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SOME WORD TONE PATTERNS IN NUNI

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In the first two sections, this paper discusses the tone patterns occurring on simple verbs and simple nouns before going into the more complex patterns of compound nouns. In the third section, five different kinds of regular compound nouns are listed. Each time the derivation is given and explained. The paper shows how the morphophonemic rules work together with tone rules to form the five different kinds of compound nouns in the language. Another group of irregular nouns with more complex tone changes is discussed at the end of the paper.

Dans les deux premières sections, cet article décrit les schémas tonals qui apparaissent sur les mots simples (verbes et noms), pour passer ensuite aux schémas plus complexes trouvés dans les noms composés. Dans la troisième section, cinq différentes sortes de noms composés réguliers sont présentés, et chaque fois leur dérivation est donnée et expliquée. L'article montre comment les règles morphophonologiques et les règles tonales se combinent pour produire les cinq différentes sortes de noms composés en Nuni. Un dernier groupe, celui des noms irréguliers comportant des changements tonals plus complexes, est traité dans la dernière partie.

0. INTRODUCTION

This paper investigates the possible tone patterns on verbs, nouns and compound nouns in Nuni¹⁻⁴ (Basinyari⁵ dialect).

Previous work on Nuni tones has been done by Flik (1979) who established the existence of three contrastive tones and Yago (1984) who described the tone system and established tone patterns on simple nouns and verbs.

There are three contrastive tones in Nuni, H (high), M (mid), and L (low), represented here by an acute accent, unmarked, and a grave accent respectively. The three tones contrast on one syllable verbs in frames like the following:

1. **ná tá** **bɛɛ tá**
 we kicked man the
- ná nɪ** **bɛɛ tá**
 we saw man the
- ná mà** **bɛɛ tá**
 we hit man the

The same tones contrast on two syllable nouns in frames like the following:

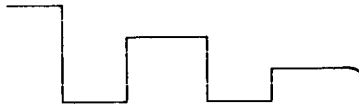
2. **ná tá** **túú** **tá**
 we kicked elephant the

nó tá too tá
we kicked pig the

nó tá pià tá
we kicked sheep the

H and M downdrift after L tones in the usual way.

3. H L H L H



nó yà wá mà wá
we FUT will hit her

'We will hit her.'

4. H M M HH M M



ná bŭĩ túú kã nə
we deafened elephant wife this

'We deafened this female elephant.'

1. TONE PATTERNS ON SIMPLE VERBS

As mentioned above, there exist monosyllabic verbs in Nuni with the level tone patterns of H, M, and L.

5. ò dí 'he ate'
 ò za 'he chopped'
 ò mà 'he hit'

Verbs can also occur with up to three syllables.

There are sequences of H tones on one, two, or three syllables:

6. kwí 'to cry'
 bálí 'to admire'
 súsóní 'to murmur'

There are sequences of M tones on one, two or three syllables:

7. bwĩ 'to deafen'
 goli 'to hook'
 sɪsarɪ 'to tell stories'

There are sequences of L tones on one, two or three syllables:

8. fwà 'to do'
 d̀̀rì 'to run'

There is a LM sequence on two syllables:

9. pìi 'to turn around'
 zìgɪ 'to stop'

There is a HLM sequence on three syllables:

10. tí tàga 'to crush'

From these examples I can extract the list of tone patterns on verbs in Nuni as shown on table 1.

Pattern	Realisation on		
	monosyllabic words S	disyllabic words S S	trisyllabic words S S S
H	H	H H	H H H
M	M	M M	M M M
L	L	L L	
L M		L M	
H L M			H L M

Table 1: Tone patterns on verbs

Three-syllable verbs are infrequent in the language. After considerable effort to find a three-syllable verb with three consecutive low tones, I could not find a single example.

2. TONE SEQUENCES ON SIMPLE NOUNS

Simple nouns consist of a monomorphemic root and an obligatory class suffix. The possible syllable patterns are:

CVV, CVN, CVVN,
CVCV, CVCVN, CVNCV,
CVVCV, CVVCVN,

where N has the effect of nasalizing the immediately preceding vowel.

The class suffixes are |-U|, |-A|, |-I| for singular nouns, and |-AN|, |-A|, |-I| for plural nouns. There are thus six noun classes. Capital vowels mean that the surface forms of the suffixes are subject to ATR vowel harmony with the root vowel.

Example:

noun root + class suffix = noun

11. |lâ-| + |-U| = lîî⁶ 'bag'
|lâ-| + |-An| = lîàran 'bags'

Possible tone patterns on simple nouns are shown in table 2. For any given noun, the same pattern applies whether the noun is in the singular or plural.

Pattern	Realisation on noun root + suffix string	
	disyllabic words S S	trisyllabic words S S S
H	H H	H H H
M	M M	M M M
L	L L	L L L
L M	L M	L M M
H L		H L L
H L M		H L M

Table 2: Tone patterns on simple nouns

Examples for disyllabic nouns:

12.	yúú	'head'	ḡuáná	'rope'
	bṛā	'neck'	mɪna	'millet'
	bùṅ	'goat'	cànà	'moon'
	bìu	'child'	nàḡu	'meat'

Examples for trisyllabic nouns:

13.	jíjúrú	'walk'
	sɪsara	'folktale'
	mìmì	'ants'
	nəkənə	'pot'
	fóbònì	'gizzard'
	kúkùrə	'dog'

I observed differences between speakers of the Léo and the Basinyari dialects. In the Basinyari dialect, I found disyllabic nouns with the tone pattern of L. In Léo, however, the same words are pronounced with a LM sequence. The words with a LM sequence in the Basinyari dialect, however, are pronounced with a LH sequence in Léo.

3. TONE PATTERNS ON COMPOUND NOUNS

The tone patterns on compound nouns can be derived from the tone patterns of their constituents. Compound nouns are formed by combining nouns with other nouns, adjectives or verbs. The first constituent is in most cases a noun but in some cases can be an adjective or a verb.

The most common compounds consist of two nouns. In the compounding process, the first noun loses both the segmental and the tonal part of its class suffix. The second noun stays unchanged.

3.1 N + N COMPOUND DERIVATIONS

Examples:

14.		N ₁	N ₂	The hyphen marks
		foot	forehead	morpheme break
UF's		nà-a	tá lí	between root and
first noun suffix deletion		nà	tá lí	class suffix.
output		nàtá lí	'heel'	
15.		N ₁	N ₂	
		millet'	generation'	
UF's		mɪn-a	dwíí	
first noun suffix deletion		mɪn	dwíí	
output		mɪndwíí	'millet seeds'	

Further examples:

16.	tà-dúú	<	tà-ga	+	dúú
	'pipe'		tobacco	+	filter
17.	nà-pùə	<	nà-a	+	pùə
	'calf'		leg	+	belly
18.	gàn-cĩĩ	<	gàm-ò	+	cĩĩ
	'needle'		dress	+	point
19.	bù-kā	<	bù-N	+	kā
	'female goat'		goat	+	woman
20.	ga-bìu	<	ga-ɔ	+	bìu
	'grass seed'		grass	+	child
21.	lú-kā	<	lú-á	+	kā
	'widow'		funeral	+	woman

Examples 16 to 21 are derived in exactly the same way as 14 and 15. The first noun drops its class suffix and tone and the second noun is added without further changes.

In example 19, the N classifier suffix on **bù-N** 'goat' has the effect of nasalizing the preceding vowel in the isolation form of this noun. In the compounding process, however, this suffix is deleted and so the first vowel in the compound is not nasalized.

The word **dō** 'other' behaves like a noun⁷ when it forms compounds, the derivational rule being suffix deletion.

22.		N ₁	N ₂	
		other	man	
UF's		də-uN	bɛɛ	
first noun suffix deletion		də	bɛɛ	
output		dəbɛɛ	'male friend of a man'	

Some ideolects pronounce this word as **dabee** which can easily be derived from **dəbɛɛ** by invoking ATR vowel harmony on the first vowel.

Note that I have taken the underlying form of the first noun 'other' to be **də-uN**. To derive the surface isolation form of this, we first apply the merging rule ə + u --> oo (see Note 6) obtaining **doon**, then a degemination rule gives **do**, and finally the N nasalizes the vowel to give the surface form **dō**.

3.2 N + N + N COMPOUND DERIVATION

Compounds which are made up of three nouns as constituents are less frequent. In the derivation, the suffixes of the first two nouns and their suffix tones are deleted.

23.	N ₁	N ₂	N ₃
	chiefdom	millet	generation
UF's	pà-rì	mɪn-a	dwíí
first noun suffix deletion	pà	mɪn-a	dwíí
second noun suffix deletion	pà	mɪn	dwíí
output	pàmɪndwíí 'maize seeds'		

3.3 N + ADJ COMPOUND DERIVATION

Another compound noun is formed by juxtaposing a noun and an adjective. Usually the noun precedes the adjective. The suffix of the first constituent (and its tone) is deleted as before and the prefix of the adjective is also deleted. (The adjectival prefix itself seems to have no lexical meaning and no grammatical function other than mark the isolation form of the adjective.)

24.	N	Adj
	village	big
UF's	tɪ-ɔ	nì-fàrò
noun suffix deletion	tɪ	nì-fàrò
adjective prefix deletion	tɪ	fàrò
output	tɪfàrò 'big village'	

If the noun ends in CVV and the penultimate vowel is a high front vowel, but the final vowel is [-high], then the noun suffix deletion rule is replaced by a depalatalization rule which deletes that vowel.

25.	N	Adj
	people (pl)	big
UF's	lì-à	nì-fàrò
depalatalization	là	nì-fàrò
adjective prefix deletion	là	fàrò
output	làfàrò 'benefactor'	

If the noun is not only palatalized but also labialized, then this noun is first depalatalized and afterwards delabialized. Note that the delabialization rule is a low level phonetic rule.

26.	N	Adj
	cough	black
UF's	kùkwí-ú	nà-zònú
depalatalization	kùkw-ú	nà-zònú
delabialization	kùkú	nà-zònú
adjective prefix deletion	kùkú	nà-zònú
output	kùkúzònú 'tuberculosis'	

Note that in 26 there is depalatalization, even though the final vowel is [+high]. This seems to be due to the labialization of the initial consonant of the noun ending -kwí-ú. In the preamble to example 25, I set out the structural description necessary for depalatalization to apply, namely that the noun must end in CVV. In example 26, the noun ends in CwVV, so the structural description for depalatalization is not met.

3.4 N + V COMPOUND DERIVATION

Another compound noun consists of a noun plus a verb.

These compounds divide into two subclasses, A and B. In class A the verbs do not change their forms. In class B, they do.

Compounds of subclass A:

27.		N		V
		belly		think
UF's		pù-ə		bóḡá
noun suffix deletion		pù		bóḡá
output		pùbóḡá	'memory'	
28.	pù-yìgà <	pù-ə	+	yìgà
	'stomach pain'	belly	+	get sick

Compounds of subclass B: The last vowel of the isolation verb form is a front vowel. In a nominalization process it is changed into a back vowel.

The rule for the nominalizing vowel change is

V --> [+back] /verb root ____#.

Example:

29.		N		V
		funeral		finish
UF's		lú-ɛ		wórí
noun suffix deletion		lú		wórí
vowel change to [+back]		lú		wóru
output		lúwóru	'end of funeral'	

3.5 N + V_{NOM} COMPOUND DERIVATIONS

The constituent formula is N + V_{nom} and there are three subclasses C, D, and E of these compounds.

Subclasses C and D are recognizable from the tone on the isolation form of the verb. Subclass E has only one example and will be dealt with separately.

The derivation always starts with the noun suffix deletion rule (or its counterpart, depalatalization, when the structural description fits). In the further derivation of compounds in subclasses C and D, a rule changes the tone on the verb root, in subclass C changing the root to H, and in subclass D to LM. Subclass E does not have a root tone change, but instead a vowel contraction rule on the noun root.

Subclass C is characterized by M tone on all syllables of the isolation verb form. The tone on the noun, however, can be H or L.

The steps in the derivation of subclass C compounds are

- (i) first noun suffix deletion (or depalatalization when the structural description fits) as in regular N + N compounds,
- (ii) change of the tone pattern on the verb to H (i.e. spreading H over all the syllables of the verb).

Example:

30.	N	V _{nom}
	people(pl)	kill-nom
UF's	li-à	gɔ-rɔ
depalatalization	là	gɔ-rɔ
change of tones on V to H	là	gó-ró
output	làgóró	'murderer'

Subclass D is characterized by L tone on all syllables of the isolation verb form.

The steps in the derivation of subclass D compounds are

- (i) first noun suffix deletion (or depalatalization when the structural description fits) as in regular N + N compounds,
- (ii) change of the tone pattern on the verb to LM.

Examples:

31.	N	V _{nom}
	thing	sow-nom
UF's	wə-ùN	dù-rù
noun suffix deletion	wə	dù-rù
verb tone pattern change to LM	wɛ	dùru
output	wədùru	'sower'

32.	N	V _{nom}
	house	build-nom
UF's	dì-ə	lùə-rù
depalatalization	də	lùə-rù
vowel merging (App I)	də	lòrù
verb tone pattern change to LM	də	lòru
output	dəlòru	'house builder'

Subclass E consists of a N + V_{nom} which follows the same derivational rules as the N + N construction of section 3.1.

The only example is **nàtwanɔ**

'hunter', which involves the V_{nom} **twanɔ** 'hunting'.

Note that the nominalization **twanɔ** can stand on its own, and in this respect it behaves like a noun. On the other hand, the nominalized transitive verbs of subclasses C and D can occur only when preceded by their noun objects in a compound construction. None of them can stand alone.

Example

33.	N	V
	meat	hunt-nom
UF's	nà-ŋɔ	twan-ɔ
noun suffix deletion	nà	twan-ɔ
output	nàtwanɔ	'hunter'

3.6 Irregular nouns

There is a small class of nouns with rather different compounding behaviour. When a compound has a noun of this class as its first constituent, the derivation of the compound consists first of the usual noun suffix deletion (or depalatalization), and second of a tone change rule applying to the first noun root.

This class divides into two subclasses, F and G, depending on the tone change on the first noun.

Subclass F consists of the nouns *níá* 'water', *nau* 'cattle', *níí* 'mouth', and *sáná* 'millet beer'. For these nouns, the tone on the first noun root changes to L in the derivation.

Examples:

34.		N ₁		N ₂
		cattle		breast
UF's		na-u		yɪla
first noun suffix deletion		na		yɪla
first root tone change to L		nà		yɪla
output		nàyɪla	'milk'	

When the structural description fits, depalatalization takes the place of the noun suffix deletion rule as in 35, 36:

35.		N ₁		N ₂
		mouths		root
UF's		ní-é		bónó
depalatalization		nə		bónó
root tone change to L		nə		bónó
output		nəbónó	'moustache'	

36.		N		V
		water		drink
UF's		ní-á		nyú-nì
depalatalization		ná		nyù-nì
noun root tone change to L		nà		nyù-nì
output		nànyùnì	'thirst'	

37.	nə-vòrì	<	níá	+	vùè-rì
	'fasting'		mouths	+	fasten

The following compound with the irregular noun *sáná* 'millet beer' includes two nouns and a verb in medial position.

38.		N ₁	V	N ₂
		millet beer	cook	woman
UF's		sá-ná	sâ	kã
first noun suffix deletion		sá	sâ	kã
tone change		sà	sâ	kã
output		sàsâkã	'millet beer preparing	woman'

For subclass G, consisting of the nouns *càru* 'hen' and *sâã* 'concession', the derivation consists first of noun suffix deletion, followed by a tone change to M on the first noun. This derivation is valid for the Basinyari dialect.

39.	N ₁	N ₂
	hen	pen
UF's	cə̀-ru	túú
first noun suffix deletion	cə̀	túú
noun root tone change to M	cə̀	túú
output	cə̀túú	'hen roost'

I now give an example of the derivation of a N + Adj compound where the noun is a subclass G compound noun. The derivation consists of the noun suffix deletion followed by a root tone change to M, and then the adjective prefix deletion rule, since the second constituent is an adjective.

40.	N	Adj
	concession	big
UF's	sà-N	nì-fàrù
noun suffix deletion	sà	nì-fàrù
noun root tone change to M	sa	nì-fàrù
adjective prefix deletion	sa	fàrù
output	safàrù	'big concession'

Comparing 40 with the more regular derivation of N + Adj compounds in 24 of section 3.3, we see that in 40 we need an extra root tone change rule to get the correct surface form.

In the Léo dialect, some of the words are longer than in the Basiyari dialect. The word for 'hen roost' as given in example 39 with the pronunciation of cə̀túú was pronounced cə̀é́túú in Léo.

To conclude this section, I give the derivation of 'hen roost' in the Léo dialect, which is highly irregular.

First, the segmental part only of the first noun suffix cə̀rú 'hen' is deleted; the suffix tone is floated. Second, there is compensatory lengthening of the vowel of the first noun root, i.e. that vowel geminates, and the floating tone left by the suffix deletion docks onto the second vowel of the geminate.

41.	N ₁	N ₂
	hen	pen
UF's	cə̀-ru	túú
first noun segmental suffix deletion (preserves tone pattern)	cə̀	túú
noun vowel gemination	cə̀é	túú
floating tone dock	cə̀é	túú
output	cə̀é́túú	'hen roost'

4. CONCLUSION

The variety of compounds in the Nuni language was a very interesting study. The insights gained through the establishing of morphophonemic and tone rules in the compounding process lead to the conclusion that tone has a low functional load in Nuni.

NOTES

¹Nuni is in the family of Gur languages according to Bendor-Samuel (1971:145). It belongs to the Northern subgroup of the Grusi subgroup of the Central Gur languages. It is listed by Bendor-Samuel as Nunuma. The latest classification can be found in Zakaria Yago (1984:17). The closest related languages in this family are Kasim and Lyele, plus Pana, Pwa, Sissala and Winy (Yago 1984:17).

Nuni is spoken by 233,716 people (according to the census in 1985) in the South of Burkina Faso (ex. Upper Volta), West Africa. It is divided into six dialects which are mutually intelligible.

²I have studied the language for two and a half years in a field situation in Léo, a town in the South of Burkina Faso.

³For phonemes, Nuni has ten vowels, which occur also nasalized: a, e, ə, ɛ, i, ɪ, o, ɔ, u, ʊ. They may be grouped as follows:

+ATR		-ATR	
i	ɪ	ɛ	ʊ
e	o	ɛ̃	ɔ̃
ə		a	

There are twenty one consonants: voiceless stops p, t, c, k, in labial, alveolar, palatal and velar positions, voiced stops b, d, j, g, voiceless fricatives f, s, voiced fricatives v, z, nasals m, n, ɲ, ŋ, liquids l, r (flap), semivowels w, y, h. The voiced stop g is realised as a voiced velar fricative intervocally. In the practical orthography ɲ is represented as the digraph 'ny'. Vowel length and vowel harmony are also present.

⁴I would like to thank my coworker, Michel Namoro, my friend, Fatimata Yago, who assisted me in the study of the language, and Zakaria Yago whose thesis was one of my major resources for this study. I would like to express my special thanks to Dr. Ivan Lowe (International linguistic consultant of S.I.L.). He conducted two linguistic workshops in Abidjan. Côte d'Ivoire in May/June 1986 and in September/October 1987 during which this study was done.

⁵The Basinyari dialect is spoken in the South East of the area.

⁶Vowels with the features [+ back, + low] are the result of vowel merging. The vowels a + ʊ are realized as /ɔɔ/, and ə + u as /oo/. Cf. Note 3 for a listing of the vowels. The features describing the +ATR subset are:

	i	e	ə	u	o
high	+	-	-	+	-
round	-	-	-	+	+
back	-	-	+	+	+

and thus the vowel merging ə + u --> oo can be written

[V]	+	[V]	-->	[V]	+	[V]
[-high]		[+high]		[-high]		[-high]
[-round]		[+round]		[+round]		[+round]
[+back]		[+back]		[+back]		[+back]

and the same rule will describe the a + ʊ --> ɔɔ merging for the -ATR set.

Example: la + ʊ --> ɔɔ
 bag class suffix bag

However when the geminate vowel occurs anywhere else but word finally, it degeminates. Thus:

luɔ-ru --> looru --> loru
 build-nom builder

Tones have been omitted here as this is a purely segmental derivation. Note that the order of the vowels being merged does not matter; both u + ɔ and ə + u go to oo, and similarly for the -ATR set.

Since the word ɔɔ belongs to the group of variable noun roots, its plural form is ɔɔārān. This form is the result of a vowel capture process which adds another vowel before the last consonant of the word. (Yago 1984:181).

⁷Another respect in which dō 'other' behaves like a noun is in constructions like dō tē 'other the' or 'the other one'. Compare with bē tē 'man the' or 'the man'.

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