［**Discussion notes**］

Phonological Sketch of Alekano

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Abstract: This paper is intended to provide a brief overview of the Alekano language in terms of its phonology. Alekano, a non-Austronesian or Papuan language, belongs to the Eastern -Central family of the East New Guinea Highlands Phylum (Wurm 1964: 80-83).

Key words: Alekano phonology, consonants, vowel alternations, vowel coalescence, vowel harmonoy

1. Introduction

The Alekano language has a very simple phonological structure. Phonemically, the language has thirteen consonants and five vowels (see Tables 1 and 3 below). Like other languages of the Gahuku sub-family Alekano displays some complexity in its verbal morphology. The glottal stop symbolised as <q> in this work, in Alekano is a special type of consonant which sometimes acts as a feature of the syllable.

2. Consonants

Alekano has the following consonants:

Table 1 Consonants in Alekano

	labial	alveolar	velar	glottal
unvoiced stops		t	k	q
voiced stop			g	
unvoiced fricatives		s		h
voiced fricatives	v	z		
nasals	m	n		
lateral tap		l		
approximant	w			

2.1. Notes on the consonants

/v/ is a voiced bilabial fricative [ß]. It is variably written as < v > or < b >. The orthographic symbol < v > will be used to represent this sound in this work. /w/ is a voiced labio- velar semi-vowel and occurs only very rarely. /z/ is a voiced alveolar grooved fricative but some speakers pronounce this sound in the same way as voiced alveolar affricate [dz].

Consonant clusters within the same syllable do not exist in Alekano, (Young 1962: 91). However, a syllable initial consonant may sometimes follow a syllable final glottal stop, examples:

[1] glottal + nasal	qn	gipaqne	'My child'
[2] glottal + fricative	qs	aqse	'Excretion'
[3] glottal + lateral	ql	limímoqlê	'He/She went down'

All consonants occur in word initial and medial position, except for the glottal stop which may not occur in word initial position. Only the glottal stop may occur in word final position.

According to Deibler (1987: 23-30) the glottal stop functions as a consonant in some environments and as a feature of the syllable in others. And in some cases, the glottal stop functions as a different kind of vowel.

2.2. Syllables

The syllable structure of Alekano can be summed up by the following statement, where V represents vowels, q represents the glottal stop, and C represents the other consonants.

Table 2 Syllables in Alekano

Syllable Canon: (C) +V + (V) + (q)		
V:	i.za	'pig'
CV:	ve	'man'
CVV:	goi. ve	'sweet potatoes'
CVq:	ne. taq	'thing'
CVVq:	goiq	'lead'
VVq:	aiq	'his/her'
VV:	au.pa	'mound'

The glottal stop is the only consonant which may end a syllable, and there are no consonant clusters initially or finally within a syllable.

3. Vowels

There are five vowels in Alekano:

Table 3 Vowels in Alekano

	front	central	back
	unrounded		rounded
high	i		u
mid	e		o
low		a	

3.1. Notes on vowels

Sometimes vowels are pronounced more centrally in low toned or unaccented syllables, or in syllables which are closed by the glottal stop. Diphthongs may occur underlyingly in nouns, as shown in the following examples:

[4] gapaisi ‘clay soil’
[5] legeaq ‘earth worm’
[6] piaq nagamiq ‘alcohol’
[7] goive ‘sweet potatoes’
[8] Nuiq ‘name of person’

All possible sequences of vowels occur in diphthongs except /ao/, /ua/, and /uo/ which have not been observed.

All five vowels occur in word initial, medial, and final positions as shown in the following verbs:

[9] aqníga ‘to see’
[10] itéko ‘They went in…’
[11] etovaní ‘You (s) are beautiful…’
[12] otevê ‘They stood up’
[13] utoqû ‘I appeared’
[14] apulú ‘I hit him/her…’

3.2. Vowel alternations

Vowels are normally deleted or elided when they come into contact with other vowels across morpheme boundaries within the same word. For example, Verb Roots generally

belong to one of three classes. Class 1 verbs end in -a, class 2 verbs end in -e, and class 3 verbs end in -o. Because of vowel elision, however, the final vowels of roots do not occur at the surface in most cases.

3.3. Vowel coalescence

When two vowels come into contact across morpheme boundaries, they coalesce, that is, one vowel is retained while the other is deleted. The strength or weakness of a vowel in this coalescence process depends on both its quality [a, e, i, o, u] and position (first vowel in the sequence vs. second vowel in the sequence), as shown in Table 4 below:

Table 4 The vowels resulting from the coalescence of different vowels [a, e, i, o, u] in different sequential positions (1st or 2nd)

		2nd in sequence				
		a	e	i	o	u
1st in sequence	a	a	a	a	o	u
	e	e	e	i	e	u
	i	a	e	i	i	u
	o	a	o	i	o	u
	u	u	(u)	(u)	o	u

There is no particular vowel quality nor any particular position in the sequence, which is consistently stronger or weaker than any other in the coalescence process. For this reason, there are no rules which can be formulated for vowel coalescence in Alekano. In this work, vowels which are deleted due to vowel coalescence across morpheme boundaries or due to vowel harmony phenomena are written in unbolded italics, as are cases of q deletion. Verbs are bolded, while other word classes are unbolded.

The results of vowel coalescence are shown in these examples:

[15]	Vowel 1(V1)	+ Vowel 2 (V2)	= Strong Vowel (V)	
	V1	+ V2	=V (1+2)	
	a	+ i	= a	
	mina	+ -i	=mina	‘He/She stayed’

[16]	V1	+	V2	=V (1+2)	
	a	+	u	=u	
	mina	+	-u	=minu	'I stayed.'

The results of vowel coalescence are further illustrated by these examples from the three classes:

[17] C1: na ‘to eat’

		V1(-a)	+V2 (-u)		=V(-u)	
1s	-u	na	+ u	nu	=nu	‘I ate’
		V1(-a)	+V2 (-a)		=V(-a)	
2s	-a	na	+ -a	na	=na	‘You (s) ate’
		V1(-a)	+V2 (-i)		=V(-a)	
3s	-i	na	+ i	na	=na	‘He/She ate’

[18] C2: ale ‘to take it’

		V1(-e)	+V2 (-u)		=V(-u)	
1s	-u	ale	+ u	alu	=alu	‘I took it’
		V1(-e)	+V2 (-a)		=V(-a)	
2s	-a	ale	+ a	ale	=ale	‘You (s) took it’
		V1(-e)	+V2 (-i)		=V(-i)¥	
3s	-i	ale	+ i	ali	=ali	‘He/She took it’

[19] C3: vo ‘to go’

		V1(-o)	+V2 (-u)		=V(-u)	
1s	-u	vo	+ u	vu	=vu	‘I went’
		V1(-o)	+V2 (-a)		=V(-a)	
2s	-a	vo	+ a	va	=va	‘You (s) went’
		V1(-o)	+V2 (-i)		=V(-i)	
3s	-i	vo	+ i	vi	=vi	‘He/She went’

The above examples show that when two vowels (V1 and V2) are combined, the vowels combine in order from left to right, i.e. the first vowel combines with the second vowel in sequence.

3.4. Vowel coalescence with q

A q between vowels blocks vowel coalescence before the q itself is deleted in word internal position leaving a diphthong at the surface. This means that vowel coalescence is strictly ordered before q deletion.

When a diphthong precedes the composite morpheme complex -^ke, the falling pitch spreads leftward over the entire diphthong, creating a hl sequence over the diphthong and reducing the following pitch.

[20a]	l	h	l	h	l
	molo		-u	-^ke	
Underlying form	mola	-oq	-u	-^k	-e
V coalescence:	mol	-oq	-u	-^k	-e
q deletion:	molo		-u	-^k	-e
Leftward hl spreading:	molo (h)		-u (l)	-k	-e
Surface form	mo-lo		-u	-ke	
	l	h	l	h	l

This case illustrates an interesting rule ordering phenomenon in Alekano. The q is deleted before pitch spreading but after vowel coalescence. The rules involved here are crucially ordered, since we need the q to block vowel coalescence but we need to be rid of q to allow hl spreading, otherwise we would just get -ou (h) -ke (l).

The q must be deleted after vowel coalescence to block the coalescence of the o in -oq with an initial vowel of a following morpheme (in this case -u), while allowing the o in -oq to coalesce with the final vowel of a preceding morpheme (in this case, the final a of mola) q deletion, however, must occur before pitch spreading, to allow the high-low sequence of the falling pitch preceding -ke to spread over both o (which bears the initial high pitch at the surface) and u (which bears the final low pitch at the surface). Instances of coalescence blocked by q produce the only cases of diphthongs in Alekano verbs at the surface. The derivation of forms involving diphthong formation with the relatedness suffix (below) confirms the rule ordering and other phenomena outlined here.

[20b] Vowel 1(V1) + Vowel 2 (V2) + q + Vowel 3(V3) = Coalesced Vowel (V1+ V2) + Vowel 3 (V3)

V1+	V2	+q	+V3	= V (V1+V2)	+V3	
mola+		-oq	+-u-k	= mol	+-uke	= molóuke
						'I placed (it)'

3.5. Vowel harmony

Alekano has two types of vowel harmony suprafixes: the allofocal vowel harmony suprafix and the strong vowel harmony suprafix. These two vowel harmony types impose a single vowel quality on one or more vowels in the verb.

3.6. Allofocal vowel harmony

The scope of allofocal vowel harmony includes any elements in a verb. Allofocal vowel harmony (symbolised as @H in the gloss and I plus square brackets I[ ] or [ ]I in the Alekano form, preceding or following the syllables affected by harmony) imposes the vowel quality [i] spreading in a rightward direction in most cases (the only exceptions being verbs which start with vowels see example 24 below).

Examples:

[21]

AH	C1verb root		Harmonised element		Result	Meaning
I[	mola	+	-o]vâ	∏ mili	=milivâ	'They place (it) again.'
3pS@H	place	R				

[22]

AH	C2verb root	Harmonised element		Result	Meaning
I [	gele + -onq]	-a	∏ gili	=gilinâ	'They have heard.'
3p@H	hear	Pf	3pS		
(q in onq blocks vowel harmony)					

[23]

AH	C3verb root	Harmonised element		Result	Meaning
I[	vo-	-^k	-e] ∏ víki	=víki	'They went'
3pS@H	go	SA	¥		

[24] Allofocal vowel harmony:

Mota	a-	hul[a	-^k	-o]I	ot[e	-^k	-o]I	I[tovo -oq]-l	-o	´
Just	3sO	leave	SA	/ 2p@H stand		SA	/ 2p@H	2p@H	go up rl Im / *	

'Mota ahulíki otíki tiviló!

'Just get up and go!' Literally: 'You just leave it, stand up and go!'

3.7. Strong vowel harmony

The scope of strong vowel harmony is restricted to the verb root and class 1 and class 2

object prefixes. Following the patterns for vowel coalescence outlined in Table 4 above, strong vowel harmony imposes the vowel qualities [i], [u], or [o], always spreading leftward and is marked as H in the gloss and square brackets [ ] in the Alekano form, preceding the first syllable affected by harmony and following the suffix whose strong vowel spreads over the verb stem. The following are examples of strong vowel harmony:

[25] C1verb root H Harmonised element Result Meaning
[mola]-u -v -e -^ ∏mulu =muluvê 'I placed it.'
Verb root (place) 1SH FM ¥ #

[26] Prefix C2verb root H Harmonised element Result Meaning
no- [gele]-i -^ ∏ gili =nogilî He/She is listening.'
Ip hear 3sSH #

[27] C1verb root H Harmonised element Result Meaning
[mola]-oq -ge -ta -a -´ ∏molo =mologetá 'They placed it for you…'
place rlH 2sBO B 3pS *

[28] Halópiga [leme]-ití -o -h -e -^ lo -^k -o [gele]-u -^moq
Halópiga descend FtH 1sFt FMQ ¥ # say SA / feel 1SH Halópiga limitóhê, lókô gulúmoq.
'Will I go down to Halopiga? I decided (I made my mind whether to go to Halopiga or somewhere else)'

3.8. Vowel harmony with q

A q between vowels or between vowel and consonant blocks vowel harmony:

[29] I [gele + -oq] -a -^k -e ^
3p@H hear rl 3pS SA ¥ #
gilíake. 'They heard.'

[30] I [gele + -onq] -a -^
3p@H hear Pf 3pS #
gilinâ. 'They have heard'

4. Conclusion

The goal in this paper is not to give an in-depth treatment to Alekano but provide a brief phonological representation of the language, using more traditional and widely accepted means of linguistics analysis. As such, more complex analysis of phonology is not given, instead a preliminary skeletal sketch is provided. Other areas of the language phonology, vowel harmony are given emphasis.

Abbreviations:

@, allofocal vowel;	+, another unit follows;
[^], final verb suprafix/falling tone;	#, sentence boundary;
*, non-final clause boundary;	/, non-final clause or imperative;
¥, final clause;	1, 1st person;
2, 2nd person;	3, 3rd person;
BO, benefactive object;	C1, C2, C3;
verb class 1,2,3;	F, final verb/event;
Ft, future;	H, harmonising vowel;
Im, imperative;	l, low tone;
O, object;	p, plural;
Pf, perfect;	Q, question/interrogative;
R, repetitive;	r, resumptive;
rl, relatedness;	s, singular;
S, subject;	SA, same actor

M, monofocal (declarative, if not marked otherwise);

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