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VOWEL HARMONY IN ALUR :  
ON THE CROSSROADS OF TWO SYSTEMS

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1. Vowel Harmony in East African and  
West African Languages

ATR-based Vowel Harmony systems occur widely in African languages. They form an interesting topic for study, especially the differences between East African and West African systems, and the fact that many languages show minor individual differences, mostly based on what has happened to the [+ATR] low vowel.

The general rule, which seems to be operating in all Vowel Harmony systems is the following (as quoted from Andersen, 1980: 38):

[+syll] ---> [+ATR] %  $\text{C}_0 \text{V}_{\text{[+ATR]}}$

This says that any [-ATR] vowel is replaced by its corresponding [+ATR] counterpart if there is a [+ATR] vowel elsewhere in the word. This implies that the class of [+ATR] vowels is dominant; [-ATR] vowels are recessive, and they assimilate to the former within the phonological word.

East African Vowel Harmony systems are so-called [+ATR]-dominant, whereas West African Vowel Harmony systems are often said to be based on the feature of Root Control. In fact, as we will see, the latter is only a special case of [+ATR]-dominance; the difference lies in the occurrence of [+ATR] and [-ATR] vowels in roots and affixes, as can be seen from the matrix below.

	East African VH systems	West African VH systems
Roots	$\pm$ ATR	$\pm$ ATR
Affixes	$\pm$ ATR	- ATR

In East African languages with Vowel Harmony both roots and affixes may have [+ATR] and [-ATR] vowels. The implications of this are twofold:

1. When a Verb root or a Noun root with a [+ATR] vowel takes an affix with a [-ATR] vowel, the latter becomes [+ATR].

Examples are taken from Sabaot (Southern-Nilotic, Kenya).<sup>1</sup>

The Koony dialect of Sabaot has 9 short and 9 long vowels, distributed between a [+ATR] and a [-ATR] set as follows:

[+ATR]	i	e	ɔ	o	u	ii	ee	ɔɔ	oo	uu
[-ATR]	ɪ	ɛ	a	ɔ	ʊ	ɪɪ	ɛɛ	aa	ɔɔ	ʊʊ

The first example consists of a [-ATR] and a [+ATR] Verb root preceded by a [-ATR] Verb prefix.

neet	[-ATR]	'to teach'
tyeen	[+ATR]	'to sing'

kaa-	[-ATR]	'1 sg / recent past'
kaa + neet --->	kaaneet	'I taught'
kaa + tyeen --->	kootyeen	'I sang' <sup>2</sup>

The second example consists of a [-ATR] and a [+ATR] Noun root, followed by the [-ATR] class suffix -ta.

asiista	'sun'
getunto	'lion'

2. The opposite case also occurs, namely that when a [-ATR] root is followed by a [+ATR] suffix the root becomes [+ATR].<sup>3</sup>

When the Verb suffix -e [+ATR] 'imperfective aspect, continuous action' is attached to the Verb form kaaneet, seen above, all vowels become [+ATR]:

kaaneet + e --->	koooneete	'I was teaching'
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The implication of the fact that East African languages have [+ATR] suffixes which cause the vowel of a [-ATR] root to change into its [+ATR] counterpart, is that underlyingly [-ATR] roots have two surface forms:

[-ATR]: neet, and

[+ATR]: neet (see the examples above).

This, of course, creates potential ambiguities with underlyingly [+ATR] Noun or Verb roots, and in some cases neutralization may be found in surface manifestations of roots that differ in their underlying forms only with respect to the ATR-feature.

West African Vowel Harmony systems are sometimes considered to be a further development in which, over a number of generations, the language has eliminated affixes which contain a [+ATR] vowel. Roots may have [+ATR] or [-ATR] vowels, affixes only [-ATR] vowels. These become [+ATR] when attached to a [+ATR] root. The following are two examples of West African languages that have only [-ATR] affixes.

Akuapem (Kwa, Ghana) (Stewart 1983:116)

o-	[-ATR]	'he'	kasa	[-ATR]	'to speak'
-v	[-ATR]	'past tense'	fiti	[+ATR]	'to pierce'
o + kasa + v	---		okasa <sub>v</sub>		'he spoke'
o + fiti + v	---		ofitii		'he pierced it'

Lyélè (Gur, Burkina Faso) (own data).

Lyélè has an 8 vowel system, divided into a [+ATR] and a [-ATR] set, as follows:

[+ATR]	i	e	ɛ	o	u
[-ATR]	-	ɛ	a	ɔ	-

The [-ATR] locative suffix -wa is attached to Noun roots and undergoes harmony changes:

gɔ	[-ATR]	'bush'	gɔ + wa	-->	gɔwɛ	'in the bush'
yɛ́á	[-ATR]	'market'	yɛ́á + wa	-->	yɛ́áwɛ	'at the market'
yóló	[+ATR]	'bag'	yóló + wa	-->	yólówɔ	'in the bag'
bũ	[+ATR]	'river'	bũ + wa	-->	bũwɔ	'at the river'

Roots with an underlying [-ATR] vowel never change into [+ATR], simply because [+ATR] affixes are non-existent in West African Vowel Harmony systems, and consequently the case does not present itself. This, then, eliminates the cases of potential ambiguities because of neutralization of the root vowel as may occur in East African languages.<sup>4</sup>

In looking at the East African Vowel Harmony systems it seems that there is a tension between phonological and morphological principles. Phonological rules causing sound changes operate blindly and thus cause neutralization and potential ambiguities in the East African Vowel Harmony systems. However, the West African languages seem to have solved this problem by gradually changing any [+ATR] vowels of affixes into [-ATR] in order to restore the distinctiveness of the root morphemes.

## 2. Vowel Harmony in Alur

The following are some observations from Alur (Western-Ni-logic, Zaire) during my visit there in September 1985. At first sight it looks as if the Vowel Harmony system is broken down completely; however, after some further study clear examples of Vowel Harmony changes are found. We are dealing here with a system which shows similarities with the Vowel Harmony systems of East African languages, but at the same time there are some indications of a change of [+ATR] affixes into [-ATR], thus keeping the roots invariable.

Alur has a 9 vowel system, based on ATR-distinctions. The [+ATR] counterpart of a is e, and as such has merged with the [+ATR] counterpart of ɛ.

[+ATR]	i	e	e	o	u
[-ATR]	ɪ	ɛ	a	ɔ	ʊ

My observations are based on a study of the Pronoun prefixes and suffixes in their combinations with Verb and Noun roots. The underlying forms of the Pronouns are the following:

	Prefix Subject Pn	Suffix Object Pn Possessive Pn	ATR
1 sg	ā-	-ā	-ATR
2 sg	ĩ-	-ĩ	+ATR
3 sg	ɛ-	-ɛ	-ATR
1 pl	wā-	-wā	-ATR
2 pl	wũ-	-wũ	+ATR
3 pl	gĩ-	-gĩ	-ATR

The following sections will deal with Subject prefixes (2.1), Object suffixes (2.2) and Possessive suffixes (2.3); the final section, 2.4, will deal with the indications of a shift in the Alur Vowel Harmony system.

## 2.1 Subject Prefixes

The following examples make use of two Verb roots:

nēnō	[-ATR]	'to see'
nēyō	[+ATR]	'to know'

A full paradigm of both Verbs with their Subject prefixes is given (past tense is indicated by the tonal pattern).

ānēnō	'I saw'	āṅēyō	'I knew'
<u>īnēnō</u>	'you saw'	<u>īṅēyō</u>	'you knew'
ēnēnō	'he saw'	ēṅēyō	'he knew'
wānēnō	'we saw'	wāṅēyō	'we knew'
<u>wūnēnō</u>	'you (pl.) saw'	<u>wūṅēyō</u>	'you (pl.) knew'
gīnēnō	'they saw'	gīṅēyō	'they knew'

(note the tonal 'irregularity' in the 3 sg. forms: HLL, instead of LHL as for all other forms in this past tense paradigm).

The prefixes neither undergo nor condition Vowel Harmony changes. The underlined forms in the above paradigms show that [-ATR] prefixes do not become [+ATR] adjacent to a [+ATR] Verb root, nor do [+ATR] prefixes cause any changes to the vowels of the [-ATR] Verb root. So in the combination Subject prefix + Verb root [+ATR] and [-ATR] vowels occur side by side.

## 2.2 Object Suffixes

The first paradigm consists of a [-ATR] Verb root, nēnō 'to see', preceded by the 3 sg. Pronoun prefix ē- (which becomes ē- in this past tense paradigm, see the remark made above), and follow-

ed by the Object suffixes:

	nēnō	'to see'
3 sg + 1 sg	ēnēnā	'he saw me'
3 sg + 2 sg	<u>ēnēnī</u>	'he saw you'
3 sg + 3 sg	ēnēnē	'he saw him'
3 sg + 1 pl	ēnēnōwā	'he saw us'
3 sg + 2 pl	ēnēnōwū	'he saw you'
3 sg + 3 pl	ēnēnōgī	'he saw them'

The following observations can be made on the basis of this paradigm: a Vowel Harmony change occurs in the [-ATR] Verb root when it is followed by the [+ATR] Object suffix -ī '2 sg': ēnēnī, but not when the Verb is followed by the [+ATR] Object suffix -wū '2 pl': ēnēnōwū. So the change only seems to occur when the suffix is a vowel (-ī), and is blocked when the suffix is CV (-wū).

The Vowel Harmony change does not influence the Subject prefixes - they remain invariable, and so again we see that [+ATR] and [-ATR] vowels are found side by side in the same word.

The following example shows the change from [-ATR] a to [+ATR] e in a Verb root, when followed by the [+ATR] Object suffix -ī '2 sg'.

	cākū	'to choose'
3 sg + 1 sg	ēcākā	'he chose me'
3 sg + 2 sg	<u>ēcākī</u>	'he chose you'

Again, the Vowel Harmony rule does not operate when the suffix begins with a consonant:

3 sg + 2 pl	ēcākōwū	'he chose you'
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In the case where a [+ATR] Verb root is followed by a [-ATR] Object suffix, the Vowel Harmony rule operates with -ē '3 sg' only, changing it into -ē. Although a in roots changes and becomes e

in a [+ATR] environment, a in suffixes never changes, nor do -CV suffixes.

	gũdô	'to hurt'
3 sg + 1 sg	égũdā	'he hurt me'
3 sg + 2 sg	égũdī	'he hurt you'
3 sg + 3 sg	égũdē	'he hurt him'
3 sg + 1 pl	égũdôwā	'he hurt us'
3 sg + 2 pl	égũdôwū	'he hurt you'
3 sg + 3 pl	égũdôgī	'he hurt them'

### 2.3 Possessive Suffixes

In inalienable Nouns the Possessive suffix is attached to the Noun root. The first example contains two [-ATR] Noun roots, followed by the Possessive suffixes.

cōng	'knee'	lēb	'tongue'
cōngā	'my knee'	lēb <sup>!</sup> ā	'my tongue'
cōngī	'your knee'	lēb <sup>!</sup> ī	'your tongue'
cōngē	'his knee'	lēb <sup>!</sup> ē	'his tongue'
cōngwā	'our knees'	lēbwā	'our tongues'
cōngwū	'your knees'	lēbwū	'your tongues'
cōnggī	'their knees'	lēbgī	'their tongues'

The application of the Vowel Harmony rule is slightly different from the cases where a Verb root was followed by an Object suffix. In this Noun + Possessive construction a [+ATR] suffix changes the [-ATR] vowel of the Noun root, irrespective of its own CV-shape.

The [+ATR] counterpart of a is e in Noun roots (cf. also a ---> e in Verb roots, though not in affixes!). The Vowel Harmony change takes place in 2 sg and in 2 pl, irrespective of the CV-shape of the suffix.

wāŋ	'eye'
wāŋā	'my eye'
wēŋī	'your eye'
wāŋē	'his eye'
wāŋwā	'our eyes'
wēŋwū	'your eyes'
wāŋgī	'their eyes'

The following is a paradigm of a [+ATR] Noun followed by the Possessive suffixes.

lɪmb	'cheek'
lɪmbā	'my cheek'
lɪmbī	'your cheek'
lɪmbē	'his cheek'
lɪmbwā	'our cheeks'
lɪmbwū	'your cheeks'
lɪmbgī	'their cheeks'

Four of these forms have a combination of a [+ATR] vowel in the Noun root and a [-ATR] vowel underlyingly in the suffix. In only one of these cases does the [-ATR] vowel harmonize with the [+ATR] vowel of the Noun root:

3 sg -ē ---> -ē

As with the combination Verb root + Object suffix, the change \*a ---> e does not take place in the suffixes. Finally, for unknown reasons, -gī is invariable. It is possible that it is the CV-shape of this suffix that blocks the Vowel Harmony, although in the reverse direction the suffix -wū (also CV) does cause the preceding [-ATR] vowel to harmonize.

### 2.4 Alur Vowel Harmony on the Cross-roads of two Systems

While working with the Alur people something emerged that gave



me a strong impression that the language is trying to get rid of its [+ATR] affixes, and thus is on its way to becoming a system similar to that of the West African languages.

The first indication for a shift in that direction was some uncertainty among the people I worked with about the ATR-value of the two Subject prefixes that are marked as underlyingly [+ATR] in the table on page 5: *i-* '2 sg' and *wi-* '2 pl'. After some discussion they finally agreed that these were the 'correct' forms, but they became acutely aware of the fact that many of them regularly use the [-ATR] forms *i-* and *wi-* instead. So, [-ATR] forms for these two prefixes must have crept into the speech of at least a number of Alur people. This shift at the underlying level from [+ATR] to [-ATR] vowels in affixes seems contrary to the 'normal' direction in which Vowel Harmony operates, namely from [-ATR] to [+ATR]. My expectation is that the [-ATR] forms of these Subject prefixes will soon become the basic underlying forms.

In wanting to check this phenomenon with a form of the Noun + Possessive paradigm I suggested the form *wāŋi* instead of what they had previously given, *wēŋi* 'your eye'. The immediate reaction was: "But that is how our children speak!" This again to me is an indication that the language is in the middle of a process of regularization that will keep the roots constant, and thus has to change its underlyingly [+ATR] affixes into [-ATR].

It seems that there is some evidence for my suspicion that Alur is on the crossroads of East African Vowel Harmony systems (which have both [+ATR] and [-ATR] affixes) and West African Vowel Harmony systems (which only have [-ATR] affixes and keep their roots constant).

## NOTES

- <sup>1</sup> Data received by personal communication from my colleague, Iver A. Larsen.
- <sup>2</sup> Note that the surface phonetic *oo* is the [+ATR] counterpart of *aa*!
- <sup>3</sup> Note: no [+ATR] prefixes are found in Sabaoth.
- <sup>4</sup> It must be said here that Nen (Bantu, Cameroun) has a system which still resembles the East African languages to some degree, in that it has [+ATR] affixes to the Verbs (some pronominal prefixes and Verb extension suffixes), so that [-ATR] Verb roots become [+ATR] when they have a [+ATR] affix. In the Noun system this is no longer the case, so all Noun class prefixes must have become [-ATR]. (Cf. Mous 1983)

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