatings) (Fa)

Simultaneity is another kind of temporal relation which is communicated by the use of *nńà*. Again, this kind of relation can be inferred from conjuncts by the use of *nà*. The actions described in the various clauses in such *nńà*-constructions are deemed to be taking place within approximately the same time periods.

(40) Árábá rò -nòá èdzìbàń **ńnà** Éfúá rè -pŕá.
Araba PROG -cook food then Efua PROG -sweep
'Araba is cooking while Efua is sweeping.' (Fa)

The situation so far in Fante is as follows. Two types of *nńà* have been identified. First, there is a temporal marker equivalent to Asante *ná* ('then'). Second, there is a general temporal connective with a potential to be enriched in context to imply specific temporal relations between the conjuncts, such as sequentiality, cause-consequence relation or simultaneity. Such an account of *nńà* as a marker of asymmetric conjunction appears neat but for examples like (41) to (42), which further complicate issues. These examples communicate some form of contrast.

(41) Ádjóá yɛ̀ tùǹtùḿ **ńnà** Á!má yɛ́ kɔ̀kɔ̀ɔ́.
Adjoa be black CONJ Ama be red
'Adjoa is dark-skinned, while Ama is light-skinned.' (Fa)

(42) Ádjóá fì Kùmá sé **ńnà** Á!má fí Ìgùáé.
Adjoa come.from Kumasi CONJ Ama come.from Cape Coast
'Adjoa comes from Kumasi, while Ama comes from Cape Coast.' (Fa)

In these utterances where there is some form of contrast between the conjuncts, the connective could well be *nà*. However, it appears that in utterances where *nà* may be aptly glossed only as 'but', (but not 'while'), *nńà* does not work as a suitable alternative as in (43).

(43) ?Mè -pɛ̀ kɔ̀kɔ̀ɔ́ **ńnà** mé-ḿ -!pɛ́ bànkyé.
I -like ripe.plantain CONJ I -NEG -like cassava
'I like ripe plantain, but I do not like cassava.'(Fa)

On the other hand, an utterance like (43) is acceptable when the verbs in the two clauses are of the same polarity. Example (44), which is identical to (43) except for the fact that both verbs in the two clauses are negated, is an acceptable utterance in Fante.

(44) Mè -m̀ -pɛ́ kɔ̀kɔ̀ɔ́ **ńnà** mé-ḿ -!pɛ́ bànkyé ńsó.
I -NEG -like ripe.plantain CONJ I -NEG -like cassava also
'I don't like ripe plantain and I don't like cassava either.' (Fa)

I conclude this section by suggesting that *nńà* started out as a temporal marker and it still functions as such. In addition, this temporal marker is being grammaticalized into a connective, while retaining its original function. Its origin

as a temporal marker is reflected in the temporal relations that often pertain between conjuncts when it is used as a connective. This is in consonance with Hopper's (1991: 22) principle of persistence, which states that "when a form undergoes grammaticization from a lexical to a grammatical function, so long as it is viable some traces of its original lexical meanings tend to adhere to it ..."[23]

As a connective, *nńà* is used in limited non-temporal contexts, as in (41) and (42). This is an indication that the grammaticalization process from a strictly temporal marker towards a mundane clausal connective, with the potential to be enriched contextually in various directions, is still underway. The use of both *nńà* and *nà* in similar, sometimes even identical contexts is consistent with Hopper's (1991: 23) grammaticization principle of layering, which "refers to the prominent fact that very often more than one technique is available in a language to serve similar or even identical functions".

The evolution of adverbials into connectives and hence the close affinity between these two categories is not an unusual phenomenon in languages. Mithun (1988) suggests that

> the fluidity of the boundary between discourse adverbials and syntactic conjunctions is significant. The adverbial particles appear to be the source of most clausal coordinating conjunctions. [p. 346]

This can be argued to be the case for Fante *nńà*, which at present functions as a temporal marker as well as a clausal connective. Lefebvre (2004) suggests that the Fongbe adverbial *bó* may be the source of the coordinating function of *bó*.[24]

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[23] Hopper's definition of persistence was given against the backdrop that grammaticalization was considered as the development of grammatical units from lexical units (see for example Hopper & Traugott 1993). This definition has been revised and it is now recognized that the phenomenon of grammaticalization includes "how grammatical items develop new grammatical functions" (Hopper & Traugott 2003). Consequently, the principle of persistence can apply to originally grammatical items which have taken on other grammatical functions like Fante *nńà*.

[24] Lefebvre (2004: 145) suggests that the connective *bó*, as in (i), can be traced to the "connective adverb" (*bó*) which links the content of "the clause it is part of to an event that has been referred to earlier in the discourse", as in (ii).

(i)	À	wá	bó	yɪ	'I arrived and-then left.' (= Lefebvre 28b)
	1SG	arrive	CONJ	leave	
(ii)	Bó	yi			'Then go.' (= Lefebvre 47b)
	Then	go			

As mentioned in section 5, the French adverbial *puis* is assuming a coordinating function, so that it conjoins predicates as well as noun phrases. And indeed, according to Lefebvre, the Haitian clausal connective *epi* derives from French *et puis* (and then) — a coordinating connective and an adverbial marker of consecutive events. This kind of relation can be found in English as well, where according to Fretheim (2006), a single form 'then' can function as a truth conditional marker meaning 'at that time' and a non-truth conditional marker of consecutive events, 'and then'.

7. Conclusion.

This paper has been concerned with both noun phrase and clausal conjunctions in Akan. With regard to noun phrase conjunction, it has been established that the existing dialectal variation has significant semantic and pragmatic repercussions. Fante encodes a comitative strategy, and the connective which typically expresses a coordinative interpretation in this dialect is underdetermined between a weak (coordinative) and a strong (comitative) interpretation. However, the presence of a separate linguistic form which encodes comitativity makes it natural to think that most occurrences of the mundane noun phrase connective will be assigned a coordinative interpretation without comitiative implications. Asante, on the other hand, has a single noun phrase connective which is underdetermined between a comitative and a coordinative meaning. Contextual information including animacy considerations helps in identifying the intended interpretation. When both conjuncts are inanimate, a comitative interpretation is ruled out. The interpretation of a conjunction with animate conjuncts can go either way. It is significant that there is appreciable variation in the area of noun phrase conjunction among languages, and even within a single language like Akan.

It has been noted that clausal conjunction in Akan is performed by means of the connective *nà*. Its use indicates that the utterance is to be interpreted as a single unit and it signals that certain inferential relations, including temporal ones, exist between the conjuncts. It was observed that the segmentally identical but high-toned temporal marker *ná* appears to work equally well when certain temporal relations exist between the conjuncts. In the Twi dialects, it functions as a temporal marker which provides a temporal setting for the proposition expressed in the following conjunct. The Fante equivalent of the temporal marker, *nńà*, functions like Twi *ná* meaning 'then' i.e. 'at that time'. In addition, it occurs in utterances where sequential, causal or simultaneous relations exist between the conjuncts. Like the low-toned clausal connective, its use can give rise to an im-

plied contrastive relation between conjuncts. Even though there is no indication that the temporal marker *nńà* will soon usurp the functions of the low-toned coordinating connective, it is significant to note that there appears to be an overlapping communicative function between temporal markers which mean 'at that time' and ordinary clausal connectives. The situation in Fante coupled with that in Fongbe, French and Haitian Creole suggests a close conceptual affinity between the notions 'at that time' and 'after that'. This is evidenced by the fact that in a number of languages the form which means 'at that time' may be used to express other temporal relations in spite of the existence of an ordinary (clausal) connective that may be enriched in context to convey temporal relations between conjuncts (as is the case for Fante *nńà* and *nà*, English *then* and *and*, French *puis* and *et*). Some languages, such as Fongbe and Haitian Creole, have even gone further in this process and originally temporal markers are now functionally coordinating connectives.

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[received April 3, 2006
accepted Sept. 16, 2006]

Studies in African Linguistics
Volume 36, Number 1, 2007

KURMUK PHONOLOGY*

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This article describes the basic aspects of the phonology of Kurmuk, a previously undescribed language belonging to the Northern Burun subbranch of the Western Nilotic family. After a morphosyntactic overview, the treatment of the phonology includes syllable structure and word shapes, vowels and vowel alternation, consonants and consonant alternation, and tones and tonal processes.

1. Introduction.

Kurmuk is a small Western Nilotic language spoken in the southern part of Blue Nile Province in Sudan. It belongs to the group of closely related languages which Evans-Pritchard (1932: 34) called Northern Burun. Their closest relatives are the Southern Burun languages Mabaan, Jumjum and Ulu (Andersen 2006: 6), together with which they constitute the Burun branch of Western Nilotic. The other branches of this family are the Lwo languages, which include among others Dholuo, Anywa, Päri and Shilluk, and the Nuer-Dinka languages. Western Nilotic is a branch of the Nilotic family, whose other branches are Eastern Nilotic and Southern Nilotic. There are no previously published studies of Kurmuk, except for two short word lists in Evans-Pritchard (1932: 37-41). According to Ecsedy (1973: 143), the Northern Burun people comprise eight tribes, but it is not clear to what extent each of these tribes speaks a separate variety of Northern Burun.

* The Kurmuk data on which this article is based were collected in Khartoum in 2004. I wish to thank the Carlsberg Foundation for a grant for the fieldwork and my principal Kurmuk informant Yaana Ramadaan for his assistance. I also wish to thank the editor and an anonymous referee for helpful comments on an earlier version of the article.

Some aspects of another Northern Burun language, Mayak, have been described in Andersen (1999a, 1999c, 2000) and in Storch (2005).

The present article describes the basic aspects of the phonology of Kurmuk. Section 2 provides some necessary background information on the syntax and morphology of this language. Section 3 deals with syllable structure and word shapes. Section 4 describes the vowel system, including vowel harmony and other types of vowel alternation. Section 5 describes the consonant system and some of the phonological processes that affect the manifestation of underlying consonants. Section 6 deals with the major aspects of the tonal system, including the differences between underlying tones and their surface representation. Section 7 contains some closing remarks. Although the focus of the article is a synchronic description of a single language, some comparative and historical remarks on other Nilotic and other languages are occasionally included, mostly in footnotes.

2. Morphosyntactic Background.

2.1. Clause structure and subject suffixes. The basic order of clause constituents in Kurmuk is subject-verb-object, as in the intransitive clause (1a) and the transitive clause (1b).[1]

(1) a. kámbál ˈmɛ́ɛl -í 'The girl is dancing.'
girl dance -ASS

b. kámbál ʃàap kɔ̀ɔkɔ́ɔk 'The girl is cooking meat.'
girl boil meat

With transitive verb stems there is an alternative construction, as seen in (2a). Here the logical object precedes the verb, while the logical subject follows

[1] The following abbreviations are used in (interlinear) morphemic translations: **1** first person; **1PL** first person plural; **1PLEX** first person plural exclusive; **1PLIN** first person plural inclusive; **1SG** first person singular; **2PL** second person plural; **2SG** second person singular; **3** third person; **3PL** third person plural; **3SG** third person singular; **AP** antipassive; **ASS** assertive; **BEN** benefactive; **CF** centrifugal; **CONT** continuous; **CP** centripetal; **D1** first person demonstrative; **D2** second person demonstrative; **D3** third person demonstrative; **FOC** focus; **FUT1** near future; **FUT2** distant future; **HAB** habitual; **ID1** first person demonstrative identifier; **ID3** third person demonstrative identifier; **LOC** locative; **M** multiplicative; **PASS** passive; **PL** plural; **PRED** predicative; **PRO** proform; **PROH** prohibitive; **PST** past; **PTCPL** participle; **SG** singular or singulative.

the verb after the preposition *ŋà*, thus being demoted to adverbial status. In this construction, which I call "passive," the verb takes a (passive) suffix -(C)*ɪ*.[2] The logical subject can be left out, as in (2b).

(2) a. kɔ̀ɔkɔ́ɔk ʃáap -ì ŋà kámbál
meat boil -PASS by girl
'The meat is being cooked by the girl.'

b. kɔ̀ɔkɔ́ɔk ʃáap -ì -r
meat boil -PASS -ASS
'The meat is being cooked.'

When the logical subject of a transitive verb stem is pronominal, there are three alternative constructions: (i) The subject may occur in preverbal position in a short (clitic) form, as in (3a); (ii) it may be expressed by a suffix in the verb, while the object occurs before the verb, as in (3b); or (iii) the logical subject may be demoted to an adverbial in a passive construction, where it has its full citation form, as in (3c).

(3) a. à ʃàap kɔ̀ɔkɔ́ɔk
1SG boil meat
'I am cooking meat.'

b. kɔ̀ɔkɔ́ɔk ʃáab -à -r
meat boil -1SG -ASS
'I am cooking the meat.'

c. kɔ̀ɔkɔ́ɔk ʃáap -ì ŋà ʔáaníʃ
meat boil -PASS by 1SG
'The meat is being cooked by me.'

The short preverbal personal pronouns may also be (logical) objects, as in (4).

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[2] Here and elsewhere, "(C)" in a cited suffix symbolizes a consonant which is only present as a separate segment after certain morpheme-final consonants, which determine its articulation. When not present as a separate segment, the suffix consonant may still have some effect on the preceding consonant, cf section 5.6 below.

(4) à nʌ́g-úd̲ -↓íḱı́ -r 'They beat me.'
1SG beat -PST -3PL -ASS

A third person singular pronominal preverbal subject or object is zero, as in (5a) and (5b), respectively.

(5) a. ʃàap kɔ̀ɔkɔ́ɔk 'He/She is cooking meat.'
boil meat

b. ʃàab -à -r 'I am cooking it.'
boil -1SG -ASS

The inventory of subject suffixes is shown by the paradigm in (6), which also includes the passive form for comparison. Here the subject suffixes are preceded by a past tense suffix and followed by a suffix *-r*, which I gloss "assertive" (ASS), cf section 2.4 below. For first person plural there is a distinction between inclusive and exclusive. The first person plural inclusive suffix is preceded by what may be analysed as the passive suffix, while there is no passive suffix in the other forms.

(6) 1SG ʔám -úd̲ -ʌ̀ -r 'I ate it.'
eat -PST -1SG -ASS
2SG ʔám-úd̲-↓ı́-r 'You ate it.'
3SG ʔám-úd̲-↓ı́-r 'He/She/It ate it.'
1PLIN ʔám -úṯ -ì -wɛ́ɛ -r 'We ate it.'
eat -PST -PASS -1PLIN -ASS
1PLEX ʔám-úd̲-ɔ̀nɔ̀-r 'We ate it.'
2PL ʔám-úd̲-↓ɛ́ɛ-r 'You ate it.'
3PL ʔám-úd̲-↓íḱı́-r 'They ate it.'
PASS ʔám-úṯ-ì-r 'It was eaten.'

A subject may precede a preverbal object, in which case it is cross-referenced by a suffix in the verb, as in (7).

(7) mí -k dűbʌ́n ↓ʔúur-úd̲ -↓íḱı́ -r
woman-PL polenta stir -PST -3PL -ASS
'The women have cooked the polenta.'

In imperative clauses the verb always takes a subject suffix, as in (8)-(9), and an object may follow the verb, as in (9).

(8) bùḏ-í 'Run!'
run -2SG

bùḏ-ɛ́ɛ 'Run!'
run -2PL

(9) gèb-í yáaṭ 'Cut the tree!'
cut -2SG tree

gɛ̀b-ɛ́ɛ yáaṭ 'Cut the tree!'
cut -2PL tree

While adverbials generally occur in clause-final position, as in (10), certain particles occur in preverbal position after the subject or object slot. Such particles include the negation *áná* 'not', as in (11), and the alternative future tense particles *á* of near future and *áy* of distant future, as in (12).

(10) ʔɪɪɗ -á wín-ìṭ kʌ̀ ŋɪɪr ʔìn yù
cut:M -HAB rope-SG with knife PRO:SG be.sharp
'He/She cuts the rope with a sharp knife.'

(11) tùl -ìn áná máaḏ-á mòo
child -PL not drink -HAB beer(PL)
'Children do not drink beer.'

(12) mí -n ˡbáar á ʃáap kɔ̀ɔkɔ́ɔk
woman-SG of:1SG FUT1 boil meat
'My wife is going to cook the meat.'

ɗɛ̀ɛl áy ṭùw-ì
goat FUT2 die -ASS
'The goat will die.'

Negation and a future tense particle may co-occur in that order, in which case they coalesce into one phonological word, as in (13a). They may also coalesce with a preceding short (clitic) subject or object pronoun, as in (13b).

(13) a. áná -a ʔʌ́m -ꜜbí 'He/She is not going to eat.'
not -FUT1 eat -AP

b. à -aná -ay ʔʌ̀m -bí 'I will not eat.'
1SG-not -FUT2 eat -AP

2.2. Inflection for tense and aspect. Verbs are inflected for tense and aspect. There is a contrast between a non-past tense, which is morphologically unmarked, as in (14a), and a past tense, which is marked by a suffix -(*u*)*u*(*t̪*), as in (14b). There are also two imperfective aspect suffixes, which express continuous and habitual meaning, respectively, as in (14c-d). Both of the aspect suffixes have the segmental form -(*a*)*a*(*t̪*), but generally they are tonally distinct. They may co-occur with the past tense suffix, in that order, as in (15).

(14) a. t̪áarák kàl ɗɪ̋ɪt
person steal goat:PL
'The man is stealing goats (successfully).'

b. t̪áarák ꜜkál-ú ꜜɗɪ̋ɪt
person steal-PST goat:PL
'The man stole goats.'

c. t̪áarák kàl -á ɗɪ̋ɪt
person steal-CONT goat:PL
'The man is trying to steal goats.'

d. t̪áarák ꜜkál-á ꜜɗɪ̋ɪt
person steal-HAB goat:PL
'The man steals goats.'

(15) mí -n láal -ád̲ -↓úu ʔá↓míṭ̲
woman-SG make-CONT -PST food
'The woman was preparing food.'

mí -n ʃáab -ád̲ -úu kɔ̀ɔkɔ́ɔk
woman-SG boil -HAB -PST meat
'The woman used to cook meat.'

2.3. Verbal derivation. Verb stems consist of a root and zero or more derivational morphemes. The latter are expressed by suffixes, but they may also involve one or more phonological changes in the root, namely in vowel quality, vowel length, tone and final consonant. Moreover, aspect or tense suffixes sometimes coalesce with a derivational suffix. Thus, the morphology of Kurmuk is not as agglutinative as it may look.

Transitive verbal roots may be detransitivized by means of an antipassive derivational morpheme, which is expressed partly by a suffix -(C)*ɪ* ~ -(C)*i*, and partly by changes in the root, as seen in (16). The antipassive derivation removes the logical object from the valency of the root. Thus, while the underived verb stem in (16a) requires a grammatical object, the antipassive verb stem in (16b) excludes a grammatical object.

(16) a. kámbál ʃàap kɔ̀ɔkɔ́ɔk 'The girl is cooking meat.'
girl boil meat

b. kámbál ↓ʃʌ́ʌp-ɪ́ -r 'The girl is cooking.'
girl boil -AP -ASS

Other derivational suffixes of verb stems with a transitive root include the centrifugal -(C)*ɪ*, which expresses direction away from the deictic center, as in (17b), the centripetal -*ʊʊ* ~ -*uu*, which expresses direction towards the deictic center, as in (17c), the benefactive -(C)*ɪʃ* ~ -(C)*iʃ*, which increases the valency of the verb by introducing a beneficiary as a grammatical object, as in (18b), and the multiplicative -*ɪ*, which indicates a repeated action, as in (19b). In each set of clauses in (17)-(19), the (a)-clause shows the corresponding underived verb stem. Similar derivational suffixes are used after intransitive roots.

(17) a. kámbál ˡwɛ́ɛʃ táˡbúr
girl sweep dust
'The girl is sweeping dust.'

b. kámbál wɛ̀ɛʃ -í táˡbúr wóo
girl sweep-CF dust out
'The girl is sweeping dust out.'

c. kámbál wɪ̀ɪz -úʊ táˡbúr
girl sweep-CP dust
'The girl is sweeping dust hither.'

(18) a. tʊ̀ʊl púur wáŋ
child hoe field
'The child is hoeing the field.'

b. tʊ̀ʊl púr -íʃ ˡt̪áarák wàŋ
child hoe -BEN person field
'The child is hoeing the field for the man.'

(19) a. tʊ̀ʊl gɛ̀p yáat̪ 'The child is cutting the tree down.'
child cut tree

b. tʊ̀ʊl gɪ́ɪb-í yáat̪ 'The child is cutting the tree.'
child cut -M tree

2.4. The assertive suffix. The verbal suffix which I gloss "assertive" (ASS) occurs only in word-final position. Its function is somewhat uncertain, but its distribution provides a clue as to what its meaning might be. The suffix is obligatory if the verb has the final position in a positive declarative clause, as in the (a)-clauses in (20)-(24). By contrast, the suffix is excluded in negative clauses, as in the (b)-clauses of (20)-(22), in constituent questions (except for 'why'-questions), as in (23b) and (24b), in imperative clauses, as in (8) above, and before objects. The suffix is also mostly absent before an adverbial, as in (25), but it is present in 'why'-questions, as in (26). Given this distribution of the suffix, I tentatively consider it to have some kind of assertive meaning.

(20) ṯáarák ˡníɪn-dí 'The man is sleeping.'
person sleep-ASS

ṯáarák ˡáná níɪn 'The man is not sleeping.'
person not sleep

(21) a. tʊ̀ʊl ʔóm-b-úḏ-ì 'The child ate.'
child eat-AP-PST-ASS

b. tʊ̀ʊl áná ʔóm-b-ú 'The child did not eat.'
child not eat-AP-PST

(22) a. tʊ̀ʊl búḏ-ú-r 'The child is running hither.'
child run-CP-ASS

b. tʊ̀ʊl áná búḏ-ú 'The child is not running hither.'
child not run-CP

(23) a. kɔ̀ɔkɔ́ɔk ʃáab-úḏ-á-r 'I cooked the meat.'
meat boil-PST-1SG-ASS

b. ŋɔ̀o ʃáab-úḏ-á 'What did I cook?'
what boil-PST-1SG

(24) a. à ʔòḏ-ú-uḏ-í 'I came.'
1SG go-CP-PST-ASS

b. ŋáa ʔóḏ-ˡú-u 'Who came?'
who go-CP-PST

(25) nʌ́k-ì kʌ́ bɛ̀ɛl-áaṯ 'He is being beaten with a cane.'
beat-PASS with cane-SG

(26) tʊ̀ʊl wɛ̀ɛg-ì tèe 'Why is the child crying?'
child cry-ASS why

The assertive suffix is not restricted to declarative sentences, but is also used in polar interrogative sentences, which would seem to be incompatible with

the notion of assertion. However, polar interrogative sentences are identical to declarative sentences apart from a different intonation (and an optional sentence-final particle not illustrated here). Thus, they are characterized by a general rise of the pitch somewhere in the utterance, as indicated by the upstep symbol [↑] in (27) and (28a).

(27) ṯáarák ʔìmì ŋéeḏ-↑í -r 'Do you know this person?'
person D1:SG know-2SG-ASS

(28) a. ʔùlʌ̀n ↑nóog -ú -r
person:PL beat -M:AP -ASS
'Are the people fighting?'

b. èʔɛ́, gà -aná nóog -ú, gʌ̀ mɛ́ɛl -ɪ́
no 3PL -not beat -M:AP 3PL dance -ASS
'No, they are not fighting, they are dancing.'

The assertive suffix, as defined here, has three allomorphs: -(C)*ɪ*, -*ɪ* and -*r*. They are in complementary distribution in that -(C)*ɪ* occurs immediately after a root, as in (20) and (26), while -*ɪ* and -*r* occur after a suffix, -*ɪ* after a consonant, as in (21a) and (24a), and -*r* after a vowel, as in (22a) and (23a).

In summary, to the extent that verb forms are segmentable into morphs, the linear order of their morphemes is as indicated in (29).

(29) Root + Derivation(s) + Aspect + Tense + Subject + Assertion

2.5. Noun structure. Noun forms in Kurmuk are grammatically either singular or plural, and in terms of number inflection, nouns fall into three classes, as in most other Western Nilotic languages (Storch 2005) as well as more widely in the Nilo-Saharan phylum (Dimmendaal 2000): (i) Nouns with plural marking, where the singular is morphologically unmarked and the plural morphologically marked, either by a suffix, as in (30a), or by apophony, as in (30b); (ii) nouns with singulative marking, where the singular is morphologically marked by a suffix and the plural morphologically unmarked, as in (30c), or where there is no singular counterpart of the unmarked plural, as in (30d); (iii) nouns with replacive marking, where both the singular and the plural are morphologically marked by a suffix, as in (30e-f). The method of morphemic translation for each form in (30) re-

flects the type of marking and is based on implicit principles used in morphemic translations throughout this article.

(30)	*Singular*	*Plural*	
a.	kùl wart.hog	kùl -àk wart.hog -PL	'wart-hog'
b.	gálám kid	gólúm kid:PL	'kid'
c.	gìm -ìṭ cheeks-SG	gím cheeks	'cheek'
d.	–	làakìn urine(PL)	'urine'
e.	gúr -íṭ stone-SG	gúr -ʌ́n stone-PL	'stone'
f.	ɗɪ̀náaṭ bird:SG	ɗɪ̀ɗɪ̀n bird:PL	'bird'

Possessive suffixes are used with inalienably possessed nouns, such as body part nouns. Thus, the paradigms in Table 1 show the possessive inflection of the singular and the plural of the word for 'thigh'. As seen here, there is no distinction between inclusive and exclusive in first person plural possessive suffixes. Note also that the possessive suffixes express not only the person and number of the possessor, but also the number of the possessee.[3] Thus, the possessive suffixes begin with a velar stop when the possessee is plural. Moreover, there is evidence that the singular possessee suffixes underlyingly begin with an alveolar stop /ɗ/ after monosyllabic stems, cf for instance *zɔ́* 'chest', *zɔ̀-ɗɪ́ɪ* 'my chest'; thus, the /b/ in the singular possessee suffixes shown in Table 1 is probably the manifestation

[3] This feature of possessive markers is something which Kurmuk shares with some other Nilotic languages. Among the other Western Nilotic languages it is also found in Nuer (Crazzolara 1933: 67ff) and Dinka (Andersen 2002: 16f), and it is pervasive in the Southern Nilotic family (Rottland 1981 and 1982). Moreover, it is also found in some other Nilo-Saharan languages, for instance the Surmic languages, see Unseth's (1991) overview.

of an underlying /d/ which has assimilated to the stem-final consonant.[4] The possessive markers cannot occur without an immediately preceding noun, into which they are fully integrated phonologically in terms of both segmental and tonal processes (cf e.g. Table 6 in section 4.2 below), so they are suffixes rather than enclitics or independent words.[5]

Table 1: Possessive Inflection of a Body Part Noun

Possessor ↓	*Singular possessee* 'thigh'	*Plural possessee* 'thighs'
Unpossessed	ʔʌ̀ʌm	ʔʌ́m-ín
1SG	ʔʌ̀ʌm-bíɪ	ʔʌ̀m-í-gíɪk
2SG	ʔóom-bú	ʔóm-ú-↓gúuk
3SG	ʔʌ́ʌm-bí	ʔʌ́m-í-↓gíɪk
1PL	–	ʔʌ̀m-í-gɔ́ɔk
2PL	–	ʔóm-ú-gùuk
3PL	–	ʔʌ́m-í-gìn

Alienable possession is expressed by means of the genitive preposition *bà ~ bʌ̀* 'of' followed by a possessor noun phrase after the possessee, as in (31). For some pronominal possessors, the genitive preposition merges with a special form of the personal pronoun, as in (32).

(31) ʔʌ́t bʌ̀ máaʃ 'kitchen'
house of fire

zúʊz -ú ŋ̀ɪɪr bà ɖ̱áanʲíʃ 'He/She found his/her knife.'
find -PST knife of 3SG

[4] Thus, the number marking of the possessee is cognate with the marking that is used in Nuer and Dinka, whose possessive markers begin with /d/ for a singular possessee and /k/ for a plural possessee.

[5] In this way they differ from the possessive markers in Dinka, which are enclitics (Andersen 2002: 16f).

(32) púrɪ ˡbáar ʔúl -ˡʌ́kɪ́ 'My cloth is black.'
cloth of:1SG be.black-PRED

ʔìm bíir ʔínzí 'That is yours.'
PRO:SG of:2SG ID3

3. Syllable Structure and Word Shapes.

Kurmuk has the following eight syllable types: *CV*, *CVV*, *CVC*, *CVVC*, *V*, *VV*, *VC* and *VVC*. Monosyllabic words normally begin with a consonant, as exemplified by the nouns in (33). Most monosyllabic words also end in a consonant, as in (33b) and (33d), the word shapes *CV* and *CVV* mainly being restricted to function words, as in (34).

(33) a. CV zɔ́ 'chest'
b. CVC kʊ̀t̪ 'rain'
c. CVV rɛ̀ɛ 'thirst'
d. CVVC pʌ́ʌm 'mountain'

(34) CV kà (preposition)
CVV ŋòo 'what' (interrogative)

Syllables without an initial consonant (*V*, *VV*, *VC* and *VVC*) occur only word-initially, and those with a long vowel (*VV* and *VVC*) only in phonological words consisting of two or more coalesced function words, see below. In general the syllable types *V* and *VC* occur only in phonological words with more than one syllable. They are found in many nouns that begin with a low-toned short /à/, as in (35), and many of these seem to be loanwords borrowed from the neighbouring language Berta, some in turn being borrowed from Arabic (Andersen 1993: 43).

(35) a. àgúurú 'cloud', cf Berta *àgúurù*
b. àn̪dòlòolò 'ram'
c. àʃìn̪dúuk 'box', cf Berta *àssàndûuk'*, from Arabic *sˁanduug*
d. àlgálám 'pen', cf Berta *àlgálàm*, from Arabic *galam*

The syllable types *V* and *VC* also occur in a few monosyllabic function words, and this may be the reason for their deviant shape. The particles *á* of near future and *áy* of distant future only occur immediately before a verb, as in (36), so they

are bound morphemes, and they might therefore be considered to be prefixes; but unlike the suffixes, they are not phonologically integrated in the verb. Thus, they are tonally invariant, whereas the underlying tones of verbal suffixes may depend on the tonal class of the verbal root, see 6.7 below. Similarly, the preverbal particles, unlike suffixes, are not involved in any segmental processes that may take place in a verb, such as vowel harmonization, see 4.2 below. Since their phonological status is thus neither that of a phonological word nor that of an affix, they should probably be categorised as clitics, but I have made the arbitrary decision not to indicate this, and transcribe them as words.

(36) á ʔám ↓ɗúbʌ́n 'He/She is going to eat polenta.'
FUT1 eat polenta

áy ʔàm ɗúbʌ́n 'He/She will eat polenta.'
FUT2 eat polenta

Other *V* and *VC* function words are the personal pronouns *à* 'I', *ì* 'you' (2SG), *í* 'we' (1PLIN) and *ḿ* 'we' (1PLEX). Like the other monosyllabic personal pronouns, *wʌ́* 'you' (2PL) and *gì* 'they', they are also restricted to occurring in preverbal position, either immediately before the verb, as in (37a), or coalescing with a following particle, as in (37b-c). In (37b) the pronoun *à* coalesces with the negation particle *áná*, which creates a *VV* syllable, and in (37c) it coalesces with the distant future particle *áy*, which creates a *VVC* syllable. Like the future tense particles, the monosyllabic personal pronouns are bound morphemes in the sense that they are not citation forms, and unlike the subject suffixes they are tonally invariant underlyingly and could therefore be categorized as clitics. The corresponding citation forms of the personal pronouns are disyllabic, and they are not vowel-initial, but begin with a glottal stop: *ʔáaníʃ* 'I', *ʔíiníʃ* 'you' (2SG), *ʔíŋgíʃ* 'we' (1PLIN), *ʔɔ́nɔ́k* 'we' (1PLEX).

(37) a. í ʔám ↓ɗúbʌ́n 'We are eating polenta.'
1PLIN eat polenta

b. à -aná ʔʌ́m -↓bí 'I am not eating.'
1SG-not eat -AP

c. á -ay ʔàm ɗúbʌ́n 'I will eat polenta.'
1SG -FUT2 eat polenta

There seem to be no further restrictions on the combination of syllable types within a word. For instance, all logically possible combinations of the four syllable types *CV*, *CVC*, *CVV* and *CVVC* have been attested in disyllabic nouns, as illustrated in (38), where dots indicate syllable boundaries, while hyphens indicate morpheme boundaries. There can, for example, also be a sequence of four syllables with a long vowel, as in the verb form in (39), which constitutes a complete sentence.

(38)	CV.CV	ʃɪ̀dɪ̀	'he-goat'
	CV.CVC	lèg -ɪ̀t̪	'tooth'
		teeth -SG	
	CV.CVV	kày -áa	'my sister'
		sister-1	
	CV.CVVC	ʃàpúʊ̀t̪	'cat'
	CVC.CV	bàrt̪ì	'slave'
	CVC.CVC	ʃʌ́mpír	'mat'
	CVC.CVV	wàŋ -gɪ́ɪ	'my eye'
		eye -SG:1SG	
	CVC.CVVC	wʌ̀t̪ -kɪ́ɪk	'my buttocks'
		buttocks -PL:1SG	
	CVV.CV	ʔúuɗú	'ostrich'
	CVV.CVC	t̪áarák	'person'
	CVV.CVV	kɪ̀ɪr -ɪ́ɪ	'my foot'
		foot -SG:1SG	
	CVV.CVVC	ɗɪ̀ɪnáat̪	'bird'
		bird:SG	
	CVVC.CV	kúuŋkí	'dough'
	CVVC.CVC	ɗʊ̀ʊnɗʊ̀l	'chameleon'
	CVVC.CVV	tɔ̀ɔŋgáa	'locust'
	CVVC.CVVC	wɪ̀ɪnɗʊ̀ʊn	'magician'

(39) t̪ʌ́ʌŋ -áaɖ̪ -ùuɖ̪ -ɛ́ɛ -r 'You were pushing it hither.'
push -CP:CONT -PST -2PL -ASS

As seen above, a word consists of a root and zero or more suffixes, while there are no true prefixes. Virtually all verbal roots are monosyllables with the shape *CV(V)C*, but verb forms may consist of up to at least five syllables, as in the sentences in (40).

(40) ʔám -ád̲ -ˈúut̲ -í -ˈwɛ́ɛ -r 'We used to eat it.'
eat -HAB -PST -PASS -1PLIN -ASS

t̲ʌ́ʌŋ -áad̲ -ùud̲ -íkí -r 'They were pushing it hither.'
push -CP:CONT -PST -3PL -ASS

púr -úz -ˈúud̲ -ɔ́nɔ̀ wàŋ 'We hoed the field for him/her.'
hoe -BEN -PST -1PLEX field

Many morphologically simple nouns are monosyllables with the shape *CV(V)C* like verbal roots; but there are also many simplex nouns with more syllables.

4. Vowels.

4.1. Inventory and distribution of vowels. Kurmuk has ten vowel qualities, and they are divided into two symmetrical sets distinguished by the feature [ATR] (Advanced Tongue Root) as indicated in Table 2. For all ten qualities there is a binary length contrast between short and long.[6] In monosyllabic words, however, the mid [+ATR] qualities [e] and [o] are very rare. They do not occur in monosyllabic verb forms, and they have only been attested in two words that are not function words, viz. the noun *mòo* 'beer' and the numeral *d̲òof* 'five', so they have at the most a marginal phonemic status, see below. The occurrence of the other eight vowel qualities and their two lengths in monosyllables are exemplified in Table 3 with singular nouns.

Table 2: Vowel Qualities

	[-ATR]		[+ATR]	
high	ɪ	ʊ	i	u
mid	ɛ	ɔ	(e)	(o)
low	a		ʌ	

[6] When I mention vowel qualities irrespective of vowel length, I use single vowel symbols, without implying that the vowels are short.

Table 3: The Eight Basic Vowel Qualities in Monosyllabic Nouns

	/ɪ/	bɪ̀l	'iron'	/ɪɪ/	yɪ́ɪ̰t	'well'
	/ɛ/	t̰ɛ́l	'lower leg'	/ɛɛ/	mɛ̀ɛk	'spider'
[-ATR]	/a/	pál	'navel'	/aa/	máaʃ	'fire'
	/ɔ/	tɔ́ŋ	'spear'	/ɔɔ/	ʔɔ̀ɔŋ	'frog'
	/ʊ/	kʊ̀t̰	'rain'	/ʊʊ/	tʊ̀ʊl	'child'
	/i/	kíʃ	'bee'	/ii/	kìiʃ	'orphan'
[+ATR]	/ʌ/	ʔʌ́t	'house'	/ʌʌ/	pʌ́ʌm	'mountain'
	/u/	púʃ	'grave'	/uu/	lúum	'grass'

In many function words and suffixes there is free variation between the short low vowels [a] and [ʌ], as exemplified in (41).

(41)

ŋà ~ ŋʌ̀		(preposition, 'by')
bà ~ bʌ̀		(preposition, 'of')
kà ~ kʌ̀		(preposition, 'with')
wàlá ~ wʌ̀lʌ́		(Prohibitive)
-a ~ -ʌ		(1st person singular subject)
-at̰ ~ -ʌt̰		(Habitual)
-ákí ~ -ʌ́kí		(Predicative)

But in (monosyllabic) roots which are not function words, there clearly is a contrast between the low qualities [a] and [ʌ], whether short or long, as illustrated by minimal pairs in (42).

(42)

[a]		[ʌ]	
kàal	'cattle enclosure'	kʌ̀ʌl	'hole'
ʔàam	'left hand'	ʔʌ̀ʌm	'thigh'
nàk	'taste' (tr. verb)	nʌ̀k	'kill, beat' (tr. verb)

The vowel qualities [e] and [o] do occur in root position in nouns and verbs with more than one syllable, but normally only if the vowel of the following syllable is a high [+ATR] vowel, as in the morphologically simple disyllabic nouns in (43) and the morphologically complex disyllabic nouns in (44).

(43) kòɖí 'stick'
béekúm 'monkey species'

(44) a. lèg -ìt̪ 'tooth'
teeth -SG

b. t̪èel -ìn 'lower legs'
lower.leg -PL

c. ʔókúr 'chickens'
chicken:PL

In such words the mid [+ATR] qualities [e] and [o] are distributional variants of the mid [-ATR] qualities /ɛ/ and /ɔ/, brought about by regressive [ATR] assimilation, see section 4.2 below; or [o] is a rounded variant of /ʌ/ conditioned by a following [u], as in (44c), see section 4.3 below. However, [e] and [o] also occur in some words in which those conditions do not obtain. Thus, there are monosyllables with [e] and [o], as in (45), and there are words with more syllables in which [e] and [o] are not followed by /i/ or /u/, as illustrated in (46). In such words, which seem to be rather few, [e] and [o] must probably be analysed as having a separate phonemic status.

(45) tèe 'why' (interrogative)
mòo 'beer'
ɖòoʃ 'five'
ŋòo 'what' (interrogative)
kóon 'other'

(46) àndòlòolò 'ram'
múkúl↓ée 'maize'
ɗórée 'hammer'

4.2. [ATR] harmony. In monomorphemic nouns with more than one syllable, all vowels normally belong to the same [ATR] set, except that the low [-ATR] quality [a] also co-occurs with the [+ATR] qualities [i], [u] and [ʌ]. In the examples given in (47), all the vowels belong to the [-ATR] set, and in (48) they all belong to the [+ATR] set. The examples in (49) show that [a] can co-occur with [+ATR] vowels.

(47) kɔ̀rpɛ́ 'boat'
ḓɔ́ŋgɔ́l 'cock'
kúrɔ́ṭ 'play ground'
gʊ̀ʊzɪ́ɪn 'blacksmith'
kɪ́dɪ́ʃ 'pot type'
kúʊṭár 'pig'
kábɪ́l 'sheep' (sg.)
ʃɪlkáṭ 'broom'

(48) búurɪ́ 'twin'
kúlʌ́r 'porcupine'
yʌ́ʌlɪ́ʃ 'python'
múumúl 'diviner'
ṭʌ́ʌkʌ́l 'vulture'

(49) ʃàrɪ́ 'ghost'
zàagúl 'worm'
àbʊ̀ʊrà 'buffalo'
àlbàambʌ́y 'sweet potato species'

Two exceptions have been encountered: in the nouns in (50) the [+ATR] quality [u] co-occurs with the [-ATR] quality [ɪ].

(50) púrɪ́ 'cloth'
rúnzɪ́ 'rainbow'

In words with suffixes that contain a vowel, the situation is more complex. To some extent, there is vowel harmony based on the [ATR] feature across morpheme boundaries within a word.[7] In this respect the suffixes fall into four classes:

[7] [ATR] harmony is a feature of Nilotic languages in general, thus occurring in all three main branches of this language family, viz. Western Nilotic, Eastern Nilotic and Southern Nilotic. The vowel harmony in Bari, an Eastern Nilotic language, was already described by Spagnolo (1933), and further studies of vowel harmony in this language are Hall & Yokwe (1978) and Steinberger & Vago (1987). The vowel harmony in Turkana, another Eastern Nilotic language, was first described by Dimmendaal (1983) and has subsequently been discussed by Vago & Leder (1987) and Noske (1990, 1996). As for Southern Nilotic languages, see

Class 1: Suffixes which are invariably [-ATR] and which do not affect the quality of preceding vowels.

Class 2: Suffixes which are invariably [+ATR] and which spread this feature to preceding non-low [-ATR] vowels.

Class 3: Suffixes which vary between [-ATR] and [+ATR] in harmony with the preceding vowel.

Class 4: Suffixes which vary between [-ATR] and [+ATR], but where the direction of the harmonization is dependent on the height of the root vowel.

These four classes will be dealt with in turn.

Class 1 suffixes have a [-ATR] vowel which does not vary with the corresponding [+ATR] vowel and which does not affect the quality of preceding vowels. The majority of suffixes belong to this class. As exemplified below, all of the five [-ATR] qualities, except [ʊ], have been attested in such suffixes.

An invariable /ɪ/ occurs for instance in the passive suffix -(C)*ɪ*. Table 4 shows this suffix after stems with each of the eight root vowel qualities.

Table 4: The Passive Suffix -(C)*ɪ* After Stems With Each of the Eight Root Vowel Qualities

	/ɪ/	lìm-pì-r	'dig'
	/ɛ/	mɛ̀n-tì-r	'twist'
[-ATR]	/a/	ʔàm-pì-r	'eat'
	/ɔ/	kɔ́ɔ-ʃɪ-r	'take'
	/ʊ/	pʊ̀t-ì-r	'wash'
	/i/	píin-tí-r	'encircle'
[+ATR]	/ʌ/	nʌ̀k-ì-r	'beat, kill'
	/u/	kʊ̀ʃ-ì-r	'not know'

Rottland (1982) and for instance Creider & Creider (1989). Most of the Western Nilotic languages also exhibit [ATR] harmony, see for instance Tucker (1994) on Dholuo, Lojenga (1991) on Alur, Noonan (1992) on Lango, Andersen (1989) on Päri, Reh (1996) on Anywa, Gilley (1992) on Shilluk, Andersen (1999c) on Mayak, and Andersen (2006) on Jumjum. A few Western Nilotic languages are devoid of vowel harmony, including Dinka (Andersen 1987) and Mabaan (Andersen 1999b), but this is an innovation.

Another suffix with an invariant [-ATR] vowel is -(C)*ɔ̀n*, which forms a singular participle from transitive verbal roots. As illustrated in (51), the vowel of the suffix is [ɔ] both after the [-ATR] stem *pél-* and after the [+ATR] stem *ʔúr-*.

(51) kɔ̀ɔkɔ́ɔk ʔá ˡpél -gɔ́n 'The meat is roasted.'
meat be roast -PTCPL:SG

ɗúbʌ́n ʔà ʔúr -gɔ́n 'The polenta is cooked.'
polenta be stir -PTCPL:SG

An invariable /aa/ occurs in the singulative suffix *-aaṭ*, and an invariable /ɛɛ/ in the 2nd person plural subject suffix *-ɛ́ɛ*, as seen in (52) and (53), respectively.

(52) *Singular* *Plural*
bɛ̀ɛl-áaṭ bɛ́ɛl 'cane'
bùur-àaṭ búur 'mushroom'

(53) bʊ̀ḍ -ɛ́ɛ 'Run!'
run -2PL

ʔùr -ɛ́ɛ 'Stir!'
stir:AP -2PL

Suffixes of Class 2 have an invariably [+ATR] high vowel. They impose their [ATR] value on preceding non-low [-ATR] vowels, as exemplified by the 2nd person singular subject suffix *-i* in Table 5 and the 2nd person singular possessive suffix -(C)*u* in Table 6. In this way the non-low [-ATR] qualities /ɪ,ɛ,ɔ,ʊ/ are realized as [i,e,o,u], while the low [-ATR] quality /a/ is left unaffected.[8]

[8] It is not clear whether a Class 1 suffix can be followed by a Class 2 suffix and then undergo harmony.

Table 5: Vowel Harmony Imposed by the 2nd Person Singular Subject Suffix *-i*

		Stem	*2SG form*	
	/ɪ/	ʔɪɪɗ-	ʔíiɗ-í-r	'cut' (multiplicative stem)
	/ɛ/	gɛ̀p	gèb-í-r	'cut'
[-ATR]	/a/	ʔàm	ʔàm-í-r	'eat'
	/ɔ/	kɔ́ɔy	kóy-í-r	'take'
	/ʊ/	rʊ̀ʊ̰t	rúuḏ-í-r	'transplant'
	/i/	wík-	wík-í-r	'throw' (centrifugal stem)
[+ATR]	/ʌ/	ʔʌ̀t	ʔʌ̀ɗ-í-r	'pull'
	/u/		(unattested)	

Table 6: Vowel Harmony Imposed by the 2nd Person Singular Possessive Suffix -(C)*u*

		Stem	*2SG form*	
	/ɪ/	kɪ̀ɪr	kíir-ú	'leg, foot'
	/ɛ/	ʈɛ́l	ʈèl-ú	'lower leg'
[-ATR]	/a/	gáalá̰ʈ	gáalá̰ʈ-↓ú	'hand'
	/ɔ/	ɖɔ́ɔl	ɖóol-ú	'anus'
	/ʊ/	ʈʊ́k	ʈúg-ú	'mouth'
	/i/	lègìʈ	lègìʈ-ú	'tooth'
[+ATR]	/ʌ/	ʔʌ̀ʌm	ʔóom-bú	'thigh'
	/u/	ʔùuŋ	ʔúuŋ-gú	'knee'

In Class 3 suffixes the vowel varies between [-ATR] and [+ATR] in harmony with the root vowel. Some of these suffixes are productive, but only occur after roots with one of the following five vowel qualities: the high [-ATR] vowels /ɪ,ʊ/ and the [+ATR] vowels /i,ʌ,u/. Thus, these suffixes only occur after verb roots that have undergone Vowel Quality Shift, see section 4.4 below. One example is the antipassive suffix -(C)*ɪ* ~ -(C)*i*, as illustrated in Table 7. While Class 1 suffixes are underlyingly [-ATR] and Class 2 suffixes underlyingly [+ATR], Class 3 suffixes may be taken to be underlyingly unspecified for [ATR].

Table 7: The Antipassive Suffix -(C)*ɪ* ~ -(C)*i*

[-ATR]	/ɪ/	gɪ̀p-ɪ́-r	'He/She is cutting'
	/ʊ/	lʊ̀t̪-ɪ́-r	'He/She is pulling'
	/i/	ɪ̀k-ɪ́-r	'He/She is breaking (something)'
[+ATR]	/ʌ/	ʔʌ̀m-bɪ́-r	'He/She is eating'
	/u/	pʊ̀t-ɪ́-r	'He/She is washing (clothes)'

Other suffixes which exhibit the same kind of variation, but which are possibly not productive, are for instance the plural noun suffix *-ɪt̪* ~ *-it̪*, as in (54), and the singulative noun suffix *-at̪* ~ *-ʌt̪*, as in (55).

(54)

	Singular	*Plural*	
/ɪ/	ŋʊ̀ɪr	ŋɪ́r-ɪ́t̪	'knife'
/a/	kàal	kál-ɪ́t̪	'garden'
/ɔ/	bɔ̀ɔm	bɔ́m-ɪ́t̪	'throwing stick'
/i/	bíiŋ	bíŋ-ɪ́t̪	'hide'
/ʌ/	pʌ́ʌm	pʌ́m-ɪ́t̪	'mountain'
/u/	túuŋ	túŋ-ɪ́t̪	'horn (as musical instrument)'

(55)

	Singular	*Plural*	
/ɪ/	pɪ́ɗ-át̪	pɪ́t	'shell'
/a/	wár-át̪	wár	'shoe'
/ʊ/	kʊ́m-át̪	kʊ́m	'egg'
/i/	tɪ́ɗ-ʌ́t̪	tɪ́t	'witch-doctor'
/ʌ/	ʔʌ̀ʌw-ʌ̀t̪	ʔʌ́ʌw	'bone'

Class 4 includes the past tense suffix. This suffix has several allomorphs, but most of them contain a short or long [u] or [ʊ]. Table 8 illustrates the distribution of [u] and [ʊ] after simplex transitive stems in sentences like (56b), which is the past tense counterpart of the present tense sentence (56a).

(56) a. à bɔ́ɔr dɛ̋ɛl 'I am skinning a goat.'
1SG skin goat

b. à bóor-ú dɛ̋ɛl 'I skinned a goat.'
1SG skin -PST goat

Table 8: The Past Tense Suffix *-u ~ -ʊ* After Simplex Transitive Stems

		Present	*Past*	
	/ɪ/	wɪ̀ɪw	wɪ́ɪw-ú	'lose'
	/ɛ/	yɛ̀ʃ	yɛ́z-ú	'tear'
[-ATR]	/a/	ŋàl	ŋál-ú	'gnaw'
	/ɔ/	bɔ̀ɔr	bɔ́or-ú	'skin'
	/ʊ/	nʊ̀n	nʊ́n-ʊ́	'fold'
	/i/		(unattested)	
[+ATR]	/ʌ/	ʔʌ̀t	ʔɔ́ɗ-ú	'pull'
	/u/	ṭù∫	ṭúz-ú	'send'

As seen in Table 8, the [-ATR] quality /ʊ/ occurs if the preceding vowel is a high [-ATR] vowel, i.e. /ɪ/ or /ʊ/, while the [+ATR] quality /u/ occurs elsewhere. Thus, /u/ is used not only after underlying [+ATR] qualities, but also after non-high qualities that are underlyingly [-ATR], i.e. after /ɛ/, /a/ and /ɔ/. In the latter case, the mid vowels /ɛ/ and /ɔ/ are realized phonetically as [e] and [o]; that is, they harmonize with the following /u/. Since the past tense suffix is [+ATR] after non-high root vowels that are underlyingly [-ATR], it must be taken to be [+ATR] underlyingly like Class 2 suffixes. But it differs from Class 2 suffixes in that it harmonizes with high [-ATR] root vowels. Thus, this suffix triggers regressive [+ATR] harmony after mid root vowels, but progressively undergoes [-ATR] harmony after high root vowels. In this way it exhibits a mixture of two types of vowel harmony: [+ATR]-controlled and root-controlled. The past tense suffix is possibly the only member of Class 4. In principle, however, those Class 3 suffixes which only occur after the shifted root-vowels /ɪ,ʊ,i,ʌ,u/, as in Table 7 above, could also be taken to belong to this class.

In (57a) the past tense suffix is followed by the Class 1 suffix *-ɪ* (3rd person singular subject), and again it is [-ATR] after a high [-ATR] root vowel. In (57b), by contrast, the past tense suffix is followed by the Class 2 suffix *-i* (2nd person singular subject), and this suffix spreads its [+ATR] feature to both of the preceding vowels.

(57) a. gɪ́ɪb -ʊ́ṭ -ɪ́ -r 'He/She cut it.'
cut:M -PST -3SG -ASS

b. gɪ́ib -ʊ́ṭ -ɪ́ -r 'You cut it.'
cut:M -PST -2SG -ASS

The past tense suffix may be preceded by a suffix with the quality /a/, as in (58), and in that case the root vowel is not affected by the past tense vowel. Thus, /a/ is a so-called opaque vowel (Steinberger & Vago 1987: 361), blocking the spreading of [+ATR].

(58) gɛ̀b -àa̰ -ùuḍ-ɪ́ -r 'He/She was cutting it.'
cut -CONT -PST -3SG -ASS

4.3. Rounding of /ʌ,ʌʌ/. The low [+ATR] vowels /ʌ,ʌʌ/ are (optionally, but normally) rounded to [o,oo] when the following syllable contains the rounded quality /u/, as seen in (59)-(60). The forms in (59) show that the second person singular possessive suffix -(C)*u* has this effect. The root vowel of the word for 'thigh' is underlyingly /ʌʌ/, as shown by the suffixless form in (59a). As seen in (59b), the third person singular possessive suffix -(C)*ɪ* has no effect on the root vowel, but before the suffix -(C)*u* the root vowel surfaces as [oo], as seen in (59c).

(59) a. ʔʌ̀ʌm 'thigh'
b. ʔʌ́ʌm -bɪ́ 'his thigh'
thigh -SG:3SG
c. ʔóom -bú 'your thigh'
thigh -SG:2SG

The past tense suffix *-u* has the same effect, as seen in (60). In (60a) the suffixless verb form *ʔʌ̀t* has the root vowel /ʌ/; but before the past tense suffix in (60b), the root vowel is realized as [o].

(60) a. ṭ́aarák ʔʌ̀t wɪ̀n -ɪ̀ṭ 'The man starts pulling the rope.'
person pull ropes-SG

b. ṭ́aarák ↓ʔóɗ-ú wɪ̀n -ɪ̀ṭ 'The man pulled the rope.'
person pull -PST ropes-SG

No rounding takes place if another vowel intervenes between /ʌ/ and /u/, as seen in the verb form in (61). Here there is a suffix vowel /aa/ between the root vowel /ʌʌ/ and the suffix vowel /uu/.

(61) t̪áarák ˡt̪ʌ́ʌŋ -áad̪ -ˡúu gúr -ít̪
person push -CP:CONT-PST stone -SG
'The man was pushing a stone hither.'

However, a short suffix vowel /i/ assimilates to a long /uu/ of a following suffix, and in that case the root-vowel quality /ʌ/ is rounded, as seen in (62)-(63). The noun forms in (62) contain a plural suffix, which is *-in* in the unpossessed form in (62a). Before a possessive suffix this plural suffix is reduced to *-i*, as seen in (62b) before the 3rd person singular suffix *-gɪ̵k*. In (62c) the reduced plural suffix is followed by the 2nd person singular suffix *-guuk*, and it assimilates to this suffix with the result that the vowel /ʌ/ in the root *ʔʌ́m-* undergoes rounding to [o].

(62) a. ʔʌ́m -ín 'thighs'
thigh -PL
b. ʔʌ́m -í -ˡgɪ̵́k 'his thighs'
thigh -PL-PL:3SG
c. ʔóm -ú -ˡgúuk 'your thighs'
thigh -PL-PL:2SG

The same phenomenon is illustrated by the verb forms in (63). In (63a) the root *ʃʌ́ʌp-* is followed by the benefactive suffix *-iz-*. In (63b) the latter is followed by the past tense suffix *-uud̪-*, to which it assimilates, whereby the root surfaces as [ʃoop].

(63) a. t̪áarák ˡʃʌ́ʌp -íz -á kɔ̀ɔkɔ́ɔk
person cook -BEN -1SG meat
'I am cooking meat for the man.'

b. t̪áarák ˡʃóop -úz -úud̪ -à kɔ̀ɔkɔ́ɔk
person cook -BEN -PST -1SG meat
'I cooked meat for the man.'

4.4. Vowel Quality Shift. In addition to phonologically conditioned variation in vowel quality, there is also a recurrent, but grammatically conditioned, set of alternations in the vowel quality of roots. This set, which is shown in Table 9, will be referred to as Vowel Quality Shift, and it is exploited in verbal derivation and in number inflection of nouns. As shown in the table, it consists in an alternation between a basic vowel quality and a shifted vowel quality. Only basic vowels

which are [-ATR] are affected, and the corresponding shifted vowels are either [+ATR] with the same height or [-ATR] with a different height. Thus, the high and low vowels are shifted to [+ATR], while the mid vowels /ɛ,ɔ/ are shifted to the high vowels /ɪ,ʊ/.

Table 9: Vowel Quality Shift

	Basic	*Shifted*
[-ATR]	ɪ	i
	ɛ	ɪ
	a	ʌ
	ɔ	ʊ
	ʊ	u
[+ATR]	i	i
	ʌ	ʌ
	u	u

This grammatically conditioned set of root vowel alternations is also found in the closely related language Mayak. As has been argued for that language (Andersen 1999c), Vowel Quality Shift can be explained historically as reflecting a former [ATR] alternation which has been obscured by mergers in the original Proto-Western Nilotic vowel system, namely a merger of original */e/ and */o/ with original */ɪ/ and */ʊ/. Thus, the [-ATR] mid vowels /ɛ/ and /ɔ/ originally alternated with their [+ATR] counterparts */e/ and */o/, and later on */e/ and */o/ changed to /ɪ/ and /ʊ/.

Vowel Quality Shift is used systematically in the formation of several types of derived verb stems, for instance antipassive stems. As mentioned in section 2.3, an antipassive stem is an intransitive stem derived from a transitive root such that the logical object is removed from its valency. Thus, while the underived verb stem in (64a) takes an object, the corresponding antipassive verb stem in (64b) does not. Table 10 shows antipassive stems for all eight vowels of the corresponding roots. The forms given in the table are the ones used in present-tense sentences like those in (64).

(64) a. tʊ̀ʊl gɛ̀p yáaṭ 'The child is cutting the tree down.'
child cut tree

b. tʊ̀ʊl gɪ̀p-ɪ́ -r 'The child is cutting.'
child cut -AP -ASS

Table 10: Vowel Quality Shift in Antipassive Stems

	Basic	*Underived*	*Shifted*	*Antipassive*	
	/ɪ/	ɪ̀m	/i/	ɪ̀m-bɪ́-r	'dig'
	/ɛ/	gɛ̀p	/ɪ/	gɪ̀p-ɪ́-r	'cut'
[-ATR]	/a/	ʔàm	/ʌ/	ʔʌ̀m-bɪ́-r	'eat'
	/ɔ/	lɔ̀t̪	/ʊ/	lʊ̀t̪-ɪ́-r	'pull'
	/ʊ/	pʊ̀t	/u/	pʊ̀t-ɪ́-r	'wash'
	/i/	pɪ̀ŋ	/i/	pɪ̀n-zɪ́-r	'wash hands'
[+ATR]	/ʌ/	ʔʌ̀t	/ʌ/	ʔʌ̀t-ɪ́-r	'pull'
	/u/	ʔúur	/u/	ʔúr-ɪ́-r	'stir'

Vowel Quality Shift is also used as part of one among several methods of number inflection of nouns. Thus, for many disyllabic noun stems the plural is formed from the singular in the following way:

a. Long vowels are shortened.
b. The first vowel undergoes Vowel Quality Shift.
c. The second vowel becomes high and rounded, and it harmonizes with the first vowel for [ATR].
d. The surface tone pattern becomes HH (as a manifestation of the underlying tone pattern HL, see section 6.3 below).
e. /ʌ/ becomes [o] before /u/.

The resulting plural forms, which I call apophonated, share the template *CV́C*(C)*Ú*(C), where *U* is either /ʊ/ or /u/. The first vowel of the template is either [-ATR] /ɪ/[9] or /ʊ/, as in (65), or [+ATR] /i/, /u/ or /ʌ/, as in (66). The vowel /ʌ/ becomes [o] before /u/, as in (66b-c), in accordance with the phonological rule of Rounding dealt with in section 4.3 above.

(65)	*Singular*	*Plural*	
	kɔ̀rpɛ́	kʊ́rpʊ́	'boat'
	d̪ɔ́ŋgɔ́l	d̪ʊ́ŋgʊ́l	'cock'
	kɔ̀ɔ̪tàr	kʊ́t̪ʊ́r	'hoe'

[9] The /ɪ/ has not (yet) been attested in Kurmuk, but it is found in the closely related language Mayak, for instance in *rɪkʊ̪t̪*, the plural of *rɛɛkat̪* 'pot type' (Andersen 1999c: 19).

(66)

	Singular	*Plural*	
a.	ɗíwár	ɗíwúr	'squirrel'
b.	gálám	gólúm	'kid'
c.	bàrṭì	bórṭú	'slave'
d.	gúɗ̈ál	gúɗ̈úl	'bull'
e.	kúụṭár	kúṭ̈úr	'pig'
f.	púrí	púrú	'cloth'

Vowel Quality Shift is also found in suffixed plural nouns with monosyllabic singular counterparts, but more sporadically, as in (67).

(67)

Singular	*Plural*	
wɪ̀ɪl	wíl-ín	'tail'
léɛʃ	líɪz-ɪ́ɪn	'elephant'
káak	kʌ́ʌg-íin	'snake'
ŋɔ̀ɔl	ŋùl-úk	'limping'
tʊ̀ʊl	tùl-ìn	'child'

5. Consonants.

5.1. Inventory and distribution of consonants. Kurmuk has 19 consonants, whose phonetic properties are indicated in Table 11.

Table 11: Consonant Inventory

	bi-labial	inter-dental	alve-olar	post-alve-olar	pala-tal	velar	labio-velar	glot-tal
voiceless stop	p	ṭ	t			k		ʔ
voiced stop	b	ḏ				g		
implosive stop			ɗ					
voiceless fric.				ʃ				
voiced fricative			z					
nasal	m		n		ɲ	ŋ		
lateral			l					
trill			r					
glide					y		w	

There are pairs of voiceless and voiced stops in three places of articulation: bilabial [p,b], interdental [t̪,d̪] and velar [k,g]. Phonologically, the alveolar implosive stop [ɗ] functions as the voiced counterpart of the voiceless alveolar stop [t], see 4.6 below.[10] The voiced alveolar fricative [z] likewise functions as the voiced counterpart of the voiceless postalveolar fricative [ʃ]. There are four nasals, and three of them, [m,n,ŋ], have the same place of articulation as stops, whereas there are no stops corresponding to the palatal nasal [ɲ]. Phonologically, however, the fricatives [ʃ] and [z] parallel the stops, see section 4.6 below, so they fill this gap.[11] Functionally, therefore, the consonant system is organized as shown in Table 12, and this system is a typical Western Nilotic one.

Table 12: Consonant Inventory Reorganized as a Phonological System

		bi-labial	inter-dental	alveo-lar	palatal	velar	glottal
obstruent	voiceless	p	t̪	t	ʃ	k	ʔ
	voiced	b	d̪	ɗ	z	g	
sonorant	nasal	m		n	ɲ	ŋ	
	lateral			l			
	trill			r			
	glide	w			y		

[10] The existence of an implosive consonant /ɗ/ in Kurmuk and other Northern Burun languages makes this branch of Western Nilotic different from most other Western Nilotic languages, see Storch (2005: 76-93). But /ɗ/ is also found in Alur (Ukoko et al. 1964) in the Lwo branch of Western Nilotic, where it contrasts with the plain stops /t/ and /d/, and Dimmendaal (1984, 1988) has provided evidence that the /ɗ/ of this language goes back to Proto-Nilotic */ɗ/. In Kurmuk, however, there is no voiced plain stop [d], and Kurmuk [ɗ] corresponds to [d] in other Western Nilotic languages, cf. for instance Kurmuk *dɛ̂ɛl* 'goat', Mabaan *díiɛlʌ́*, Päri *díɛl*; Kurmuk *ɗɪ̂máaṯ* 'bird', Mabaan *díinʌ́*, Agar Dinka *díṯ*; Kurmuk *ɗʌ̂k* 'three', Mabaan *dʌ́ʌgɔ̀*, Päri *à↓dògó*, Agar Dinka *dyâak* (reconstructed as Proto-Nilotic **däk* with */d/ by Dimmendaal (1988: 60)). Hence, [ɗ] in Kurmuk (and other Northern Burun languages) is more likely to be an innovation than a retention from Proto-Nilotic.

[11] The existence of fricatives is another feature that makes Kurmuk different from most other Western Nilotic languages, see Storch (2005: 76-93). The Kurmuk sibilants /ʃ/ and /z/ correspond to the palatal stops /c/ and /j/ in Mayak cognates, as in Kurmuk *kíʃ* 'bee', Mayak *kic*, and in Kurmuk *zɔ́* 'chest', Mayak *jɔk*. The use of [ʃ] and [z] in Kurmuk is possibly due to influence from the neighbouring language Berta, which has both of these fricatives, but not palatal stops, as core phonemes (Andersen 1993: 57).

Table 13 shows the distribution of the consonants in terms of three positions in a word. The voiceless obstruents, apart from [ʔ], and the sonorants, apart from [ɲ], all occur word-initially, intervocalically and word-finally. The voiced obstruents, on the other hand, occur word-initially and intervocalically, but not word-finally. Thus, there is no voice contrast in morpheme-final obstruents, whether the morphemes are roots or -(*V*)*VC* suffixes.

Two consonants have a more awkward defective distribution. The glottal stop [ʔ] occurs only in word-initial position;[12] and the palatal nasal [ɲ] does not occur word-initially, but it occurs intervocalically and word-finally. Although, in this way, [ʔ] and [ɲ] are in complementary distribution, they will not be considered variants of the same phoneme. Their defective distribution is due to two historical sound changes in root-initial position: Proto-Western Nilotic (PWN) */c/ has become /ʔ/ in the Burun languages,[13] and PWN */ɲ/ has become /y/ in the Northern Burun languages (Andersen 2006: 9-10).[14]

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[12] The glottal stop exceptionally occurs in word-medial position in the interjection *ɛ̀ʔɛ́* 'no'.

[13] The change */c/ > /ʔ/ in Kurmuk (and in the Burun family as a whole) is attested by cognate series like the following: Kurmuk *ʔàak* 'milk', Mabaan *ʔáakʌ́*, Päri *càak*, Agar Dinka *cáː*; Kurmuk *ʔórɔ́k* 'blind', Päri *cɔ̀ɔr*, Agar Dinka *cɔ̰̀ɔr*. But /ʔ/ in Kurmuk also has another source, as attested by cognate series in which it corresponds to /ʔ/ in Päri and to either [ɯ], [w] or [y] in the Agar dialect of Dinka according to the quality of the following vowel. Thus, Agar Dinka has a velar approximant [ɯ] before non-high vowels, a palatal approximant [y] before high front vowels, and a labio-velar approximant [w] before high back vowels, cf. Kurmuk *ʔʌ̀ʌm* 'thigh', Mabaan *ʔʌ́mʌ́*, Päri *ʔʌ̀ʌm*, Agar Dinka *ɯɑ̰ːam*; Kurmuk *ʔáaníʃ* 'I', Päri *ʔáanɪ́*, Agar Dinka *ɯɛɛ̰̂ɛn*; Kurmuk *ʔʌ́t* 'house', Mabaan *ʔʌ́nʌ́*, Päri *ʔɔ̀ttɔ́*, Agar Dinka *ɯò̰t*; Kurmuk *ʔiiníʃ* 'you' (2SG), Mabaan *ʔì*, Päri *ʔiiní*, Agar Dinka *yḭ̂iin*; Kurmuk *ʔɪ̰t-* 'climb', Päri *ʔɪ̀t̰-*, Agar Dinka *yɪ̰̀ɪ̰t̰*; Kurmuk *ʔúudú* 'ostrich', Päri *ʔùudò*, Agar Dinka *wṵ̀ut*; Kurmuk *ʔómbɔ́n* 'nose', Päri *ʔúm*, Agar Dinka *wṵ̀m*. Dimmendaal (1988:9f) suggested that this consonant goes back to a Proto-Nilotic */q/.

[14] The change */ɲ/ > /y/ in Kurmuk is attested by cognate series like the following: Kurmuk *yáaŋ* 'crocodile', Mabaan *ɲâaŋʌ̀*, Päri *ɲàaŋ*, Agar Dinka *ɲâ̰aŋ*; Kurmuk *yʌ́ʌlíʃ* 'python', Päri *ɲʌ̂ʌllóˊ*, Agar Dinka *ɲɛ̰̂ɛel*. But again, Kurmuk /y/ also has another source, as attested by cognate series in which it corresponds to /j/ in Mabaan and to /y/ in Päri: Kurmuk *yáaɪ̰* 'tree', Mabaan *jâanʌ̀*, Päri *yàaɪ̰*; Kurmuk *yɔ́ɔm* 'monkey species', Mabaan *jûuamʌ̀*, Päri *à↓yɔ̀ɔm*.

Table 13: Distribution of Consonants

	Word-initial	*Inter-vocalic*	*Word-final*
p	+	+	+
t̪	+	+	+
t	+	+	+
ʃ	+	+	+
k	+	+	+
b	+	+	-
d̪	+	+	-
ɗ	+	+	-
z	+	+	-
g	+	+	-
m	+	+	+
n	+	+	+
ɲ	-	+	+
ŋ	+	+	+
l	+	+	+
r	+	+	+
y	+	+	+
w	+	+	+
ʔ	+	-	-

5.2. The pair /ʃ,z/. Although /z/ is the voiced counterpart of /ʃ/, its point of articulation is different: /z/ is alveolar, while /ʃ/ is postalveolar. This difference has a consequence after the palatal nasal /ɲ/, as seen in the verb forms in (68)-(69). The root-final consonant of the verbs in question is underlyingly a palatal /ɲ/, as evidenced by the (a)-clauses, where the consonant is palatal in intervocalic position and in word-final position, respectively. /z/ changes the preceding palatal /ɲ/ to an alveolar [n], as in the (c)-clauses, while /ʃ/ does not, as in the (b)-clauses.

(68) a. mí -n gɔ́ɔɲ -á ˡʃákál
woman -SG scratch -CONT pot
'The woman is scratching the pot.'

b. ʃákál ˡgɔ́ɔɲ -ʃɪ́ ŋʌ̀ mí -n
pot scratch -PASS by woman -SG
'The pot is being scratched by the woman.'

c. ʃákál ˡgɔ́ɔn -z -á̰t -ì ŋʌ̀ mí -n
pot scratch -CF -CONT -PASS by woman -SG
'The pot is being scratched by the woman.'

(69) a. tʊ̀ʊl kàŋ ɗʊ̀lg -ìn 'The child is picking money up.'
child pick.up money -PL

b. ŋɔ̀ɔ kàŋ -ʃì ŋà tʊ̀ʊl 'What is being picked up by the child?'
what pick.up -PASS by child

c. tʊ̀ʊl kʌ̀n -zí -r 'The child is picking up.'
child pick.up -AP -ASS

5.3. The glottal stop /ʔ/ and vowel coalescence. Since the glottal stop [ʔ] only occurs word-initially, it might be suggested that it is just a possible manifestation of the absence of a consonant, i.e., that words with alleged /ʔ/ actually begin with a vowel. However, the glottal stop differs from the absence of a consonant, as evidenced by the possibilities of vowel coalescence. A word-initial vowel may coalesce with a preceding vowel, see (70). In (70a) the initial /a/ of the borrowed noun *àlgálám* 'pen' coalesces with the /a/ of the preceding preposition *bà* 'of' into one long vowel [aa]. In (70b), similarly, the pronoun *à* 'I' coalesces with the preceding conjunction *ŋʌ̀* 'while'. If, by contrast, the word begins with a glottal stop, no coalescence takes place. In (71), for instance, there is a phonetically prominent [ʔ] between the pronoun *à* and the /a/ of the following verb stem.

(70) a. t̰áarák ʔɔ̰́t -ɪ ʔí bà-algálám
person put -CF PRO:PL of -pen
'The man is paying for the pen.'
Lit. 'The person is putting those (i.e. the money) of the pen.'

b. à ʔóok -úd̰ -ˈɪkí ŋà -a ʔàm kɔ̀ɔkɔ́ɔk
1SG see:CF -PST -3PL while-1SG eat meat
'They saw me eating meat.'

(71) à ʔàm ɗúbʌ́n
1SG eat polenta 'I am eating polenta.'

The copulative verb *ʔa(g-)* 'be' begins with a glottal stop, as seen in its past tense form in (72). But in its non-past tense form *ʔà*, the glottal stop is often elided after another word. This elision may occur whether the preceding word ends in a consonant, as in (73a), or in a vowel, as in (73b-c). In the latter case the elision is accompanied by vowel coalescence, /àʔà/ and /ìʔà/ being realized as [àa] and [ìi].

(72) ṭáarák ↓áná ʔág -ú ↓ʔúr -ɔ́k 'The man was not blind.'
person not be -PST blind -SG

(73) a. à wàaŋ kɪzúk ʔìk -à ʔɪw -ɪ́ɪn
1SG burn leaves PRO:PL -be dry -PTCPL:PL
'I am burning the dry leaves.'

b. à -a bɔ̀r -ɔ̀k
1SG -be afraid -SG
'I am afraid.'

c. ì -i bɔ̀r -ɔ̀k
2SG -be afraid -SG
'You are afraid.'

5.4. Glide insertion. If a vowel-initial suffix is added to a vowel-final stem, a glide may be inserted between the two vowels: [w] after a rounded vowel, [y] after an unrounded vowel. Glide insertion, which prevents hiatus, has been attested between noun stems and the plural suffix *-aak*, as in (74), and between the centripetal suffix *-u* and the 2nd person plural subject suffix *-ɛ́ɛ*, as in (75).

(74) *Singular* *Plural*
ànḍòlòolò ànḍòlòolò -w -áak 'ram'
kòḍí kóḍí -↓y -áak 'stick'
àbùurà àbùurà -y -áak 'buffalo'

(75) ʔòḍ -ú -w -ɛ́ɛ 'Come!'
go -CP -2PL

5.5. Heterosyllabic clusters. Two consonants may be adjacent across a syllable boundary within a word. On such heterosyllabic clusters the following observations can be made:

a. The first consonant is a sonorant, whether a nasal, a liquid or a glide.
b. The second consonant is normally an obstruent. Words in which the second consonant is a sonorant are probably all loanwords, such as nouns of Arabic origin which begin with /àl/, in Arabic the definite article.
c. Nasal plus obstruent are mostly homorganic, and always so in verbs.
d. The two consonants are often heteromorphemic, and always so in verbs.

The consonant clusters attested thus far in words that are not of Arabic origin are exemplified in Table 14. Additional clusters occurring in nouns of Arabic origin are for instance /lm/, /lb/ and /lp/, as in *àlmáaʃìk* 'tongs type', *àlbáal* 'attention' and *àlpúul* 'bean'.

Table 14: Heterosyllabic (Homomorphemic or Heteromorphemic) Consonant Clusters

/mb/	kámbál	'girl'
/mp/	ʔàm-pì -r eat -PASS -ASS	'It is being eaten.'
/mɖ/	yúm -ɖán monkey.species -PL	'monkeys'
/mg/	kʊ̀m -gɪ́ɪk kidneys-PL:1SG	'my kidneys'
/nɖ/	rún -ɖán year -PL	'years'
/nʈ/	ʔɔ́nʈál	'cotton'
/nɗ/	ʔìn -ɗínáaʈ intestines -SG	'intestine'
/nt/	mɛ̀n -tì -r twist -PASS -ASS	'It is being twisted.'
/nz/	rúnzí	'rainbow'
/ng/	mɛ̀n -gɔ̀n twist -PTCPL:SG	'twisted'
/ɲʃ/	kàɲ -ʃì -r pick.up-PASS -ASS	'It is picked up.'
/ŋg/	mʊ̀ŋgɔ̀n	'name'
/ŋk/	bílíŋkìʃ	'bat'

/lḏ/	gìl -ḏín	'lions'
	lion -PL	
/lt/	kàl -tɪ̀ -r	'It is stolen.'
	steal-PASS -ASS	
/lg	kɔ̀lgɔ́n	'fat'
/lk/	ʃílkáṭ	'broom'
/rb/	àbúrbúṭù	'butterfly'
/rp/	kɔ̀rpɛ́	'boat'
/rḏ/	wɪ̀r -ḏɪn	'rivers'
	river -PL	
/rṭ/	bàrṭì	'slave'
/rʃ/	ʔɛ̀r -ʃɪ̀ -r	'It is broken.'
	break-PASS -ASS	
/rg/	ʔɛ̀r -gɔ̀n	'broken'
	break-PTCPL:SG	
/rk/	kúrk-ɔ́n	'nail'
	nail -SG	
/yḏ/	bʊ̀y -ḏín	'ant-hills'
	ant.hill -PL	
/yɗ/	bʌ̀y -ɗɪ̀ɪ	'my beard'
	beard-SG:1SG	
/yg/	kɔ́ygɔ́ṭ	'hunger for meat'
/wg/	ʔʌ́ʌw-gɪ́k	'his bones'
	bones -PL:3SG	

Basically, there are no geminate consonants in Kurmuk; but interdental [ṯṯ] and [ḏḏ] may arise as a result of optional deletion of the vowel in the past tense suffix *-uḏ-* ~ *-uṭ-* after roots ending in an interdental stop. Thus we get minimal pairs like those in (76)-(77), where the present tense form has a single [ṭ] or [ḏ], while the past tense form has a geminate [ṯṯ] or [ḏḏ]. See further in section 6.5 below.

(76) múur mɛ́ṭ-ɪ̀ lìi 'The gazelle is being killed.'
gazelle.species beat -PASS dead

múur mɛ́ṭ-ṭ -ɪ̀ lìi 'The gazelle was killed.'
gazelle.species beat -PST -PASS dead

(77) mɔ̀ɔd̪ -á búd̪-ì 'My brother is escaping.'
brother-1 run -ASS

mɔ̀ɔd̪ -á búd̪-d̪ -ì 'My brother escaped.'
brother-1 run -PST-ASS

5.6. Intervocalic voicing, assimilation, and degemination. As mentioned in section 5.1, there is no voice contrast in root-final obstruents. However, suffixation gives rise to voice alternation in such obstruents, and in at least some cases this alternation may be analysed as resulting synchronically from general phonological rules.

Root-final obstruents, which are voiceless in word-final position, sometimes undergo voicing in intervocalic position. This is what happens when an underlyingly vowel-initial suffix is added to a root, as illustrated in (78). In (78a) the verb form *dɛ̀k* consists of only a root, which ends in a voiceless obstruent /k/. When the past tense suffix *-u* is added, as in (78b), this /k/ undergoes voicing to [g].

(78) a. t̪áarák dɛ̀k wìn -ìt̪ 'The man is tying a rope.'
person tie ropes-SG

b. t̪áarák ˡdɛ́g -ú wìn -ìt̪ 'The man tied a rope.'
person tie -PST ropes-SG

In Table 15, the past tense suffix *-u* is added to a verbal root for each of the 13 different consonants that can occur (underlyingly) root-finally. In Table 16, similarly, one of the plural suffixes *-ak* and *-aak* is added to a nominal root, which in this case is also the singular form. Roots ending in sonorants are included in both tables in order to show that there is no evidence for an underlying initial consonant in the suffixes, cf below. Note also the following changes in manner and place of articulation accompanying the voicing: The plain alveolar stop /t/ becomes implosive [ɗ], and the postalveolar /ʃ/ becomes alveolar [z].

Table 15: Intervocalic Voicing Before the Past Tense Suffix *-u*

	Non-past tense	*Past tense*	
/p/	gɛ̀p	géb-ú	'cut'
/t̪/	yɛ̀t̪	yéɖ̪-ú	'cut'
/t/	pʊ̀t	púɗ-ú	'wash'
/ʃ/	ʔʊ̀ʃ	ʔúz-ú	'suck'
/k/	dɛ̀k	ɗɛ́g-ú	'tie'
/m/	ʔàm	ʔám-ú	'eat'
/n/	mɛ̀n	mén-ú	'twist'
/ɲ/	kàɲ	káɲ-ú	'pick up'
/ŋ/	wàaŋ	wáaŋ-ú	'light'
/l/	kàl	kál-ú	'steal
/r/	ʔɛ̀r	ʔér-ú	'break'
/y/	kɔ́ɔy	kóy-ú	'take'
/w/	wɪ̀ɪw	wɪ́ɪw-ú	'lose'

Table 16: Intervocalic Voicing Before the Plural Suffixes *-ak* and *-aak*

	Singular	*Plural*	
/p/	ɗʌ́ýɪp	ɗʌ́ýɪb-↓áak	'termite'
/t̪/	gɔ́t̪	gɔ́ɖ̪-ák	'adze'
/t/	kút	kúɗ-ák	'nest'
/ʃ/	kɪ́ʃ	kɪ́z-ák	'bee'
/k/	ʔʌ́ʌk	ʔʌ́ʌg-ʌ́k	'net'
/m/	ʔʌ́ʌm	ʔʌ́ʌm-ák	'magician type'
/n/	gàarɪ́ɪn	gáarɪ́ɪn-↓áak	'sword'
/ɲ/	kúʊbáɲ	kúʊbáɲ-↓áak	'bark'
/ŋ/	ʃàŋ	ʃàŋ-àk	'donkey'
/l/	ʃʌ́ʌl	ʃʌ́ʌl-ák	'garden'
/r/	kúr	kúr-ák	'chair'
/y/	mʌ́y	mʌ́y-ák	'dry season'
/w/	ɗɑ̃w	ɗɑ̃w-ák	'monkey species'

However, some instances of root-final intervocalic voiced obstruents are not a result of intervocalic voicing. Thus, there is evidence that such consonants sometimes manifest an underlying cluster of two consonants. This is the case, for instance, in verb forms that consist of an underived intransitive stem and the assertive suffix, as in (79).

(79) tʊ̀ʊl wɛ̀ɛg-ɪ̀ 'The child is crying.'
child cry -ASS

kámbál ˡmɛ́ɛl-ɪ́ 'The girl is dancing.'
girl dance -ASS

t̪áarák d̪ɪ̀m-bɪ̀ 'The man starts spitting.'
person spit -ASS

Table 17: Combination of Underived Intransitive Verb Stems with the Assertive Suffix

	Root	*Root-ASS*	
/p/	lɛ́ɛp	lɛ́ɛb-ɪ́	'rain'
/t̪/	bʊ̀t̪	bʊ̀d̪-ɪ̀	'run'
/t/	kʊ̀ʊt	kʊ̀ʊɗ-ɪ̀	'laugh'
/ʃ/	yɛ̀ʃ	yɛ̀z-ɪ̀	'get torn'
/k/	wɛ̀ɛk	wɛ̀ɛg-ɪ̀	'cry'
/m/	d̪ɪm	d̪ɪm-bɪ̀	'spit'
/n/	nɪ́n	nɪ́n-dɪ́	'lie, sleep'
/ɲ/		(unattested)	
/ŋ/	wáaŋ	wáaŋ-gɪ́	'burn'
/l/	mɛ́ɛl	mɛ́ɛl-ɪ́	'dance'
/r/	pʌ́ʌr	pʌ́ʌr-ɪ́	'jump'
/y/	záay	záay-ɪ́	'speak'
/w/	t̪ʊ̀w	t̪ʊ̀w-ɪ̀	'die'

As illustrated in (79) and as shown in Table 17, the assertive suffix has the form *-ɪ* after root-final obstruents, liquids and glides, but a consonant-initial form *-Cɪ* after root-final nasals. In the latter case the initial consonant of the suffix is a voiced obstruent which is homorganic with the preceding nasal. While the surface forms thus suggest that the underlying consonant is an obstruent, they do not provide any clue as to any particular place of articulation for this consonant, so we may assume that it is underlyingly unspecified in this respect, but that it receives its place of articulation from the preceding nasal.[15] The consonant-initial allo-

[15] Alternatively, given that the assertive suffix has the allomorph *-r* after vowels, cf section 2.4 above, one might speculate that the underlying initial consonant of the suffix is /r/.

morph of the suffix may be assumed also to underlie the *-ɪ* allomorph that occurs after non-nasal consonants; and since root-final obstruents here surface voiced rather than voiceless, it may further be assumed that the suffixal consonant is underlyingly specified as [+voiced], symbolized *Ç*. When *-Çɪ* is suffixed to roots ending in a non-nasal consonant, the place and manner features of the latter are presumably spread to the underlying consonant *Ç*, which in turn spreads its [+voiced] feature to a preceding obstruent. The result of these processes are geminate consonants across the morpheme boundary, and all of them are then degeminated. Given these rules of Assimilation and Degemination, the verb forms in (79) are derived in the way shown in (80).

(80)	wɛ̀ɛk-Ç̀	méɛl-Ḉ	d̪ɪ̀m-Ç̀	*Underlying representation*
	wɛ̀ɛg-gɪ̀	méɛl-ĺɪ	d̪ɪ̀m-bɪ̀	*Assimilation*
	wɛ̀ɛg-ɪ̀	méɛl-ɪ́	–	*Degemination*

The assumption of a general phonological rule of Degemination is compatible with the fact that there are no surface geminate consonants in Kurmuk, except for the interdentals [d̪d̪] and [t̪t̪] mentioned in section 5.5 above. Alternatively, one could assume that the assertive suffix has no initial consonant underlyingly after non-nasal consonants. In that case, the realization of root-final obstruents as voiced in Table 17 could be the same voicing process as that of Tables 15 and 16. However, there is external evidence for a degemination process, at least historically. Thus, in Surkum, another Northern Burun language, the suffixation of the assertive morpheme to an intransitive root results in geminate voiced consonants when the root-final consonant is not a nasal, as in *ʔɔ̀ɔb-bɪ̀* 'He/She is squatting', *làaj-jɪ̀* 'He/She is urinating', *méɛl-lí* 'He/She is dancing,' and *ʔáar-rí* 'He/She is breathing'.

There is a further complication: The existence of the rule of Intervocalic Voicing does not preclude root-final voiceless obstruents from occurring in intervocalic position in the surface representation. For instance, they surface in such a position in the passive form of underived transitive verbs, as in (81c), which is a passive counterpart of the active sentence (81a). In the passive verb form *pʊ̀t-ɪ̀-r* in (81c), the root-final voiceless stop [t] occurs before the vocalic passive suffix *-ɪ̀*, while the root-final stop is a voiced [d̪] before the past tense suffix *-ʊ* in (81b).

(81) a. kámbál pùt púrú 'The girl is washing clothes.'
girl wash cloth:PL

b. kámbál ˈpúɗ -ú ˈpúrú 'The girl washed clothes.'
girl wash -PST cloth:PL

c. púrú pùt -ì -r 'The clothes are being washed.'
cloth:PL wash -PASS -ASS

However, there is evidence that root-final voiceless obstruents in the passive form are, again, a manifestation of an underlying sequence of two consonants. Table 18 gives an example of the passive form for almost each of the 13 possible root-final consonants, illustrated with the same roots as in Table 15 above, where the root-final obstruents undergo voicing. As seen in Table 18, the passive suffix has an initial consonant after roots that end in a sonorant. The initial consonant of the suffix is everywhere a voiceless obstruent, but its place of articulation varies: it is homorganic with a preceding nasal or lateral, but it is postalveolar /ʃ/ after alveolar /r/, so that /ʃ/ may be taken to be the underlying value of the consonant.

Table 18: Non-Past Tense Passive Forms of Underived Verbs

	Root	*Passive*	
/p/	gɛ̀p	gɛ̀p-ì-r	'cut'
/t̪/	yɛ̀t̪	yɛ̀t̪-ì-r	'cut'
/t/	pùt	pùt-ì-r	'wash'
/ʃ/	ʔùʃ	ʔùʃ-ì-r	'suck'
/k/	dɛ̂k	dɛ̂k-ì-r	'tie'
/m/	ʔàm	ʔàm-pì-r	'eat'
/n/	mɛ̀n	mɛ̀n-tì-r	'twist'
/ɲ/	kàɲ	kàɲ-ʃì-r	'pick up'
/ŋ/	wàaŋ	wàaŋ-kì-r	'light'
/l/	kàl	kàl-tì-r	'steal
/r/	ʔɛ̀r	ʔɛ̀r-ʃì-r	'break'
/y/	kɔ́ɔy	kɔ́ɔ-ʃí-r	'take'
/w/	wìɪw	(unattested)	'lose'

This analysis is supported by the form of the passive suffix after derived stems. Here the passive suffix is *-ʃɪ*, with the voiceless obstruent /ʃ/, as in (82b) and (83b). In (82) the derived verb stem is multiplicative, in (83) centrifugal. The

suffix vowel /ɪ/ which precedes /ʃ/ belongs to the derivational morphemes, since it also occurs in the corresponding active forms, as seen in (82a) and (83a). The centrifugal suffix begins underlyingly with a consonantal segment, which surfaces in (83), while multiplicative stems formed from roots with a short vowel, as in (82), are characterised by lengthening of the root vowel and by Vowel Quality Shift.

(82) a. tʊ̀ʊl gɪ́ɪb-ɪ́ yáaṭ 'The boy is cutting the tree.'
child cut -M tree

b. yáaṭ gɪ́ɪb-ɪ́ -ʃɪ -r 'The tree is being cut.'
tree cut -M -PASS -ASS

(83) a. ṭáarák ṭàaŋ -gɪ́ gúr -ɪ́ṭ wòo
person push -CF stone -SG out
'The man is pushing a stone out.'

b. gúr -ɪ́ṭ tàaŋ -gɪ́ -ʃɪ́ wóo ŋʌ̀ ṭáarák
stone -SG push -CF -PASS out by person
'The stone is being pushed out by the man.'

Given that the passive suffix is underlyingly -ʃɪ, the voicelessness of root-final obstruents in intervocalic position gets an explanation: the /ʃ/ of the passive suffix totally assimilates to root-final obstruents, and the resulting geminate consonants undergo degemination. The phonological derivation of three of the passive forms in Table 18 is shown in (84).

(84)	pʊ̀t-ʃɪ̂-r	ʔàm-ʃɪ̂-r	ʔɛ̀r-ʃɪ̂-r	*Underlying representation*
	pʊ̀t-tɪ̂-r	ʔàm-pɪ̀-r	–	*Assimilation*
	pʊ̀t-ɪ̀-r	–	–	*Degemination*

The above account of the interaction between root-final consonants and suffixes is not exhaustive, since there are also other alternation sets, for instance in connection with possessive inflection of nouns, as alluded to in section 2.2 above. But in this introductory article I cannot go into all of the complexities of the Kurmuk language.

The one-to-many relation between surface obstruents and their underlying represention poses a problem for the analysis of intervocalic obstruents in simplex noun stems, as in (85).

(85) a. ʃákál 'pot'
b. kúʊ̯tár 'pig'
c. gúɗál 'ox'
d. tàbúr 'dust'

If Intervocalic Voicing is a completely general phonological rule, then the voiceless obstruents [k] in *ʃákál* and [t̯] in *kúʊ̯tár* cannot have intervocalic position in the underlying representation of those words; but there is no evidence as to what a different underlying representation would be. Similarly, there is no way of choosing between different underlying alternatives for the intervocalic voiced obstruents [ɗ] in *gúɗál* and [b] in *tàbúr*. A viable solution would seem to be to restrict Intervocalic Voicing to obstruents that occur in root-final position, or, more generally, morpheme-final position. By analysing such obstruents as unspecified for the feature [voice] underlyingly, and by restricting the rule of Intervocalic Voicing to obstruents with this specification, that rule would still be completely general. Hence, I shall assume that the underlying representation of the nouns in (85) is identical to their surface representation.

6. Tones.

6.1. Tone inventory. Kurmuk is a tone language with three underlying tones: high (H) /ˊ/, low (L) /ˋ/, and a compound falling tone (H͡L) /ˆ/. There are five different surface tones. Three of them are level tones: high (H), downstepped high (ꜜH), and low (L). Two are contour tones, but they are rare, and both of them must be analysed as composed of two level tones: a rise from low to high (L͡H) and a fall from high to downstepped high (HꜜH). At the surface there is no contour tone falling from high to low.

6.2. Surface tones and pitch levels: downdrift and downstep. The pitch of a high tone following a low tone is lower than the pitch of a preceding high tone; that is, Kurmuk has downdrift. In (86), for instance, the high tone of the syllable [kɔ́ɔk] at the end of the sentence has a lower pitch than the high tones of the initial word [kámbál]; the numbers are explained below.

(86) kámbál ʃàap kɔ̀ɔkɔ́ɔk
1 1 3 3 1
1
1 1 3 3 2
girl boil meat
'The girl is cooking meat.'

The distance between the pitch of a low tone and that of a following high tone is half the distance between the pitch of a high tone and that of a following low tone. Thus, in a sequence like LHLH, the second H has the same pitch as the first L, as is clear when the utterance is whistled. In (87), for instance, the high tones of [kámbál] at the end of the sentence have the same pitch as the low tone of the sentence-initial syllable [kɔ̀ɔ].

(87) kɔ̀ɔkɔ́ɔk ʃáap-ì ŋà kámbál
3 1 1 3 3 1 1
1 1 1 1 1 1
1 1
3 2 2 4 4 3 3
meat boil -PASS by girl
'The meat is being cooked by the girl.'

Hence, the relative pitch level of each tone of an utterance can be expressed in terms of integers such that the higher the number the lower the pitch, and it can be calculated as done in (86)-(87). First, all high tones are assigned the value 1 and all low tones, the value 3. Then each time that a high tone follows a low tone, 1 is added to that high tone and to all following tones, and the sums indicate the pitch levels. In (86) the downdrift effect occurs once, in (87) twice. In (88), where only the sums are shown, the downdrift effect occurs three times.

(88) wàlá ì nɛ́ɛ̰t ʔʌ́ʌw-ʌ̀t̰ ʔínʌ́n
3 2 4 3 3 5 4 4
PROH 2SG suck bones -SG D2:SG
'Don't suck on that bone!'

In addition to downdrift, Kurmuk also has downstep, which is indicated by the symbol [ꜜ]. Thus, a high tone may be lower than an immediately preceding high tone, and the pitch distance between these two high tones is identical to the

pitch distance between two high tones separated by one or more low tones. That is, the effect of downstep [ꜜ] on the pitch level value is +1, as illustrated in (89), where the initial high tone of the second word is downstepped after the high-toned first word.

(89) ɗúbʌ́n ꜜʔám -úṭ -ì ŋʌ̀ ʔáanís
1 1 1 1 3 3 1 1
1 1 1 1 1 1
1 1
1 1 2 2 4 4 3 3
polenta eat -PST -PASS by 1SG
'The polenta was eaten by me.'

In (90)-(91), where only the sums are shown, downstep occurs twice, in (90) between words, in (91) inside words.

(90) làakìn kíɪ púrú ꜜṭ́ín bá ꜜḍ́aaníʃ
3 3 2 2 2 3 3 4 4
urine(PL) be.present cloth:PL LOC of 3SG
'There is urine on his clothes.'

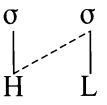
(91) ɗ̂ɪmáaṭ ʔínzì rʌ́ṭ -í -ꜜgíɪk míŋ -ꜜʌ́kí
3 2 2 4 3 3 4 4 5 5
bird:SG D3:SG wing -PL -PL:3SG be.red -PRED
'That bird's wings are red.'

6.3. Tonal processes: High Spread and Fall Simplification. As demonstrated below, downstep is the manifestation of a floating low tone between two high tones, as in many other African languages. In Kurmuk a floating low tone is normally the result of a general rule of Fall Simplification, which is mostly fed by a general rule of High Spread. To see how these rules work, consider first the noun phrases in (92). They consist of a disyllabic noun and a following demonstrative modifier *ʔ̀ɪ̀nì* 'this,' which has the tone pattern LL when it occurs in isolation.

(92) a. wìnìṭ ʔ̀ɪ̀nì 'this rope'
b. bùumú ʔ̀ɪ̀nì 'this hyena'
c. ṭʌ́ʌkʌ́l ʔ̀ɪ̀nì 'this vulture'
d. kábíl ʔ̀ɪ̀nì 'this sheep'

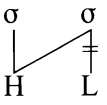
After the low-toned noun *wìnɪ̀t* in (92a) the demonstrative has the same tones, LL, as it has in isolation. But after nouns ending in a high tone in (92b-c), it has the tones HL. What happens can be described as follows: the high tone at the end of the noun spreads to the immediately following low-toned syllable (σ), which thereby gets a compound tone H͡L, as indicated in (93), using notational devices of Autosegmental Phonology (Goldsmith 1990).

(93) High Spread:



If H͡L were manifested as such, it would be a contour tone falling from high to low, but Kurmuk has no surface H͡L tone, so it is manifested as a high tone. That is, H͡L is simplified to H by delinking the L component from its syllable, thus setting L afloat, as indicated in (94).

(94) Fall Simplification:



The noun in (92d) has a high tone in both of its syllables, exactly like the noun in (92c). However, it does not have the same effect on the following word as the latter; i.e., High Spread does not apply to *ʔmì* here. In order to explain this, it must be assumed that the noun in (92d) does not end in a high tone underlyingly, but that its second syllable has a low tone which is replaced by the high tone of its first syllable via the rules of High Spread and Fall Simplification already established. Independent evidence for this analysis is given in (95). Here the same four nouns are followed by the demonstrative identifier *ʔmí*, which means 'this is', and which forms a non-verbal clause together with the noun.[16]

(95) a. wìnɪ̀t ʔímí 'This is a rope'
b. bùumú ʔímí 'This is a hyena'
c. tʌ́ʌkʌ́l ʔímí 'This is a vulture'
d. kábíl ↓ʔímí 'This is a sheep'

[16] I have borrowed the term "demonstrative identifier" from Diessel (1999).

Unlike the demonstrative pronoun, the demonstrative identifier carries a high tone in its initial syllable after all of the four nouns, so its initial tone must be underlyingly high. However, after the noun in (95d), this high tone is downstepped, and that is exactly what should be expected if it is preceded by a floating low tone, as hypothesized above.

High Spread is a completely general phonological rule, i.e., it applies whenever the phonological condition is met.[17] The rule is independent of morphological and syntactic boundaries. Thus, the two syllables involved may constitute a word which is either monomorphemic, as in (96a), or contains a suffix, as in (96b), or they may be part of a word with more than two syllables, as in (97). The forms enclosed in slashes show the underlying tones, while the forms without slashes show the surface tones.

(96) a. ṭáarák /ṭáaràk/ 'person'
b. tɔ́ŋ -ín /tɔ́ŋ-ìn/ 'spears'
spear -PL

(97) ʔúuɗú -ꜜwáak /ʔúuɗù-wáak/ 'ostriches'
ostrich -PL

ʔám -úṭ -ì -r /ʔám-ùṭ-ì-r/ 'It has been eaten.'
eat -PST -PASS-ASS

ʔám-úḍ -ꜜɪ -r /ʔám-ùḍ-í-r/ 'He/She has eaten it.'
eat -PST-3SG-ASS

ʔám -áḍ -ùuḍ -ɪkɪ́ -r 'They used to eat it'
/ʔám-àḍ -ùuḍ -ɪkɪ́ -r/
eat -HAB -PST -3PL -ASS

ǐm -búz -úuḍ -á -r 'I dug for him/her.'
/ǐm-búz -úuḍ -à -r/
dig -BEN -PST -1SG-ASS

[17] But there are a few monosyllabic low-toned function words that seem to be immune to High Spread, among others the pronoun *ì* 'you', as seen in (88) above, and sometimes the preposition *bɨ̀* 'of', as in (31) above. I have no immediate explanation for these exceptions.

The two syllables involved in High Spread may also belong to two different words, independently of phrase structure. The two words may for instance belong to the same noun phrase, as in (92) above, but they may also belong to different clause constituents, as in (95) above. Other examples of the latter situation are given in (98)-(99). The syntactic boundary crossed is one between object and verb in (98) and one between subject and verb in (99).

(98) kɔ̀ɔkɔ́ɔk ʃáab -ʌ̀ -r 'I am cooking the meat.'
/kɔ̀ɔkɔ́ɔk ʃàab -ʌ̀ -r/
meat boil -1SG-ASS

(99) mí -k ɗɛ̋k ˡyʌ́n 'The women are tying the wood.'
/mí -k ɗɛ̂k yʌ́n/
woman-PL tie tree:PL

6.4. Syllable deletion and leftwards high-tone relinking. Sometimes a syllable is deleted, due to either deletion of a short vowel or vowel coalescence; but in most cases the tone of the deleted syllable is retained. If the tone of the deleted syllable is high, and if the preceding tone is low, the latter may be changed into a rising tone. One example involves the predicative suffix *-ʌ́kí*, which is used after adjectival verbs, as in (100a). It is normally shortened to *-kí* after stems ending in /ŋ/, such as *ɗɔ̋ɔŋ* 'be big' in (100b).[18] The vowel deletion is sometimes optional, as after the stem *lùuŋ* 'be deep', see the free variation in (101).

(100) a. bʌ̀ʌr -ʌ́kí 'It is long.'
be.long-PRED

b. ɗɔ̌ɔŋ -kí 'It is big.'
be.big-PRED

(101) a. kʌ̀ʌl lùuŋ -ʌ́kí

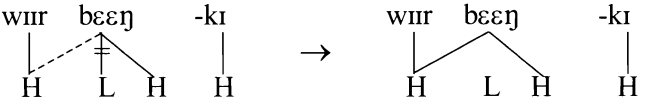
b. kʌ̀ʌl lŭuŋ -kí 'The hole is deep.'
hole be.deep -PRED

[18] All attested monosyllabic adjectival verb stems ending in /ŋ/ have a long vowel. I don't know what would happen after /ŋ/-final stems with a short vowel.

What happens in (100b) and (101b) is that the vowel /ʌ/ of the suffix is deleted, but that its high tone is retained, as evidenced by the fact that the stem, which is underlyingly low-toned, gets a rising tone. Thus, the high tone of the deleted vowel is transferred leftwards to the preceding syllable, which is thereby manifested with a compound tone, L͡H, a rise from low to high.

The syllable to which the high tone is transferred may be subjected to High Spread, as in (102). Here the underlyingly low-toned stem *bɛ̀ɛŋ* 'be wide' is manifested with a contour pitch which falls from high to downstepped high. How this results from High Spread and Fall Simplification is shown in (103).

(102) wɪ́ɪr bɛ́ˡɛ́ŋ -kɪ́ 'The river is wide.'
/wɪ́ɪr bɛ̀ɛŋ -ʌ́kɪ́/
river be.wide -PRED

(103) 

The pair of sentences in (104) further illustrates the surface contrast between a rising pitch and a falling pitch.

(104) a. rɪ́ɪ -gɪ́k ʤɔ̌ɔŋ -kɪ́ 'His hair is long.'
/rɪ́ɪ -gɪ̀k ʤɔ̀ɔŋ -ʌ́kɪ́/
hair(PL) -PL:3SG be.big -PRED

b. rɪ̀ɪ -gɪ́ɪk ʤɔ́ˡɔ́ŋ -kɪ́ 'My hair is long.'
/rɪ̀ɪ -gɪ́ɪk ʤɔ̀ɔŋ -ʌ́kɪ́/
hair(PL) -PL:1SG be.big -PRED

Rising and falling tones also arise if the root of the adjectival verb lacks a final consonant, as illustrated with the underlyingly low-toned stem *bɔ̀* 'be white' in (105). Here the first vowel of the suffix is not deleted, but coalesces with the root vowel, the result being a long vowel [ɔɔ].

(105) a. bɔ̌ɔkɪ́ 'It is white.'
/bɔ̀ -ʌ́kɪ́/
be.white -PRED

b. ʔɪm bʌ̀ kày -áa bɔ́ ꜜɔ́kɪ́ 'My sister's is white.'
/ʔɪn bʌ̀ kày -áa bɔ̀ -ʌ́kɪ́/
PRO:SG of sister-1 be.white -PRED

6.5. Floating low tones not triggered by High Spread. Given the rules of High Spread and Fall Simplification, we can make three predictions about possible sequences of surface tones in an utterance:

a. The tone sequence HL is preceded by H, since the L-toned syllable would otherwise be subjected to High Spread.
b. A downstepped H is preceded by HH, since the downstep represents an L that has been set afloat by Fall Simplification of H͡L, whose H component comes from a preceding H-toned syllable by High Spread.
c. A downstepped H is not followed by L, since a downstepped H is an underlying H, which would spread to a following L-toned syllable.

These predictions actually hold most of the time, but not always. Most of the exceptions can be explained as being due to vowel deletion or as reflecting lexically inherent underlying falling tones.

Some of the exceptions involve the deletion of a syllable which would otherwise have undergone High Spread. This situation is illustrated in (106) and (107). The (a)-sentences do not conform to the predictions stated above: In (106a) the sequence HL is not preceded by H, but by L, and in (107a) the downstepped H is not preceded by HH, but by LH. However, the sentences in question have the variants (106b) and (107b), which do conform to the predictions. Here the relevant word, a past tense form of the verb 'drink', has the past tense suffix [úd̲], whose vowel has been deleted in (106a) and (107a). The underlying tone of this suffix is low, as indicated in the next lines, and its surface high tone is the result of High Spread and Fall Simplification. The underlying low tone set afloat by the vowel deletion is what prevents the high tone of the root vowel from being spread to the vowel of the subject suffix -ʌ̀ in (106a), and it is also what causes the downstep in (107a).

(106) a. ʔàak máaḏ-ḏ -ʌ̀ -r

b. ʔàak máaḏ-úḏ -ʌ̀ -r 'I drank the milk.'
/ʔàak máaḏ-ùḏ -ʌ̀ -r/
milk(PL) drink -PST -1SG -ASS

(107) a. ʔàak máaḏ-ḏ-ˡ'ɪ-r

b. ʔàak máaḏ-úḏ -ˡ'ɪ -r 'He/She drank the milk.'
/ʔàak máaḏ-ùḏ -ɪ́ -r/
milk(PL) drink -PST -3SG -ASS

Another example of the same type is given in (108). Here the noun stem *ǵáaláṭ* 'hand' exhibits variation before the third person singular possessive suffix *-ɪ́*. Thus, the second vowel of the stem is optionally elided. But its underlying low tone is retained as a floating tone, and that is why the high tone of the suffix is downstepped not only in (108a), but also in (108b).

(108) a. ǵáaláṭ -ˡ'ɪ pɪ́l -ˡʌ́kɪ́ 'His hand is paining.'
/ǵáalàṭ -ɪ́ pɪ̀l -ʌ́kɪ́/
hand -SG:3SG be.painful-PRED

b. ŋ̀ɪɪr ǵáalṭ -ˡ'ɪ 'the handle of a knife'
/ŋ̀ɪɪr ǵáal`ṭ -ɪ́/
knife hand -SG:3SG

For another class of exceptions to the predictions stated above, there is no evidence of synchronically operative syllable deletion. This class involves function words and nouns borrowed from Arabic. Thus, some monosyllabic function words that always surface with a high tone never spread this tone, and a following syllable with an underlying high tone is always downstepped. Examples of such words are the distant-future particle [áy] in (109), the first person plural exclusive pronoun [ín] in (110), and the focus particle [ḏáa] in (111). The (a)-sentences show the lack of High Spread, and the (b)-sentences show the downstepping of a following high tone. Because of these properties, such words must be analysed as having a floating low tone after their high tone, and this low tone will be taken to be linked to the vowel underlyingly. Thus, such words lexically have a falling

tone, which is subjected to Fall Simplification. The low tone component of such function words might reflect a historical loss of a second, low-toned syllable.

(109) a. áy ʔàm ɗúbʌ́n 'He/She will eat polenta.'
/ây ʔàm ɗúbʌ̀n/
FUT2 eat polenta

b. áy ↓láal -á -r pà -ɗɪ 'I shall do it myself.'
/ây láal -à -r pà -ɗɪ/
FUT2 do -1SG -ASS alone -SG:1SG

(110) a. ɪ́n ʔàm ɗúbʌ́n 'We are eating polenta.'
/ɪ̂n ʔàm ɗúbʌ̀n/
1PLEX eat polenta

b. ɪ́n ↓ʔám -ú ↓ɗúbʌ́n 'We ate polenta.'
/ɪ̂n ʔám -ù ɗúbʌ̀n/
1PLEX eat -PST polenta

(111) a. rɔ́ -ɗɪ́ ↓d̲áa pʌ̀l 'He/She is only lazy.'
/rɔ́ -ɗɪ̀ d̲âa pʌ̀l/
body -SG:3SG FOC be.blunt

b. ʔáanɪ́ʃ d̲áa ↓áy ↓ʔád̲ -ɪ́ '*I* will go.'
/ʔáanɪ́ʃ d̲âa ây ʔád̲ -ɪ̀/
1SG FOC FUT2 go -CF

Some nouns include a syllable that exhibits the same behaviour as the function words dealt with above. They all appear to be loanwords, and at least some of them have been borrowed from Arabic, some of them apparently via Berta. For instance, the nouns in (112) contain the surface sequence LHL, and those in (113) end in the surface sequence LH whose H does not spread to a following word. Therefore, the high-toned syllable of such words must also be analysed as having an underlyingly falling tone, whose low component is set afloat by Fall Simplification. In such words, the floating low tone cannot reflect the loss of a low-toned vowel. The syllable in question is the one that bears the stress in the Arabic source words.

(112) gàaʃiiḍà ‘porridge type’
/gàaʃiiḍà/

àʃáyɪ ‘tea’ (cf Berta *àʃʃáayì*, from Arabic *ʃaay*)
/àʃâyɪ/

ʔɪŋgìlíizì ‘English’ (cf Arabic *ʔingiliizi*)
/ʔɪŋgɪlíizì/

(113) àṭɪrɪmbíil ʔɪmɪ ‘this car’
/àṭɪrɪmbîil ʔɪmɪ/
car D1:SG

àlpúul ʔɪmɪ ‘this bean’ (cf Berta *àlfûul*,
/àlpûul ʔɪmɪ/ from Arabic *fuul* ‘bean’)
bean D1:SG

6.6. Functions of tone. Having established the tonal system, we can now consider the functions of tone. They are both lexical and grammatical, but the functional load of tone seems to be higher in the grammar than in the lexicon. In the following, both functions will be exemplified.

There are two major word classes in Kurmuk: nouns and verbs. Monosyllabic nouns are either high-toned, as in (114a), or low-toned, as in (114b).

(114) a. tɔ́ŋ ‘spear’
mín ‘woman’
máaʃ ‘fire’
káak ‘snake’
ýɪṭ ‘scorpion’

b. kʊ̀ṭ ‘rain’
ḍʌ̀k ‘cows’
tʊ̀ʊl ‘child’
ɗɛ̀ɛl ‘goat’
ḍɛ̀ɛŋ ‘cow’

As seen in section 6.3 above, disyllabic nouns fall into four tonal classes, thus exploiting all logically possible combinations of underlying high and low tones (ig-

noring underlyingly falling tones, which seem not to occur in native nouns). Examples are given in (115).

(115) /HH/ ṭʌ́ʌkʌ́l 'vulture'
rɛ́ɛŋɔ́ɔn 'flower'
búurí 'twin'

/HL/ ṭáarák 'person'
ríŋíṭ 'meat'
gúdā̀l 'ox'

/LL/ lègìṭ 'tooth'
mùŋgɔ̀n 'name'
kɔ̀ɔṭàr 'hoe'

/LH/ dīɪnáaṭ 'bird'
kɔ̀lgɔ́n 'fat'
bùumú 'hyena'

However, there seem to be relatively few nouns distinguished solely by tone. Two examples of minimal pairs are given in (116)-(117).

(116) ʔʌ̀ʌm 'thigh'
ʔʌ́ʌm 'kind of magician'

(117) ʔàmíṭ 'food'
ʔámíṭ 'left hands' (underlying /HL/), pl. of *ʔàam* 'left hand'

Verbal roots, virtually all of which are monosyllabic, are also lexically either high-toned, as in (118a), or low-toned, as in (118b-c); but all roots with a short vowel are lexically low-toned, as in (118c). The roots given in (118) are transitive.

(118) a. máaṭ 'drink'
ṭáaŋ 'push'
púur 'hoe'
wɛ́ɛʃ 'sweep'

b.	pɪ̀ɪt̪	'sow'
	bɛ̀ɛr	'twist'
	kʌ̀ʌl	'push'
	ɗâak	'finish'
c.	ʔàm	'eat'
	kàl	'steal'
	lɛ̀k	'break'
	nàn	'bite'

Again, verbal roots distinguished exclusively by tone seem to be rare. One example is given in (119).

(119)	páat	'twist' (tr. verb)
	pàat	'be wide' (adjectival verb)

More minimal pairs of lexical items can be found if taken from different word classes, as in (120)-(122).

(120)	rɛ́ɛ	'two' (numeral)
	rɛ̀ɛ	'thirst' (noun)
(121)	mín	'woman' (noun)
	mìn	'from' (preposition)
(122)	wʌ̀lʌ̀	'or' (conjunction)
	wʌ̀lʌ́	'do not' (particle expressing prohibition)

The functional load of tone is considerably heavier in the grammar than in the lexicon. Thus, in many parts of the morphology, tone is what systematically distinguishes one category from another in some morphological contexts. This is illustrated by the minimal pairs in (123)-(129). In each case both the surface tones and the underlying tones (in slashes) are shown.

Examples (123)-(124) illustrate the tonal difference between demonstrative modifiers and demonstrative identifiers.

(123) ṭ̈áarák ʔìmì 'this person'
/ṭ̈áaràk ʔìmì/
person D1:SG

ṭ̈áarák ˩ʔímí 'This is a human being.'
/ṭ̈áaràk ʔímì/
person ID1:SG

(124) lɛ́ʃ ʔíkì 'these teeth'
/lɛ́ʃ ʔìkì/
teeth D1:PL

lɛ́ʃ ʔíkí 'These are teeth.'
/lɛ́ʃ ʔíkì/
teeth ID1:PL

Example (125) shows the tonal difference between the first person singular pronoun *à* and the near future particle *á*.

(125) à ʔàm ɗúbʌ́n 'I am eating polenta.'
/à ʔàm ɗúbʌ̀n/
1SG eat polenta

á ʔám ˩ɗúbʌ́n 'He/She is going to eat polenta.'
/á ʔàm ɗúbʌ̀n/
FUT1 eat polenta

Examples (126)-(127) illustrate the tonal differences between different possessive suffixes: first person singular versus third person singular in (126), and second person singular versus second person plural in (127).

(126) kìr -ʌ́ -gɪ̋k pìl -ʌ́kí 'My legs are painful.'
/kìr -ʌ́ -gɪ̀k pìl -ʌ́kí/
leg -PL -PL:1SG be.painful-PRED

kír -ʌ́ -˩gíɪk píl -˩ʌ́kí 'His legs are painful.'
/kír -ʌ̀ -gíɪk pìl -ʌ́kí/
leg -PL -PL:3SG be.painful-PRED

(127) kír -ʌ́ -ꜜgúuk píl -ꜜʌ́kí 'Your (sg.) legs are painful.'
/kír -ʌ̀ -gúuk pìl -ʌ́kí/
leg -PL -PL:2SG be.painful-PRED

kír -ʌ́ -gùuk pìl -ʌ́kí 'Your (pl.) legs are painful.'
/kír -ʌ̀ -gùuk pìl -ʌ́kí/
leg -PL-PL:2PL be.painful-PRED

Example (128) shows the tonal difference between the continuous and the habitual aspect suffixes in verb forms with a short root vowel.

(128) ṭáarák kàl -á ɗíɪt 'The man is trying to steal goats.'
/ṭáaràk kàl -á ɗíɪt/
person steal-CONT goat:PL

ṭáarák ꜜkál -á ꜜɗíɪt 'The man steals goats.'
/ṭáaràk kál -à ɗíɪt/
person steal-HAB goat:PL

Finally, example (129) illustrates the tonal difference between the assertive suffix after a non-derived intransitive verb stem and the second person singular subject suffix in the imperative form with the same stem.

(129) bùḍ̲ -ì 'He/She starts running'
/bùḍ̲ -ì/
run -ASS

bùḍ̲ -í 'Run!'
/bùḍ̲ -í/
run -2SG

6.7. Grammatically determined tone alternation. When a root combines with a suffix, its underlying tone often deviates from its lexical underlying tone. Moreover, the underlying tone of many suffixes is dependent on the tonal class of the root. Thus, Kurmuk is replete with grammatically determined tone alternation, which is distinct from the tonal variation that results from phonologically determined tonal processes such as High Spread. A few examples from the morphol-

ogy of verbs can illustrate this fact. As seen in (130a), the lexical tone of the verbal root *ʈáaŋ* 'push' is underlyingly high; but before the high-toned third person singular subject suffix *-í*, its underlying tone is low, as seen in (130b). Conversely, the tone of the verbal root *rùʊ̰ʈ* 'transplant' is lexically low, as shown by the form in (131a); but before the same underlyingly high-toned third person singular subject suffix its underlying tone is high, as seen in (131b).

(130) a. tʊ̀ʊl ʈáaŋ gúr -íʈ 'The child starts pushing the stone.'
/tʊ̀ʊl ʈáaŋ gúr -ìʈ/
child push stone -SG

b. ŋɔ̀ɔ ʈàaŋ -í ʔánì 'What does he/she start pushing here?'
/ŋɔ̀ɔ ʈàaŋ -í ʔànì/
what push -3SG here

(131) a. tʊ̀ʊl rʊ̀ʊ̰ʈ pʌ́ʃ 'The child is transplanting sorghum.'
/tʊ̀ʊl rʊ̀ʊ̰ʈ pʌ́ʃ/
child transplant sorghum(PL)

b. ŋɔ̀ɔ rʊ́ʊ̰ɖ̰ -í ʔánì 'What is he/she transplanting here?'
/ŋɔ̀ɔ rʊ́ʊ̰ɖ̰ -í ʔànì/
what transplant -3SG here

Other examples of underlying tone alternation in roots can be seen, for instance, in (126) and (128) above.

One of the suffixes that exhibit tone alternation is the second person singular subject suffix *-i*. As illustrated in (132) with the same verbal roots as in (130)-(131), it has an underlying low tone in (132a) after a lexically high-toned root, but an underlying high tone in (132b) after a lexically low-toned root, which here carries an underlying high tone.

(132) a. ŋɔ̀ɔ ʈáaŋ -í ʔànì 'What do you start pushing here?'
/ŋɔ̀ɔ ʈáaŋ -ì ʔànì/
what push -2SG here

b. ŋɔ̀ɔ rúuɖ̰ -í ʔánì 'What are you transplanting here?'
/ŋɔ̀ɔ rúuɖ̰ -í ʔànì/
what transplant -2SG here

7. A Nilotic Outlook.

Kurmuk and other Northern Burun languages exhibit a more extensive use of suffixes than most other Western Nilotic languages. Thus, although roots are typically monosyllabic in Kurmuk as elsewhere in Western Nilotic, words tend to be longer in Kurmuk than in languages of the Lwo branch of Western Nilotic and certainly much longer than in Dinka and Nuer, which tend towards monosyllabicity. In this respect, then, the Northern Burun languages are reminiscent of the Southern and Eastern Nilotic languages. Nevertheless, the types of grammatically determined root-internal alternations which are found in the other branches of Western Nilotic, and which are assumed to reflect former suffixes, are also found in the Northern Burun languages, namely alternations in vowel length, vowel quality, final consonant, and tone. Thus, although the Northern Burun languages are certainly morphologically conservative in many respects, they seem not to have retained all of the specific suffix features that could explain the alternations in the other Western Nilotic languages.

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[received November 1, 2006,
accepted January 1, 2007]

Studies in African Linguistics
Volume 36, Number 1, 2007

THE PRONOMINAL SYSTEM OF ỌDUAL*

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This paper discusses the pronominal system of Ọdual, which has five subsets of pronouns: personal, reflexive, interrogative, demonstrative, and indefinite. A noteworthy feature of the system is the distinction between inclusive and exclusive first person plural personal pronouns. Reflexivity is marked by a noun meaning 'self' plus a possessive pronoun, the noun varying in form depending on the singularity or plurality of the antecedent. It is noted that tense/aspect markers in Ọdual show limited agreement for person and number, and in some cases they do not have distinct forms to reflect the differences in the forms of pronouns occasioned by differences in person and number. Also noted is the fact that the basic word order in Ọdual simple clauses is SVO, and that word order in NPs to a large extent is typologically consistent with the basic word order, as many of the pronouns that function as modifiers follow the noun they modify.

1. Introduction.

Ọnu Ọdual [ɔnu odʊ́əl] (*The Ọdual Language*), often shortened to Ọdual [ódʊ́əl] is a largely under-studied Central Delta language spoken by the Ọdual community in Abua-Odual Local Government Area of Rivers State of Nigeria. The Ọdual community is divided into three major groups, Ạdibaam [ə́dɪ́bə́əm], Ạrughunya [arʊgʊŋa] and Ạbureni [əburéni] groups. The Ạdibaam group comprises Ạdada

* I am immensely grateful to Mr. Isaiah Ẹdighotu, a native speaker of the Adibaam [ədɪbəəm] dialect of Ọdual, for providing the data needed for this paper, and for sharing his knowledge of Ọdual with me. I am also grateful to David Odden and an anonymous SAL reviewer for their detailed and insightful comments, which have helped to improve the quality of this paper. I accept responsibility for any errors that remain.

[adáda], Ẹmelego [ɛmɛ́lɛgɔ], Ogboloma [ogbolomə] and Ọkolomade [ɔkɔlɔmədɛ]; the Ạrughunya group comprises Ekunuga [ekúnúgə], Ạnyu [aɲʊ], Ẹmaarikpoko [ɛmaáŕikpɔkɔ], Obeḍum [obeḍúm] and Odau [ɔdáʊ], while the Ạbureni group comprises Ạkani [akanɪ] Amuruto [amʊrʊtɔ] and Ẹmago-Kụgbo [ɛmagɔ́kʊgbɔ́ɔ] (cf. Gardner et al. 1974 and Comson 1987). Comson (1987: viii), citing the Rivers State of Nigeria Ministry of Economic Development and Planning (1983), puts the population of Ọḍual at 30,028.[1]

The Ọḍual Clan is bounded in the east by Abua villages of Ogbema, Arukwo, Ogbogolo, in the west by Oloibiri, Amurukeni in Ogbia (in Bayelsa State of Nigeria), in the north by Oruma, Ibelẹbiri, Kolo (also in Ogbia), and in the south by Nembe town of Oluasiri, Bassambiri, Ekpoma, Ogbolomabiri (also in Bayelsa State of Nigeria), etc. (Comson 1987: vii). Ọḍual is not spoken by all the communities that make up the Ọḍual Clan. The communities that do not speak Ọḍual are those that belong to the Ạbureni group. These communities speak Kụgbo, a Delta Cross language that is coordinate with Ọḍual (Comson 1987: xii). In addition to Ọḍual, some speakers in the Ạḍibaam group also understand and speak Abuan, Kụgbo, Nembe, Kalabari and Ogbia (Kolo Creek), some speakers in the Ạrughunya group also understand and speak Ogbia, while some speakers in the Ạbureni group also understand and speak Ogbia, Nembe and Kalabari. Speakers of the Ọḍual Language call themselves *Ịkpetemonu Ọḍual* [ɪkpɛtɛmɔnʊ oḍʊ́əl], meaning 'speakers of the Ọḍual language.' A speaker of this language is called *Ọkpetemonu Ọḍual* [ɔkpɛtɛmɔnʊ oḍʊ́əl].

Ọḍual is coordinate with other Central Delta languages such as Abuan, Kugbo, Mini, Obulom, Ogbia, Ogbogolo and Ogbronuagum (Faraclas 1989: 381). These languages with which Ọḍual is coordinate are also spoken in Rivers State of Nigeria, except Ogbia, which is spoken in Bayelsa State of Nigeria. There is a dearth of scholarly linguistic literature on these languages in comparison with languages such as Degema, Kalabari, Obolo, and Izon. The major linguistic study on Ọḍual is Comson (1987), which provides a detailed description of the phonology of this language. Other materials on Ọḍual include Gardner et al. (1974), Gardner (1975), Kari (2006) and Madumere (2006).

The paper discusses the pronominal system of Ọḍual. It recognizes and discusses five subsets of pronouns: personal, reflexive, interrogative, demonstrative, and indefinite pronouns. The paper also discusses one of the interesting features of the pronominal system of Ọḍual, which is the distinction between inclusive and

[1] Information about how many people speak Ọḍual in what villages is not available at the time of writing this paper.

exclusive first person plural personal pronouns. The inclusive/exclusive distinction is overtly expressed in the forms of the first person plural pronouns. The paper also discusses word order in Ọdual and examines how the order of the various pronouns reflects or diverges from the basic word order in simple clauses.

2. The Vowel System of Ọdual.[2]

Ọdual has twenty phonemic vowels (Comson 1987). Of this number, ten are single oral vowels /i, ɪ, e, ɛ, a, ə, ɔ, o, ʊ, u/, while ten are double[3] oral vowels /ii, ɪɪ, ee, ɛɛ, aa, əə, ɔɔ, oo, ʊʊ, uu/. These vowels are further divided into two sets, expanded [+ATR][4] and non-expanded [-ATR].

Table 1: Phonemic Vowels

+ATR		*-ATR*	
i, ii	u, uu	ɪ, ɪɪ	ʊ, ʊʊ
e, ee	o, oo	ɛ, ɛɛ	ɔ, ɔɔ
ə, əə		a, aa	

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[2] We present the vowel system of Ọdual because of the phenomenon of vowel harmony, which is crucial in the selection of the correct forms of tense/aspect markers attached to the verb, for instance. There is no consonant harmony in the language.

[3] Double oral vowels are analyzed in this work as single syllables consisting of two moras. The Ọdual word *ééná* 'you (pl.)', for instance, is analyzed as two syllables consisting of three moras *é.é.ná*, while the word *ezirə* 'we (incl.)' is analyzed as consisting of three syllables and three moras *e.zi.rə*. Mutaka & Tamanji (2000: 82) remark that "Although African languages are not known for a highly developed metrical structure, the notion of mora is still useful in accounting for example for the association of tone or the lengthening of a vowel."

[4] The following abbreviations are used in this paper: 1sg. = first person singular, 1sgO = first person singular object, 1sgS = first person singular subject, 2sg. = second person singular, 2sgO = second person singular object, 2sgS = second person subject, 3sg. = third person singular, 3sgS = third person singular subject, 1pl. = first person plural, 1plS = first person plural subject, 2pl. = second person plural, 2plS = second person plural subject, 3pl. third person plural, 3plS = third person plural subject, ATR = advanced tongue root, C = consonant, CERT = certainty, DIST = distal demonstrative, EXCL/excl. = exclusive, FOC = focus marker, FUT = future, INCL/incl. = inclusive, NP = noun phrase, O = object, OM = object marker, PST = past, PLUR = pluriactional, POSS = possessive, PRES PERF = present perfect, pl. = plural, PROX = proximal demonstrative, S = subject, sg. = singular, V = vowel/verb.

The two sets of vowels do not co-occur in simple words in Oḍual as in [+ATR] *ekpom* 'heart', **ɛkpom*, *əəbədi* 'iguana' **aabədi* and [-ATR] *odú↓ŋʷɛ́* 'hornbill (long-tailed)', **ɔdú↓ŋʷɛ́*, *ɔɔdɔrɔnú* 'lip', **oodɔrɔnú*. The starred forms are deviant forms because they consist of vowels drawn from both sets. There are, however, a few exceptional cases to which this widespread rule does not apply. Gardner et al. (1974: 9) note that, "there are a limited number of words, most of which contain the vowel 'ẹ' (ɛ) (and (e)) in which both heavy [+ATR] and light [-ATR] vowels occur together so that there is no vowel harmony" (parentheses and brackets mine). The words *áráá-kpé*[5] 'trouble' and *əle-kɛ́* 'leg' are illustrative examples.

3. Pronouns.

Pronouns substitute for nouns and noun phrases. Five subsets of pronouns can be recognized in Oḍual. These subsets are personal, reflexive, interrogative, demonstrative, and indefinite pronouns. We shall discuss them one by one.

3.1. Personal pronouns. Oḍual distinguishes three types of personal pronouns, depending on the position and function of these pronouns in a sentence. The three types of personal pronouns are subject, object, and possessive pronouns. These pronouns encode in themselves grammatical categories such as person, number and case (cf. Ndimele 1996, Deterding & Poedjosoedarmo 2001, and Börjars & Burridge 2001). Oḍual does not make any gender distinction in its pronominal system.

There is a three-way person distinction in Oḍual personal pronouns. The language distinguishes first person, second person and third person. First person is used by the speaker to refer to himself or to a group which the speaker is a part of. Second person is used to refer to the hearer or to a group which the hearer is a part of. Third person is used to refer to person(s) or thing(s) excluding the speaker and hearer (cf. Lyons 1968: 276). Givón (1984: 354) uses the term 'non-

[5] There are two basic tones in Oḍual, low and high, plus a downstep. In this paper only the high and the downstep are marked. The high tone is marked (´), while the downstep is marked (ó↓ó) with an arrow pointing downwards between two high-toned moras. In general, the low tone is not marked for the sake of convenience. In this paper, tone is not marked in proper names. The Oḍual data in the paper are transcribed using phonetic symbols that have IPA values. The description is eclectic, meaning that the analysis adopted is not based on any particular linguistic theory.

participant' to refer to the 'third' person. In respect of number in personal pronouns, the language distinguishes between singular and plural. Whereas singular refers to the concept of one, plural refers to the concept of more than one. The language also distinguishes three cases in personal pronouns. These are the subjective or nominative, objective or accusative and possessive or genitive cases.

An interesting and distinguishing feature of the pronominal system, especially as regards personal pronouns, is the distinction the language makes between inclusive and exclusive first person plural. This distinction, according to Givón (1984: 354), "...pertains to the hearer's inclusion in or exclusion from, the referential scope of 'we', either dual or plural. 'We-INCL' is thus 'we, including you,' and 'we-EXCL' is thus 'we, excluding you' " (cf. Lyons 1968: 277). The inclusive/exclusive distinction is overtly expressed in the forms of first person plural pronouns. The reason for the overt distinction in the forms of the first person plural pronouns is well expressed by Givón. According to him, "...inclusion/exclusion are not directly predictable from the speaker and hearer, they are potentially ambiguous in the speech situation, and it is thus only natural that they may require overt specification ('marking')" (Givón 1984: 355).

3.1.1. Subject pronouns. Subject pronouns occur before the verb, and function as the subject of a sentence. When these pronouns are pronounced in isolation, they have the forms given in Table 2:

Table 2: Forms of Subject Pronouns

Singular	1st	ááámí	'I'
	2nd	á'ná	'you'
	3rd	odí	's/he/it'
Plural	1st	eziɾə́	'we' (incl.)
		ézə́ə́ər	'we' (excl.)
	2nd	eenə́	'you'
	3rd	eedí	'they'

Tonally, the first person singular and first person plural exclusive subject pronouns have a high tone pattern, i.e. all moras are high toned; the third person singular, first person plural inclusive and second and third person plural have the same tone pattern — low-high, while the second person singular subject pronoun has a high-downstepped-high tone pattern. Segmentally, all subject pronouns begin with a vowel. Whereas the first person singular, first person plural (inclusive

and exclusive) and second and third person plural are trimoraic, the second and third person singular forms of these pronouns are bimoraic.

It is observed in (1) that all subject pronouns maintain their inherent tone patterns in sentences, except the ones that refer to first and second person singular and first person plural exclusive:

(1)	aamɪ	nə́ə	-rú[6]	'I have come.'
	1sgS	1sg.PRES PERF	-come	
	ána	nə́ə	-rú	'You (sg.) have come.'
	2sgS	2sg.PRES PERF	-come	
	odí	nə́ə	-rú	'He has come.'
	3sgS	3sg.PRES PERF	-come	
	ezirə́	nóo	-rú	'We (incl.) have come.'
	1plS	1pl.PRES PERF	-come	
	ezəər	nóo	-rú	'We (excl) have come.'
	1plS	1pl.PRES PERF	-come	

[6] The form of the present perfect marker is *nVV-*, which varies according to the number and person of the subject of the sentence. It is observed that the form *nəə-* is associated with first person, second person and third person singular subject; the form *noo-* is associated with first person (inclusive/exclusive) plural subject, while *nee-* is associated with second and third person plural subject. These forms are further determined by the quality of the vowel in the verb stem. The forms *nəə-*, *noo-* and *nee-* occur with verb stem that contain [+ATR] vowels, while the forms *naa-*, *nɔɔ-* and *nɛɛ-* occur with verb stems that contain [-ATR] vowels.

Forms of other tense/aspect markers behave in a similar way. Tense/aspect markers in Ọdual show limited agreement for person and number, given that they do not have distinct forms to reflect the differences in the forms of pronouns occasioned by differences in person and number. For example, the form *nəə-* in (1) is associated not only with first person singular subject but also with second person and third person singular subject. Similarly, the form *nee-* is associated not only with second person plural subject but also with third person plural subject. This lack of formal differences in the form of *nee-* associated with the first, second and third person singular, for instance, is a possible source of ambiguity among these person distinctions in the event of the dropping of the substantive subject in finite declarative sentences.

eenə́	née	-rú	'You (pl.) have come.'
2plS	2pl.PRES PERF	-come	
eedí	née	-rú	'They have come.'
3plS	3pl.PRES PERF	-come	

Example (1) illustrates the use of these pronouns in subject position.

3.1.2. Object pronouns. Object pronouns occur after the verb, and function as the object of a sentence. These pronouns, in their isolation forms, are identical with their subject counterparts both segmentally and tonally. Object pronouns are also consistent in their tone patterns when they are used in a sentence, except that in certain grammatical contexts the tone patterns of the ones that refer to first and second person singular tend to vary. The forms of object pronouns are given in Table 3:

Table 3: Forms of Object Pronouns

Singular	1st	ááḿí	'me'
	2nd	á^{l}ná	'you'
	3rd	oḍí	'her/him/it'
Plural	1st	eziró	'us' (incl.)
		ézóór	'us' (excl.)
	2nd	eenə́	'you'
	3rd	eeḍí	'them'

Example (2) illustrates the use of these pronouns in object position:

(2)	odí	tə́	-péléɣi	ááḿí	'He will call me.'
	3sgS	3sg.FUT	-call	me	
	aamɪ	tə́	-péléɣí	á^{l}ná	'I will call you (sg.).'
	1sgS	1sg.FUT	-call	you	
	aamɪ	tə́	-péléɣi	odí	'I will call him.'
	1sgS	1sg.FUT	-call	him	

ána	tə́	-péléɣi	ézə́ə́r	'You (sg.) will call us.'
2sgS	2sg.FUT	-call	us	
eziré	tó	-péléɣi	eedí	'We (incl.) will call them.'
1plS	1pl.PST	-see	them	
ezəər	tó	-péléɣi	eené	'We (excl.) will call you (pl.).'
1plS	1pl.FUT	-call	you	

Example (3) shows the variations in the tone patterns of the first and second person singular object pronouns in conditional constructions:

(3) iβó odí ə -βeleɣí aamɪ aamɪ tə́ -túu -ní
if 3sgS 3sg.PST -call 1sgO 1sgS 1sg.FUT -come -CERT
'If he calls me, I will come.'

iβó aamɪ ə -βeleɣí ána ána tə́ -túu -ní
if 1sgS 1sg.PST -call 2sgO 2sgS 2sg.FUT -come -CERT
'If I call you (sg.), you will come'

In (3), the tone of first person singular is low on all moras, while that of the second person singular is high on the first mora but low on the second mora.

3.1.3. Possessive pronouns. One of the ways of expressing the idea of ownership in Oḍual is by the use of possessive pronouns (cf. Tsunoda 1997: 17). These pronouns follow the possessed noun or possessee. Possessive constructions in Oḍual are verbless constructions. Possessive pronouns, except the one that refers to second person singular, are like their subject and object counterparts with respect to their segmental composition, but the form that refers to second person singular is *ónú↓má* 'your'. Tonally, the forms referring to third person singular, first person plural inclusive and second and third person plural are somewhat different from their subject and object counterparts. The third person singular has a high-high tone pattern; the first person plural inclusive has a high-high-downstepped-high tone pattern; the second person plural has a low-high-downstepped-high tone pattern, while the third person plural has a low-high-high tone pattern. The forms of object pronouns are given in Table 4.

Table 4: Forms of Possessive Pronouns

Singular	1st	áámí	'my'
	2nd	ónú^{L}mə	'your'
	3rd	ódí	'her/his/its'
Plural	1st	ézír^{L}ə́	'our' (incl.)
		ézə́ə́r	'our' (excl.)
	2nd	eé^{L}nə́	'your'
	3rd	eédí	'their'

Example (4) illustrates the use of these pronouns in possessive noun phrases:

(4)	ɔβɛrɛɛr	amí	'my book'
	book	1sg.POSS	
	ɔβɛrɛɛr	onú^{L}mə́	'your (sg.) book'
	book	2sg.POSS	
	ɔβɛrɛɛr	ezí ^{L}rə́	'our (incl.) book'
	book	1pl.POSS	
	ɔβɛrɛɛr	ezə́ə́r	'our (excl.) book'
	book	1pl.POSS	
	ɔβɛrɛɛr	eé^{L}nə́	'your (pl.) book'
	book	2pl.POSS	
	ɔβɛrɛɛr	ódí	'his book'
	book	3sg.POSS	
	ɔβɛrɛɛr	eédí	'their book'
	book	2pl.POSS	

A look at example (4) reveals that the form of the possessive pronoun referring to first person singular is altered both segmentally and tonally. Specifically, it is observed that one of the identical vowels gets deleted and the tone pattern gets changed from high-high-high to low-high. It is also observed that the

initial high tone of the second person singular pronoun and that of the first, second and third person plural pronouns gets deleted in genitive constructions.

The possessive forms in (4) are the forms used as determiners. When these possessives are used as nominals, they are preceded by the morpheme *olo*, meaning belonging to, as (5) shows:

(5)	ɔβɛrɛɛr	oóβo	olo	amí	'This book is mine.'
	book	sg.PROX	POSS	1sg.POSS	
	ɔβɛrɛɛr	oóβo	olo	onú^{L}mə́	'This book is yours (sg.).'
	book	sg.PROX	POSS	2sg.POSS	
	ɔβɛrɛɛr	oóβo	olo	ódí	'This book is his.'
	book	sg.PROX	POSS	3sg.POSS	
	ɔβɛrɛɛr	oóβo	olo	ezí ^{L}rə́	'This book is ours (incl.).'
	book	sg.PROX	POSS	1pl.POSS	
	ɔβɛrɛɛr	oóβo	olo	ezə́ə́r	'This book is ours (excl.).'
	book	sg.PROX	POSS	1pl.POSS	
	ɔβɛrɛɛr	oóβo	olo	(e)é^{L}nə́	'This book is yours (pl.).'
	book	sg.PROX	POSS	2pl.POSS	
	ɔβɛrɛɛr	oóβo	olo	eédí	'This book is theirs'
	book	sg.PROX	POSS	3pl.POSS	

A summary of the forms of personal pronouns in Oḍual is given in Table 5.

Table 5: Summary of Oḍual Personal Pronouns

		Subject	*Object*	*Possessive*
Sg.	1st	áámí 'I'	áámí 'me'	áámí 'my'
	2nd	á^{l}ná 'you'	á^{l}ná 'you'	ónú^{l}má 'your'
	3rd	odí 's/he/it'	odí 'her/him/it'	ódí 'her/his/its'
Pl.	1st	ezirá 'we' (incl.)	ezirá 'us' (incl.)	ézír^{l}á 'our' (incl.)
		ézɔ́ɔ́r 'we' (excl.)	ézɔ́ɔ́r 'us' (excl.)	ézɔ́ɔ́r 'our' (excl.)
	2nd	eená 'you'	eená 'you'	eé^{l}ná 'your'
	3rd	eedí 'they'	eedí 'them'	eédí 'their'

3.2. Reflexive pronouns. Reflexivity in Oḍual is expressed by a genitive construction which involves a combination of a noun *ələər* 'self' and any of the possessive pronouns discussed in 3.1.3. The pronouns always follow the noun as (6) shows:

(6)

ələər	amí	'myself'
self	1sg.POSS	
ələər	onú^{l}má	'yourself'
self	2sg.POSS	
ələər	ódí	'himself/herself'
self	3sg.POSS	
əsiləər	ezí ^{l}rá	'ourselves' (incl.)
selves	1pl.POSS	
əsiləər	ezɔ́ɔ́r	'ourselves' (excl.)
selves	1pl.POSS	
əsiləər	eé^{l}ná	'yourselves'
selves	2pl.POSS	
əsiləər	eédí	'themselves'
selves	3pl.POSS	

Example (7) illustrates how the noun + possessive pronoun combination expresses reflexivity in a sentence:

(7) aamɪ ʊ -mɔ́ɣɔn m -ələər amí
1sgS 1sg.PST -hear OM -self 1sg.POSS
'I heard myself.'

ána ú -mɔ́ɣɔn m -ələər onú^{L}mə́
2sgS 2sg.PST -hear OM -self 2sg.POSS
'You heard yourself.'

odí á -mɔ́ɣɔn m -ələər ódí
3sgS 3sg.PST -hear OM -self 3sg.POSS
'He heard himself.'

ezirə́ ú -mɔ́ɣɔn m -əsiləər[7] ezí ^{L}rə́
1plS 1pl.PST -hear OM -selves 1pl.POSS
'We (incl.) heard ourselves.'

ezəər ʊ -mɔ́ɣɔn m -əsiləər ezə́ə́r
1plS 1pl.PST -hear OM -selves 1pl.POSS
'We (excl.) heard ourselves.'

eenə́ í -mɔ́ɣɔn m -əsiləər eé^{L}nə́
2plS 2pl.PST -hear OM -selves 2pl.POSS
'You heard yourselves.'

eedí í -mɔ́ɣɔn m -əsiləər eédí
3plS 3pl.PST -hear OM -selves 3pl.POSS
'They heard themselves.'

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[7] Odual is a noun class language. This means that nouns are classified into genders on the basis of semantically determined (singular, plural and single class) prefixes attached to the noun stem. For this reason, many nouns such as *á-lə́ər* 'body/self' (sg.) and *ásí-lə́ər* 'bodies/selves' (pl.) have a singular and a plural form marked by alternating prefixes. The difference between the singular *á-lə́ər* 'body' and plural *ásí-lə́ər* 'bodies' (pl.) in these examples results from the fact as an anaphor, the noun + possessive pronoun changes its form to reflect the antecedent. The form *á-lə́ər* 'body/self' with a singular possessive pronoun is used when a singular antecedent is involved, while the form *ásí-lə́ər* 'bodies/selves' with a plural possessive pronoun is used when a plural antecedent is involved.

In reflexives constructions with a plural subject, the noun *ələər* 'selves' changes its form to *əsiləər* 'selves' to reflect the number of discourse participants.

3.2.1. Interrogative pronouns. Six interrogative pronouns can be identified in Odual. These pronouns, unlike the personal pronouns, do not encode in themselves the grammatical categories of person, number or case. Some of these pronouns, however, change their tones in grammatical contexts. The forms (and meanings) of these pronouns, as given in Table 6, are the forms they take when they are said in isolation.

Table 6: Forms of Interrogative Pronouns

okərə́	'who/which/whose'
ééγe	'what'
odíγen	'where/which'[8]
okərə́méen	'when'[9]
ebumééγe	'why'
ékɔ	'how'

Examples (8) - (10) illustrate the use of these pronouns in grammatical contexts:

(8) okərə́ əəj 'Who?'
which person

okərə́ ɔ́βɛ́rɛɛr 'Which book?'
which book

ɔβɛrɛɛr ókərə́ əəj 'Whose book?'
book which person

When *okərə́* has the meaning 'who' or 'which', it precedes the noun it questions, as in (8) but when it has the meaning 'whose' it is sandwiched between two nouns. In this position, the noun that follows *okərə́* always refers to an entity that has human attributes. Consider the interrogative pronouns in (9).

[8] The form *odíγen* cannot be used to mean 'whose.'

[9] The form *okərə́méen* is a combination of *okərə́* 'which' and *əmen* 'time.'

(9) ezirə́ ú -mɪɪn eeγe 'What did we (incl.) see?'
1plS 1pl.PST -see what

eeγé βó odí á -mí ɪn 'What did he see?'
what FOC 3sgS 3sg.PST -see

odĭγen βó ɔβɛrɛɛr oβo 'Where is the book?'
where FOC book DEF

ána ná -va m -odí γen 'Which do you want?'
2sgS 2sg.PRES -want OM -which

odí tə́ -tu m -okərə́méen 'When will he come?'
3sgS 3sg.FUT come OM -when

The interrogative pronoun *ééγe* 'what' in (9) can occur in both sentence-initial and sentence-final positions. The tone pattern of this pronoun is contextually determined. In sentence-final position, the tone pattern of the pronoun is low on all moras, whereas in sentence-initial position the pronoun has an overall low-high tone pattern. When the interrogative pronouns *odĭγen* 'where/which' and *okərə́méen* 'when' occur post-verbally, they are preceded by the object marker *m-*.

Finally, let us consider the interrogative pronouns in (10):

(10) ebumééγe ká áná le 'Why are you eating?'
why be 2sgS eat

eeγé ká áná le 'Why are you eating?'
why be 2sgS eat

ɛkɔ́ odí 'How is he?'
how 3sgO

The forms *ebumééγe* and *eeγé* in (10) can be used interchangeably to mean 'why.'

3.2.2. Demonstrative pronouns. There are four demonstrative pronouns in Ọdual, as seen in Table 7. These pronouns very often require the speaker to indicate the relative position or location of an entity or entities by pointing to the en-

tity or entities. According to Börjars & Burridge (2001:59), demonstrative pronouns 'typically have to do with the orientational features of language'.

The four demonstrative pronouns in Oḍual are divided into two proximal demonstratives, *ooβó* 'this' and *iiβə́* 'these' (referring respectively to one or more than entity that is/are close to the speaker), and two distal demonstratives, *opó* 'that' and *ipə́* 'those' (referring respectively to one or more than one entity that is/are far from the speaker). These demonstrative pronouns intersect with number, singular and plural. The singular demonstratives are *ooβó* 'this' and *opó* 'that', while the plural demonstratives are *iiβə́* 'these' and *ipə́* 'those.'

Table 7: Forms of Demonstrative Pronouns

ooβó	'this'
opó	'that'
iiβə́	'these'
ipə́	'those'

In isolation, demonstrative pronouns have an overall low-high tone pattern. This tone pattern is, however, not maintained when demonstratives co-occur with other words. Segmentally, proximal demonstratives are similar, as both are trimoraic and begin with a sequence of two identical vowel prefixes *oo-* and *ii-*, while the distal demonstratives are also similar, as both are bimoraic and begin with single vowel prefixes *o-* and *i-*. Example (11) illustrates demonstrative pronouns in noun phrases:

(11)	out	oóβó	'this house'
	house	sg.PROX	
	ərutu	iíβə	'these houses'
	houses	pl.PROX	
	out	ópó	'that house'
	house	sg.DIST	
	ərutu	ípə́	'those houses'
	houses	pl.DIST	

Demonstratives agree in number with nouns in noun + demonstrative constructions. In these constructions, demonstratives follow the nouns they modify.

Let us consider example (12), where demonstrative pronouns occur in sentence-initial position.

(12)	ooβó	ɔβɛrɛɛr	amí	'This is my book.'
	sg.PROX	book	1sg.POSS	
	ooβó	ɔβɛrɛɛr	onú^{l}má	'This is your (sg.) book.'
	sg.PROX	book	2sg.POSS	
	ooβó	ɔβɛrɛɛr	ezí ^{l}rá	'This is our (incl.) book.'
	sg.PROX	book	1pl.POSS	
	ooβó	ɔβɛrɛɛr	ezə́ə́r	'This is our (excl.) book.'
	sg.PROX	book	1pl.POSS	
	ooβó	ɔβɛrɛɛr	eé ^{l}ná	'This is your (pl.) book.'
	sg.PROX	book	2pl.POSS	
	ooβó	ɔβɛrɛɛr	ódí	'This is his book.'
	sg.PROX	book	3sg.POSS	
	ooβó	ɔβɛrɛɛr	eé dí	'This is their book.'
	sg.PROX	book	3pl.POSS	

When demonstratives occur in sentence-initial position, they function no longer as determiners but as independent demonstratives, capable of serving as the subject of the sentence. In sentence-initial position, demonstratives retain their inherent tones.

3.2.3. Indefinite pronouns. Indefinite pronouns in Odual are mostly compound in nature. In other words, they involve more than one morpheme, as in (13). Some indefinite pronouns are cases of reduplication:

(13) oɲíín ə́ˡə́j 'someone'
one person

əə́j oló 'nobody'
person none

oló m -é^{l}sí 'nowhere'
none OM -place

kə-ə́əj kə-ə́^{l}ə́j 'everybody'
every-person every-person

késí késí 'everywhere'
kə-ésí kə-ésí
every-place every-place

In (13) *oɲíín ə́^{l}áj* expresses an affirmative meaning, making a personal reference; *əáj oló* and *oló m-é^{l}sí* express a negative meaning, making a personal and non-personal reference respectively, while *kə-áəj kə-ə́^{l}áj* and *késí késí* express a universal meaning, referring to human beings and locations respectively (cf. Ndimele 1996: 55f).

4. Word Order.

Oḍual has a basic subject-verb-object (SVO) word order in simple clauses. In this word order, the subject is followed by the verb, which in turn is followed by the object, as seen in (14):

(14) eɗíɣotu á -míɪn ə́^{l}ə́bə́dí 'Eḍighotu saw an iguana.'
Eḍighotu PAST -see iguana
S V O

The SVO word order in Oḍual is consistent with the basic word order in Cross River languages (cf. Faraclas 1989: 329).

4.1. Order of Pronouns. In this subsection, we shall discuss the order of pronouns in Oḍual in relation to other words in the context of the basic word order in simple clauses. Specifically, we shall discuss the relative position of Oḍual pro-

nouns to other constituents in the noun phrase (NP), since many of these pronouns are modifiers.

Let us consider the following NP constructions: in (15), the article follows the noun in the noun-article construction.

(15) o-reŋ oβo 'the tree'
tree the

In (16), however, the modifier precedes the noun in the modifier-noun construction.

(16) o-boóbí ə́əj 'beautiful man/person'
beautiful man/person

The pattern observed in (16) is an exception to the typological, basic word order, as it deviates from the head-initial nature of constructions expected of SVO languages seen in (14)

Let us consider the position of pronominal modifiers in (17):

(17) a. ɔβɛrɛɛr eédí 'their book'
book 2pl.POSS

b. ɔβɛrɛɛr oóβo olo amí 'This book is mine.'
book sg.PROX POSS 1sg.POSS

In (17a), the possessive pronoun follows the modified noun. This is typologically consistent with the basic word order in simple clauses in the language. In verbless constructions featuring a demonstrative and a possessive pronoun, such as (17b), the possessive follows the demonstrative pronoun.

Consider the reflexive construction in (18).

(18) aamɪ ʊ -mɔ́ɣɔn m -ələər amí 'I heard myself.'
1sgS 1sg.PST -hear OM -self 1sg.POSS

Two observations can be made about (18). First, the reflexive pronoun follows the verb thereby conforming to the basic word order. Second, the possessive pronoun that combines with the noun to form the reflexive follows the noun. This is so because the reflexive itself is a genitive construction, like (17a).

Furthermore, let us consider the position of the demonstrative pronoun in relation to the noun in (19).

(19) a. otu oóβó 'this house'
house sg.PROX

b. ooβó ɔβɛrɛɛr amí 'This is my book.'
sg.PROX book 1sg.POSS

Demonstrative pronouns follow the modified noun in the noun-demonstrative construction, like possessives in (19a). This is consistent with the basic word order in simple clauses. The word order in which demonstrative pronouns precede the noun, as in (19b), is not basic. Such non-basic word order occurs as a result of some degree of prominence given to the demonstrative. Demonstratives that precede the noun are emphatic and function as subject/topic, since there is a correlation between initial/subject position and communicative prominence.

Let us consider interrogative pronouns with regard to word order in the NP and then with regard to the basic SVO word order in simple clauses:

(20) a. okərə́ ə́əj 'who?'
which person

b. ɔβɛrɛɛr ókə́rə́ ə́əj 'whose book?'
book which person

The semantics of *okərə́* determines its position relative to the noun it questions. It is observed that when the pronoun questions the identity of someone, it precedes the noun it questions but when the pronoun seeks to establish the ownership of something, together with the noun *əə́j*, it follows the noun it questions. What this means is that (20b) is consistent with the word order in the NP, which to a large extent is a reflection of the basic word order in the simple clause, whereas (20a) is not. However, if we reason that the interrogative pronoun and the following noun in (20a) constitute a single unit, on the basis of the fact that they both occur after the noun *ɔβɛrɛɛr* 'book' in (20b), then there will be no case of inconsistency of (20a) with the word order in the NP and by extension with the basic word order in the minimal clause.

Now, let us consider the other interrogative pronouns.

(21) ezirə́ ú -mɪɪn eeɣe 'What did we (incl.) see?'
1plS 1pl.PST -see what

eeɣé βó ezirə́ ú -mɪ́ɪn 'What did we (incl.) see?'
what FOC 1plS 1pl.PST see

ána ná -va m -odíɣen 'Which do you want?'
2sgS 2sg.PRES -want OM -which

odíɣen βó ána ná -va 'Which do you want'
which FOC 2sgS 2sg.PRES -want

odí tə́ -tu m -okərə́méen 'When will he come?'
3sgS 3sg.FUT come OM -when

okərə́méen βó odɪ́ tə́ -tu 'When will he come'
when FOC 3sgS 3sg.FUT -come

A general remark that can be made regarding the interrogative pronouns such as *ééɣe* 'what', *odĩɣen* 'which', *okərə́méen* 'when' and objects in Odual is that they can optionally be moved to the front of the sentence. The occurrence of these pronouns in sentence-initial position serves a discourse function. When they are fronted, they are followed by the focus marker *βó*.

Finally, let us consider indefinite pronouns:

(22) oɲiín ə́ˡə́j 'someone'
one person

əə́j oló 'nobody'
person none

oló m -éˡsí 'nowhere'
none OM -place

Indefinite pronouns are themselves phrases with varying word orders. The word order in the pronoun meaning 'someone' is that of numeral + noun, where the numeral precedes the noun. The word order in the pronoun meaning 'nobody' is that of noun + (negative) pronoun, where the pronoun follows the noun. The word

order in the pronoun meaning 'nowhere' is that of (negative) pronoun + noun, where the pronoun precedes the noun. Of these varying word orders, it is only the one in the pronoun meaning 'nobody' that is consistent with the basic word order.[10]

From the preceding discussion of the pronominal system of Ọdual it is observed that Ọdual is, to a large extent, typologically consistent in the sense that most of its pronouns follow the modified noun in NP constructions, which in turn are consistent with the basic SVO word order in simple clauses in the language. According to Givón (1984: 189), "...if it [a language:EK] has the order VERB-OBJECT (VO) in simple clauses, it should have the order NOUN-MODIFIER (N-M) in noun phrases". The Ọdual case supports Givón's typological prediction as regards consistency in word order in NPs with the basic word order in simple clauses in a given language.

5. Conclusion.

We have examined the pronominal system of Ọdual. One of the notable observations made is that Ọdual maintains an inclusive/exclusive distinction in its pronominal system - a distinction that is overtly expressed in the forms of first person plural personal pronouns. It is further observed that personal pronouns are to a large extent similar in their segmental and tonal composition. Reflexivity is observed to be marked by a combination of the noun meaning 'self' and a possessive pronoun. The noun meaning 'self' varies in form depending on the singularity or plurality of the antecedent, while the possessive pronoun varies based on the number and person feature of the antecedent. It is also noted that tense/aspect markers in Ọdual show partial agreement for person and number, given that in some cases they do not have distinct forms that reflect the differences in the forms of pronouns occasioned by differences in person and number. Furthermore, it is established that the basic word order in Ọdual simple clauses is SVO, and that word order in NPs to a large extent is typologically consistent with the basic word order, as many of the pronouns that function as modifiers follow the noun they modify. The positional relationship of pronouns with other elements in the NP in Ọdual lends support to Givon's typological prediction that word order in NPs should reflect the basic word order in simple clauses.

[10] I do not have additional data to say more than this about indefinite pronouns.

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[received January 15, 2007
accepted February 27, 2007]

Studies in African Linguistics
Volume 36, Number 1, 2007

PUBLICATIONS RECEIVED

Abu-Maganga, Al-Amin, Leoma Gilley & Anne Storch (eds.) *Insights into Nilo-Saharan Language, History and Culture. Proceedings of the 9th Nilo-Saharan Linguistics Colloquium*). (Nilo-Saharan Linguistic Analyses and Documentation, volume 23). Cologne: Rüdiger Köppe Verlag. 2006. Pp. 420, 11 maps, 13 graphs and diagrams, 88 tables. ISBN 3-89645-600-1. Paperback. €44.80.

Twenty five papers from the 9th Nilo-Saharan Linguistics Colloquium held at Khartoum University 16-19 February 2004 are presented here. A number of papers treat issues in historical linguistics, discussing Arabic loan through Kanuri (Baldi), the genetic affiliation of Kadu (Kadugli-Krongo) languages (Blench), labiovelar reflexes in Central Sudanic (Boyeldieu), comparison of 9 Katcha-Kadugli languages (Dafalla), loss of final Proto-Nubian consonants (Jakobi), and the decipherment of Meroitic (Lobban). Papers generally on phonological topics include a description of the morphophonemics of Jumjum numbers (Bashir), tone in Kamda (Hall), Lendu (Kutsch-Lojenga), and Bongo (Nougayrol), Zaghawa phonology (Osman), and aspects of possession constructions in Gaahmg (Stirtz). Aspects of morphology are treated for Tennet (Amargira), Toposa noun derivation (Kadanya), Laggori noun morphology (Mubarak), and the structure of place names in Borno (Rothmaler). Papers covering syntax, semantics and discourse treat verb tense-aspect in Didinga (de Jong), pronouns in Moru-Ma'di (Kilpatrick), the discourse function of *bhe* in Meegye (McKee), aspect and evidentiality in Luwo (Storch) and the role of *-si* in Fur (Waag). Other topics presented regard the state of research on Birgid Nubian (Bell), language shift from Nubian Kadero to Arabic (Birema), orthography of the Ajang Languages (el-Dar), computational tools in the comparative study of Kenuzi and Dongolawi (Jaeger), and a comparison of Nilotic Nubians and Kordofanian Nuba in Kinship (Mekkawi). The final paper of the volume regards the Darfur conflict (Lobban).

Appleyard, David. *A Comparative Dictionary of the Agaw Languages*. (Cushitic Language Studies, volume 24). Cologne: Rüdiger Köppe Verlag. 2006. Pp. ix, 200, 3 tables, 2 charts. ISBN 978-3-89645-481-2. Paperback. €34.80.

This volume is a comparative dictionary of the mambers of the closely-related Agaw branch of Cushitic. The volume starts with an introduction [1-20] which presents relevant information on the people and languages, including the relationship of the four main languages Bilin, Xamtanga, Kemant and Awngi. A brief typology of the languages is given, the structure of the dic-

tionary is explained, and the basis for reconstruction is given. Following this are about 720 dictionary entries. The dictionary is comparative in the sense of giving forms from the four languages side-by-side, arranged according to the English gloss, thus the dictionary is not just an etymological reconstructive dictionary. Entries start with the English gloss, then the corresponding word in each language (if available) in fixed columns, and when multiple words exist for a gloss, all are listed. Following the lexical data is extensive discussion of the entry, for example Proto-Agaw or Proto-Northern-Agaw reconstructions, discussion of details of particular forms, loans into Ethiopian Semitic, comments on related forms and the functions of words in individual languages. The appendices include alphabetical lists of Proto-Agaw or Proto-Northern-Agaw reconstructions and their glosses, then entries from the 4 languages.

Nedellec, Brigitte. *L'expression de la qualification en naténi.* (Gur Monographs volume 8). Cologne: Rüdiger Köppe Verlag. 2006. Pp. xvi, 361. ISBN 978-3-89645-118-7. Paperback. €44.80.

The purpose of this volume is to investigate the semantics of "properties" in the Gur language Nateni, spoken in Benin. Introduction [1-39] presents a theoretical discussion of the semantic notion attribute, surveys research on adjectives in Gur, locates the language geographically, summarizes previous research on the language, gives the phonemes and their phonetic interpretation, including especially morphophonemic alternations affecting the realization of class suffixes, presents the noun class system, sketches the tense-aspect and verbal derivational systems, and finishes with a sketch of syntax and presentation of orthography. "Le nominal" [42-215] considers the expression of attributes in nominal structures. This chapter has extensive discussion of the semantic function of noun classes, including the two degrees of diminutives and augmentatives signaled by noun-class selection, and there is a detailed analysis of nouns of different classes falling into various semantic fields such as body parts, animals, people, things, abstractions, plants. The chapter also looks at the semantic nuances of nominal syntactic constructions such as the N-N structure, exploring for example the role played by *yaǹn* in expressions like "owner of house; inhabitant of village; sacrificer; rich man; jealous woman". A point of interest is that in this language, adjective stems appear between the noun root and the class marker. "Les constructions à expérient" [216-266] covers a wide range of experience constructions — emotion, perception, sensation, volition, and the final chapter "Conclusion" [267-287] sums up the work. This is followed by appendices listing relevant semantic classes, strategies for conveying particular concepts such as five constructions for expressing 'big', and a series of texts.

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UPCOMING MEETINGS ON AFRICAN LANGUAGES / LINGUISTICS

2008

January 21-22
ACQUISITION OF AFRICAN LANGUAGES 2008. Stellenbosch University, Stellenbosch, South Africa. Conference web page: http://academic.sun.ac.za/iccling.

March 14-16
36TH MEETING OF THE NORTH AMERICAN CONFERENCE ON AFROASIATIC LINGUISTICS. Chicago, IL. Conference web page: http://www.mandaic.org/nacal.

April 7-8
GENITIVE CONSTRUCTIONS IN SEMITIC: COMPARATIVE AND DIACHRONIC PERSPECTIVES. University of Salford, UK. Conference web page: http://www.esri.salford.ac.uk/esri/news/article/?id=21.

April 16-18
5E CONFÉRENCE INTERNATIONALE SUR LES LANGUES COUCHITIQUES ET OMOTIQUES. Paris. Further details at http://llacan.vjf.cnrs.fr/fichiers/cush-om.

April 17-20
39TH ANNUAL CONFERENCE ON AFRICAN LINGUISTICS. University of Georgia, Athens. Conference theme: "Linguistic research and the plight of endangered languages in Africa".

July 28-August 3
26TH WEST AFRICAN LANGUAGES CONFERENCE. University of Education, Winneba, Ghana. 1 page 12 pt. abstracts in English or French by January 31, 2008 by email (PDF and RTF only) to walc2008winneba@yahoo.com.

September 11-13.

VIII. INTERNATIONAL AFRO-ASIATIC CONGRESS. University of Naples "L'Orientale", Italy. Registration should contain name and address, title of paper and abstract (1 page in pdf format) sent by email to Sergio Baldi: sbaldi@iuo.it, Subject: AFRO-ASIATIC CONGRESS. Deadline: January 31, 2008. Papers in English or French; Italian and German also accepted.

Carl Friedrich Hoffmann (1925—2007)

Carl Hoffmann was a leading German Chadicist and Africanist, who was influential in the foundations of the Department of Linguistics and Nigerian Languages of the University of Ibadan between 1962 and 1978, and who was instrumental in establishing African Linguistics at the University of Bayreuth between 1980 and 1990. Students from Africa as much as from Germany and elsewhere cherish his memory as an impeccable scholar and devoted teacher.

Born into a working class background in Hamburg, he always remained conscientious about his roots. Since early in life, Carl was almost obsessed by the structural diversity and complexity of human languages. While still in High School, he attended classes in Hamburg (1941-43) taught by the leading Africanists of the time: Swahili and Zulu with Ernst Dammann, Hausa with Johannes Lukas, Somali with August Klingenheben, Egyptian and Berber with Ernst Zyhlarz. Two years of conscripted (para-)military services in 1943 did not stop his linguistic interests, particularly after he was wounded in 1944 and was put into a military hospital.

While finishing his PhD thesis, Carl became institutionally associated with his thesis supervisor Johannes Lukas at the University of Hamburg. Subsequently he worked as a Research Fellow of the International Africa Institute, London, and collected data on several Central Chadic languages. After the cooperation with his former mentor Johannes Lukas and the University of Hamburg was unhappily disrupted, Carl joined the Ibadan-based West African Languages Survey team in Nigeria, teaming up with the late Professor Robert Armstrong, and doing linguistic fieldwork on Benue-Congo ("Plateau") languages. Carl was offered a Lecturer position at the University of Ibadan in 1962 and he became Professor in 1966. In Ibadan he teamed up with such eminent scholars as Professors Ayo Bamgbose and the late Kay Williamson, producing excellent young Nigerian scholars like Professor Ben Elugbe, to single out just one. He served periodically as Head of Department and as (co-)editor of the *Journal of West African Languages* (1964-78). After retirement from Ibadan in 1978, Carl returned to Germany and renewed contact with the University of Hamburg, where a young generation of Africanists had long since networked with him after Johannes Lukas had retired in 1970, particularly in the fields of Chadic and Benue-Congo linguistics. Carl also established close contact with the Dept. of African Languages at the University of Leiden, under its former Chair the late Professor Jan Voorhoeve. Carl then served as

Chair of African Linguistics at the University of Bayreuth from 1980 until he finally retired in 1990.

Carl Hoffmann is most widely known as the author of *A Grammar of the Margi Language* (published for IAI by OUP, 1963) which for decades remained a classic work of reference for a Chadic language other than Hausa; it had inspired a generation of younger Chadicists and still has impact on current day language typologists. However, Carl was not very prolific in publishing books and articles in learned journals. He appeared to be quite happy when he had typed some results of his ongoing research onto paper, and if it only circulated in the form of hard-to-read mimeographed copies or a conference paper handout. Between 1952 and 1978, in addition to his grammar of Margi, he only published 5 articles in journals of renown (AÜ, JAL, JWAL, ZDMG) and 3 contributions to collective works (Festschrift for Diedrich Westermann 1955, Abidjan WALC proceedings 1971, *An Index of Nigerian Languages* 1976), and 5 more papers can be found in rather local Working Paper series (Research Notes, Dept. of Linguistics and Nigerian Languages, University of Ibadan 1967, 1970, 1972, 1973; Africana Marburgensia 1970), one circulated as Special Issue of the Chadic Newsletter (1971). Some of his most influential contributions, therefore, including his remarkable PhD dissertation on the Bura language and a series of highly valuable papers on Higi/Kapsiki, for instance, were never published.

There was no room in Carl's life for female companionship and having children and raising a family of his own — rather, he was married to languages and to his books. I remember times in his Ibadan apartment as a visitor when he would acquire solid structural knowledge about yet another African language by simply reading a freshly printed New Testament while he and the visitors were having breakfast and/or dinner at his table. Carl passed away in a third age residential home in Bayreuth, Germany. A funeral service took place in Bayreuth on May 4, 2007. Carl's ashes were buried in his home town Hamburg, not far from the graves of some of his early teachers of African linguistics. Requiescat in pacem.

H. Ekkehard Wolff
University of Leipzig, Germany

John Massie Stewart (1926—2006)

Born in Lossiemouth, Scotland, in 1926, John Stewart joined the army near the end of World War II, and in August 1945 was sent to serve in both Indonesia and Palestine, where he showed his flair for languages. In 1947 he began his degree course in French at Edinburgh University, which entailed a year as Lecteur d'Anglais at Caen University, France. He was awarded a First-class MA and a French L-ès-L.

In 1951 he was awarded a postgraduate studentship in African studies at the School of Oriental and African Studies, London, where his Head of Department was Malcolm Guthrie, who was then fully engaged in his comparative Bantu research. John's initial assignment was to study Fante, and after a year at SOAS he was sent to Cape Coast in the then Gold Coast for a year's field study. Newly arrived, this courteous young Scot was roundly berated by an angry resthouse caretaker for greeting him on the way to the toilet. Back at SOAS Stewart began work on his PhD thesis: *The verbal system of Fante, with especial reference to tone and glottalization.* In 1960 SOAS sent him to the Ivory Coast, where he collected a rich harvest of word lists in all the Lagoon languages and Baule, which underlay his subsequent comparative work.

Leaving SOAS in 1961, Stewart was appointed Research Fellow at the new Institute of African Studies, University of Ghana, at Legon. During the next decade he deepened his knowledge of Twi and Fante, and collected word lists in all the Akan languages of southern Ghana, some spoken only in one small town. The post involved teaching, too.

While at SOAS Stewart had felt challenged by Guthrie's opinion that Bantu was self-contained and, that though other languages might show Bantu-like features, nothing of significance would emerge from wider comparative studies. It was therefore with great surprise, and some reserve on Guthrie's part, that Stewart was able to demonstrate that some of the Akan starred forms that he was elaborating, following Guthrie's own stringent method, were well relatable to Guthrie's Common Bantu starred forms. In due course Stewart, taking the Guthrie forms as given, was able to arrive at Proto-Potou-Akanic-Bantu, as it came to be known.

Stewart had become increasingly dissatisfied with what was said about the two sets of vowels in the harmony systems. Basically there was a 'closed' set: [i e ɑ o u], and an 'open' set: [ɪ ɛ a ɔ ʊ], but no common feature other than 'openness' or its opposite was ever proposed, and, as [ɪ] and [ʊ] were respectively midway

between [i] and [e], and [o] and [u], any pairing seemed arbitrary. One day Stewart happened to notice that his young informant's prominent Adam's apple was more prominent for some vowels than for others: for [i, e] and [o, u] the underside of his jaw was smooth down to his throat, while for [ɪ, ɛ] and [ɔ, ʊ] his chin was somewhat tucked in and his Adam's apple stood out strongly. Colleagues were called to come and confirm this phenomenon, which proved to be crucial. It was also noticed that the 'angle-throated' vowels had a somewhat constricted, 'creaky' quality, absent in the relaxed, 'smooth-throated' ones. So Stewart now had two distinctive features to work on: throat angle, and degree of 'creakiness'. The first of these eventually gave rise to the terms + or - ATR (Advanced Tongue Root). It so happened that soon after this discovery Kenneth Pike, the pioneer SIL phonetician, came to visit the then new branch of SIL in Ghana and warmly confirmed the importance of Stewart's find.

Generative phonology was being developed about this time, and proved to be the ideal tool for the historical reconstructions that Stewart was evolving, tracing the chronology of the various changes that led to the present language situation. His one disappointment was that no one seemed to be ready to take over this particular baton.

In 1973 Stewart retired from Legon, largely on health grounds, and in 1975 was appointed to a part time Chair in Comparative African Linguistics at the University of Leiden in the Netherlands. Ten years later, owing to severe ill-health he had to retire. His increasing disability did not, however, prevent him from attending the Leiden Colloquium each year until 2003, and continuing to write important papers. He had just 'discovered' the Atlantic languages, and begun to write on consonant mutation in the light of Fula and Konyagi,[1] when in 2005 came the cruel stroke which deprived him of his linguistic memory. He lived on, tenderly cared for by his wife, until May 2006.

As a Scot whose mother had spoken the 'Doric', the deep Scots English, Stewart was fiercely proud of his heritage, and subscribed to two publications concerned with the language. At the time of his stroke he had been in contact with the BBC and the Dept of Culture, Media and Sport concerning the value of Scots, which, he felt, should at least have parity with Gaelic in the Scottish media, especially on TV. He was also writing an (alas never completed) article entitled 'ATR-sensitive vowel shifts in the histories of English and Scots? The English

[1] See inter alia his 'Consonant mutation in Proto-Potou-Akanic-Bantu and in the Fula type languages of Senegal and Guinea' in William A A Wilson: *Guinea languages of the Atlantic group.* Frankfurt a/M, Peter Lang, 2007

vowel shift and other candidates'.

His devoted English wife, Janet, who survives him, as do a son and daughter and five grandchildren, had to learn that 'Hen!' was one of his special terms of endearment.

André Wilson
Kent, England

This is a slightly longer version of the tribute by the same author, which was published in *Journal of West African Languages* 33.1 of 2006.

Anthony Traill (1938—2007)

Sadly I report the death of Anthony Traill, noted phonetician and general expert on Khoisan and other languages of southern Africa. Tony's most important scholarly contributions were in phonetics, especially his extensive work on clicks, e.g., Traill 1994a, but he also published on other phonetic phenomena such as depressor consonants, tone, voice quality, etc., e.g., Traill 1985. Tony also published extensively on the genetic relationships in Khoisan (or the lack thereof), e.g., Traill 1986, and documented the disappearance of the phylum's constituency, e.g., Traill 1996, as well as the languages themselves, e.g., Traill 1994b. One of his non-specialist productions was "Extinct South African Khoisan Languages", a CD documenting the death of Khoisan languages with digitized versions of the earliest recordings (Traill 1997). Because of the boycott of South Africa during the apartheid regime, not all of Tony's publications were known as well as they should have been. Nonetheless, among experts in his various fields his work was recognized as always being of the highest quality: fastidious, detailed, and often understated; eventual recognition was shown by his Honorary Membership in the Linguistic Society of America in 1998.

Tony's Ph.D. and B.A. were awarded by the University of the Witwatersrand ("Wits"), but he was also able to study at the University of Edinburg where he earned a master's degree. Virtually all of his academic career was spent at Wits, although he did spend a sabbatical year abroad in Germany, and traveled extensively to universities around the world once the ban on South Africa was lifted. Tony was instrumental in developing the Center for African Studies at Wits, and although his professorship and chair were in the Linguistics Department, he remained deeply involved in the Department of African Languages.

As a mentor Tony had few peers. He was especially helpful to those who had been disadvantaged by the apartheid system but also to younger students and scholars from abroad. Scholars from around the world corresponded with him and some visited, even when the country was closed. Once the boycott was lifted, many more came to participate in and learn more about his research program, as well as partake of his warm collegiality.

Tony spoke both !Xóõ and Zulu fluently (as well as Afrikaans) and had warm working and personal relationships with the speakers of these languages, to the extent such were possible in South Africa. For visiting linguists, of whom there were many, there was no greater pleasure than to accompany Tony on a research trip to the Kalahari and watch him at work (and play) with his main work-

ing group of !Xóõ speakers. Tony had a deep and knowledgeable passion for the South African countryside. He loved the outdoors and took great pleasure in showing visitors and friends the Khoisan cave drawings high up in the Drakensburg. For those who knew him professionally, personally, or both, there is a deep sense of loss and to some extent regret that he was not more widely known and appreciated.

G. Tucker Childs
Portland State University

Anthony Traill (1938—2007)

Sadly I report the death of Anthony Traill, noted phonetician and general expert on Khoisan and other languages of southern Africa. Tony's most important scholarly contributions were in phonetics, especially his extensive work on clicks, e.g., Traill 1994a, but he also published on other phonetic phenomena such as depressor consonants, tone, voice quality, etc., e.g., Traill 1985. Tony also published extensively on the genetic relationships in Khoisan (or the lack thereof), e.g., Traill 1986, and documented the disappearance of the phylum's constituency, e.g., Traill 1996, as well as the languages themselves, e.g., Traill 1994b. One of his non-specialist productions was "Extinct South African Khoisan Languages", a CD documenting the death of Khoisan languages with digitized versions of the earliest recordings (Traill 1997). Because of the boycott of South Africa during the apartheid regime, not all of Tony's publications were known as well as they should have been. Nonetheless, among experts in his various fields his work was recognized as always being of the highest quality: fastidious, detailed, and often understated; eventual recognition was shown by his Honorary Membership in the Linguistic Society of America in 1998.

Tony's Ph.D. and B.A. were awarded by the University of the Witwatersrand ("Wits"), but he was also able to study at the University of Edinburg where he earned a master's degree. Virtually all of his academic career was spent at Wits, although he did spend a sabbatical year abroad in Germany, and traveled extensively to universities around the world once the ban on South Africa was lifted. Tony was instrumental in developing the Center for African Studies at Wits, and although his professorship and chair were in the Linguistics Department, he remained deeply involved in the Department of African Languages.

As a mentor Tony had few peers. He was especially helpful to those who had been disadvantaged by the apartheid system but also to younger students and scholars from abroad. Scholars from around the world corresponded with him and some visited, even when the country was closed. Once the boycott was lifted, many more came to participate in and learn more about his research program, as well as partake of his warm collegiality.

Tony spoke both !Xóõ and Zulu fluently (as well as Afrikaans) and had warm working and personal relationships with the speakers of these languages, to the extent such were possible in South Africa. For visiting linguists, of whom there were many, there was no greater pleasure than to accompany Tony on a research trip to the Kalahari and watch him at work (and play) with his main work-