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Vowel harmony in Gusilay

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Discourse / Advanced Phonology

Vowel harmony in Gusilay

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INTRODUCTION

Gusilay is a language spoken in Senegal and the Gambia. There are about 15000-20000 speakers, mostly based in the village of Thionk-Essyl, Casamance region. Gusilay belongs to the Atlantic group of the West-African languages (Lewis 2009). Like many languages in this group Gusilay has an ATR vowel harmony. In this paper we will describe this harmony according to the rules of the autosegmental phonology (see Burquest 2001: 231-268). However, we will also use some material from the works of Rod Casali who made lots of research in this area. He did not use the language of the autosegmental phonology, but his ideas are very valuable for this work.

1 VOWEL HARMONY

In his presentation at the GLIF (Global Linguistic Forum) conference in August 2010 Rod Casali gives the following definition of [ATR]:

“[ATR] is an abstract feature whose primary phonological function is to distinguish contrasts in the (auditory) height dimensions that cannot be distinguished by means of [high] and [low] alone. It varies in its articulatory implementation, though it is very often implemented by means of pharyngeal cavity expansion” (Casali 2010). We will use it as a starting definition throughout this work.

In his article “ATR Harmony in African languages” Casali gives descriptions of different types of ATR harmony based on the amount of vowels in a language¹(Casali 2008: 499). According to his classification Gusilay can be identified as a language with 10 vowel ATR harmony:

(1) [-ATR]: [a, ɛ, ɪ, ɔ, ʊ]²

[+ATR]: [ə, e, i, o, u]

The general idea of ATR harmony is that the vowels from different sets cannot be found in the same word. Although it is always good to keep in mind that there are usually exceptions to this rule. Before looking at the exceptions, we will first describe basic assimilatory [ATR] principles. One of the outcomes of using the autosegmental approach is that the [ATR] feature in this paper is considered as privative and not binary. If [ATR] is privative, then when the vowels are articulated with advanced tongue root the feature is present and if they are not, then it is not present. That is probably the closest equivalent to what Casali calls dominant (Casali 2002: 3) or marked [ATR] feature (Casali 2010). At first, this distinction between privative and binary features can be seen unnecessary, but it will make more sense later on, when we will draw diagrams of assimilatory principles.

¹ Later in his works he describes 10 vowel systems as a variant of 9 vowel triangular system (Casali 2010). We will use term '10 vowel system' for simplicity.

² For simplicity of typing we use the character 'a' to describe a central open vowel.

To illustrate this rule consider the following examples:

- (3)
- | | | | |
|-------|-------|----------|------------------|
| [ε-] | /ε-/ | [εkas] | 'a bowl' |
| | | [εfɔːŋ] | 'to sing' |
| [e-] | /ε-/ | [erumbə] | 'a clay pitcher' |
| | | [erekɪʔ] | 'to hiccup' |
| [ga-] | /ga-/ | [gatɔʔ] | 'a leaf' |
| | | [gaŋɔt] | 'to sleep' |
| [gə-] | /ga-/ | [gəʝulo] | 'a bucket' |
| | | [gəŋəpə] | 'a bat' |

The situation is the same with majority of suffixes. The root with [ATR] feature in their UF spread the feature to the suffixes with no [ATR] in their UF. This tendency can be represented by the means of the following figure:

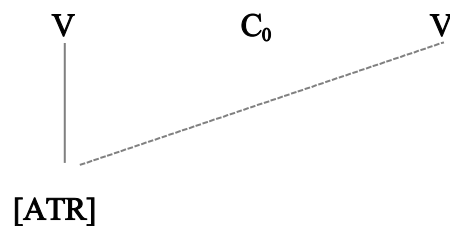


Figure 2

The examples below illustrate the rule:

(4) *Possessive suffixes:*

- | | | | | | |
|-------|-------|----------|------------------|------------|-----------------------|
| [-ɔm] | /-ɔm/ | [far] | 'a belly' | [farɔm] | 'my belly' |
| | | [gaŋana] | 'a cock' | [gaŋanaɔm] | 'my cock' |
| [-om] | /-ɔm/ | [gəbil] | 'a pagne' | [gəbilom] | 'my pagne' |
| | | [erumbə] | 'a clay pitcher' | [erumbəom] | 'my clay pitcher' |
| [-ɪ] | /-ɪ/ | [banɔk] | 'collier' | [banɔgɪ] | 'your (sg) collier' |
| | | [gaʝaw] | 'a name' | [gaʝaːɪ] | 'your (sg) name' |
| [-i] | /-ɪ/ | [gəseːg] | 'a room' | [gəseːgi] | 'your (sg) room' |
| | | [gəʝuo] | 'a top dress' | [gəʝuoi] | 'your (sg) top dress' |

[-ɔ:l]	/ɔ:l/	[ama:nɛn]	'a man'	[ama:nɛnɔ:l]	'her man'
		[funda:p]	'a rope'	[funda:pɔ:l]	'his rope'
[-o:l]	/ɔ:l/	[ɛjəbə:bi]	'a glass bottle'	[ɛjəbə:bio:l]	'his glass bottle'
		[furi:n]	'a front'	[furi:nɔ:l]	'his front'

(5) *Derivational verb suffixes:*

[-ɛt]	/-ɛt/	[garus]	'sand'	[garuset]	'to be sandy'
		[ɛfɛmb]	'type of sauvage fruit'	[gafɛmbɛt]	'to go look for this type of sauvage fruit'
[-ɛt]	/-ɛt/	[bulu:k]	'mud'	[gəlu:gɛt]	'to be covered in mud'
		[guruto]	'mangoes'	[gərutoɛt]	'to go look for mangoes'
[-ɛn]	/-ɛn/	[funɔ:m]	'to buy'	[funɔ:mɛn]	'to sell'
		[ɛca:k]	'to borrow'	[gaca:gɛn]	'to lend'
[-ɛn]	/-ɛn/	[ɛsup]	'to be hot'	[gəsupɛn]	'to heat'
		[jibom]	'to dance'	[gəbomɛn]	'to make dance'
[-ɔ]	/-ɔ/	[gata:s]	'to wash'	[gata:sɔ]	'to wash oneself'
		[gabun]	'to braid (someone)'	[gabunɔ]	'to be braided'
[-o]	/-ɔ/	[ɛci:k]	'to shave'	[gəci:go]	'to be shaved'
		[ɛjuh]	'to pour'	[gəjuxo]	'to be flipped over'
[-a]	/-a/	[gʌʃa:ɔ:r]	'to voyage'	[aʃa:ɔ:ra]	'a stranger'
		[galɪ:r]	'to weave'	[galɪ:ra]	'a spider'
[-ə]	/-a/	[ɛsup]	'to be hot'	[gəsupə]	'heat'
		[ɛnɪf]	'to be cold'	[gənɪfə]	'cold'
[-a:j]	/-a:j/	[ɛsɪ:l]	'Thionk-Essyl'	[gʊsɪ:la:j]	'Gusiilaay (language)'
		[apa:l]	'a friend'	[bapa:la:j]	'friendship'
[-ə:j]	/-a:j/	[ɛsu:m]	'to be good'	[gəsʊ:mə:j]	'peace, goodness'

(6) *Inflectional verb suffixes:*

[-εr]	/-εr/	[εpɪn]	'to count'	[bapɪnεr]	'counted'
		[εlɔb]	'to talk'	[balɔbεr]	'told'
[-εr]	/-εr/	[fucəxo]	'to eat'	[bəcəxoεr]	'eaten'
		[eti:ŋ]	'to arrive'	[bəti:ŋεr]	'arrived'
[-ut]	/-ut/	[gawajɿ]	'to swim'	[awajɿut]	'he didn't swim'
		[εpɔw]	'to see'	[apɔut]	'he didn't see'
[-ut]	/-ut/	[gəjɿjɿ]	'to draw the water'	[əjɿjɿut]	'he didn't draw the water'
		[emɪr]	'to know'	[əmɪrut]	'he didn't know'
[a:l]	/-a:l/	[εjɔw]	'to go'	[ɔjɑ:l]	'let's us all (incl) go'
		[εjɔ:k]	'to start'	[ɔjɔ:kɑ:l]	'let's us all (incl) start'
[ə:l]	/-a:l/	[fucəxo]	'to eat'	[ucəxoə:l]	'let's us all (incl) eat'
		[εjɿh]	'to be able to'	[nujɿxə:le]	'we (incl) were able to'
[-ε]	/-ε/	[εlɔb]	'to say'	[nalɔbε]	'she has said'
		[εjɔw]	'to go'	[nɑjɑ:ε]	'she has gone'
[-e]	/-ε/	[fucəxo]	'to eat'	[nəcəxoε]	'he has eaten'
		[emɪr]	'to know'	[numɪre]	'you have known'

Summarising the section, we can say that if a root does not have [ATR] in UF, then when the root and affix come together there will be no [ATR] at all. So all the vowels at the SF will be without advanced tongue root. If, on the other hand, a root has [ATR] then that feature will attach to all the vowels in the word. So combining the Figure 1 and 2, we can present this rules in the following scheme:

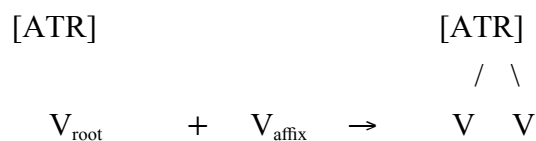


Figure 3

1.3 [ATR] derivational suffixes

In the section 2.1 we saw the affixes which do not have [ATR] feature. However, in Gusilay there are some suffixes which do have the [ATR] as part of their UF.

1.3.1 Suffixes [-ə:li] and [-ul]

The derivational suffixes [-ə:li] meaning 'early' and the inversive suffix [-ul] attach to a verb. In the following diagram (fig. 4) the V on the right represents the vowel of the suffix with the [ATR] value, and V on the left the vowel of the root (vowels of the root and the prefix).

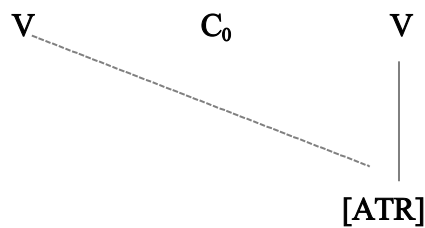


Figure 4

The following examples illustrate this rule:

(7) *Suffix [-ə:li]:*

[ɛna:f]	'to cultivate'	[gənə:fə:li]	'to cultivate early'
[ɛɟɔw]	'to go'	[gəɟə:li]	'to go early'
[ɛɟo:l]	'to come'	[gəɟə:li]	'to come early'

(8) *Suffix [-ul]:*

[ɛpɛ:k]	'to close'	[gəpɛ:ɟul]	'to open'
[ɛbo:ɲ]	'to fold'	[gəbo:ɲul]	'to unfold'
[gafək]	'to bury'	[gəfɔɟul]	'to dig out'
[ɛtɔɟʷ]	'to cork'	[gətɔɟul]	'to uncork'
[gəpul]	'to thatch'	[gəpulul]	'to de-thatch'

If there are other suffixes added after these derivational suffixes, the [ATR] value as it is expected also spreads to those suffixes. In the following diagram the first V represents the vowel of the suffix:

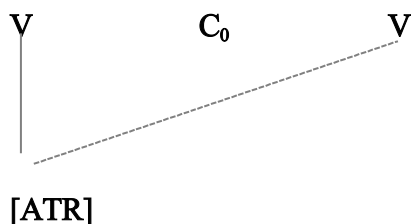


Figure 5

Some examples:

- (9) [ɛna:f] 'to cultivate' [gənə:fə:li] 'to cultivate early'
 [ɛnə:fə:liuti] 'it (field) wasn't cultivated early'
 /ɛ-/ + /na:f/ + /-ə:l/ + /-ut/ + /-ɪ/
 [ɛʒɔw] 'to go' [gəʒə:li] 'to go early'
 [əʒə:liut] 'he didn't come early'
 /a-/ + /ʒɔw/ + /ə:li/ + /-ut/
 [ɛpɛ:k] 'to close' [gəpɛ:gul] 'to open'
 [əpɛ:gule] 'he closed'
 /a-/ + /pɛ:k/ + /-ul/ + /-ɛ/
 [gafək] 'to bury' [gəfɔgul] 'to dig out'
 [əfɔgulut] 'he didn't dig out'
 /a-/ + /fək/ + /-ul/ + /-ut/

So, we can say that the data in this section confirm the rules we stated at the beginning of the section 2. Any morpheme (root or suffix) which have the [ATR] feature in its UF distributes this feature to the morphemes which do not have it in their UF. The data above can be also represented in the following form:

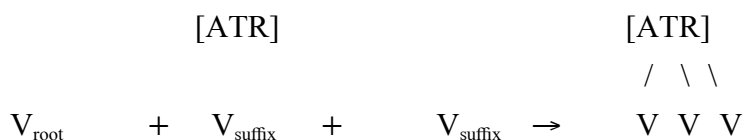


Figure 6

1.3.2 Interesting case: suffix [-um]

Derivative suffix [-um] is a bit different from the derivational suffixes above. It can be attached to the verbs or adverbs to form nouns and new adverbs respectively. In many cases has [ATR] value and spreads it to the roots which do not have it. So in this respect it works like the rest of the derivational suffixes. However, sometimes it seems like it does not carry the [ATR] values and assimilates to the values of the root. Consider the following examples:

(10) *With [ATR] value:*

[ɛlob]	'to speak'	[gulobum]	'language'
		[gulobumom]	'my language'
		/gʊ-/ + /lob/ + /-um/ + /-om/	
[ɛpɛ:k]	'to close'	[gəpɛ:gum]	'a door'
		[gəpɛ:gumo:l]	'his door'
		/ga-/ + /pɛ:k/ + /-um/ + /-ɔ:l/	
[gæsɛ:s]	'to harvest rice'	[esɛ:sum]	'an instrument for harvesting rice'
		[eseesumoli]	'our(excl) instrument for harvesting rice'
		/ɛ-/ + /sɛ:s/ + /-um/ + /-oli/	
[gəʃom]	'tomorrow'	[gəʃumenum]	'day after tomorrow'
[fʊgɛn]	'yesterday'	[fʊgenum]	'day before yesterday'
[tɔ:n]	'next year'	[to:nenum]	'year after the next'

(11) *No [ATR] value:*

[buʃɪŋ]	'to climb'	[ɛʃɪŋum]	'a traditional ladder'
[ɛkʊh]	'to close by key'	[ɛkʊxum]	'a key'
[gajɪʃ ¹]	'to sculpt'	[ɛjɪʃum]	'a sculpting instrument'
[gajɪt]	'to mow'	[ɛjɪxum]	'sickle'
[gajʊxɔ]	'to get up'	[fʊjʊxɔum]	'a shape'
[gacumbɛn]	'to make holes in the ground'	[fʊcumbɛnum]	'a stick for making holes in the ground'

In the following examples we will show how the suffix adapts to the value of the root. However, it is also arguable what has the [ATR] value, root or the suffix:

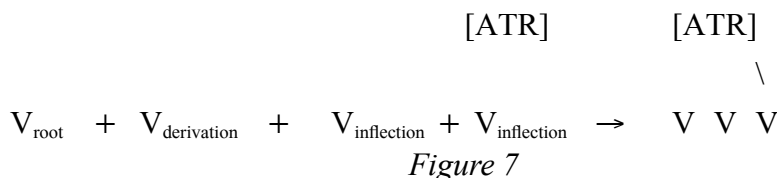
(12)	[emer]	'to swallow'	[gəmerum]	'a throat'
	[eɟul]	'to leak'	[gəɟulum]	'a fish trap'
	[esi:l]	'to cook'	[fusi:lum]	'a spatula'
	[gətun]	'to bring compost'	[gətunum]	'a dustpan'
	[gəkuro:r]	'to swing'	[fukuro:rum]	'a swinger'
	[fuli:m]	'last year'	[fuli:menum]	'the year before last'

If we take a closer look at the first two sets of the examples, we will notice a certain pattern. The suffix [-um] does not have [ATR] value when there are high vowels in the root [-ɪ-] and [-ʊ-]. In the case of [gajuxɔ] and [gacumbɛn] the suffixes [-ɔ] and [-ɛn] are inflectional. However, it might be a complete coincidence.

1.4 [ATR] inflectional suffixes

The situation with the [ATR] inflectional suffixes is more complicated. Before looking at each of them separately, we will discuss the notion of the morpheme 'weight'. This is not a terminology of the autosegmental phonology, but we find it useful for this section. Assume that there are 'heavy' and 'light' morphemes. For example, roots and derivational suffixes are the 'heavy' morphemes, and prefixes and inflectional suffixes are the 'light' morphemes. In this case we can say that if the 'heavy' morphemes have [ATR] feature as part of their UF, then it spreads to all other morphemes ('heavy' and 'light'). If not then they might adapt to the feature of another 'heavy' morpheme in the word. This rule was illustrated in the sections 2.1 and 2.2.

The 'light' morphemes can also have [ATR] in their UF, but contrary to the 'heavy' morphemes, they spread [ATR] feature only to the 'light' morphemes (if they are present in the given word). We will see this happening in the sections 2.3.1 and 2.3.2. The account for this process could be presented in the Figure 7.



1.4.1 Suffixes [-oli] 'we exclusive' and [eri:t] negation

Consider the following examples:

(13)	[jaŋ]	'a house'	[jaŋoli]	'our (excl) house'
	[banuk]	'jewelry'	[banuɔgoli]	'our (excl) jewelry'
	[furih]	'rainy season'	[furixoli]	'our (excl) rainy season'
	[ɛsa:f]	'to greet'	[usa:foli]	'great us (excl)'
			[usa:folio:l]	'great him for us (excl)'
			[usa:folisa:f]	'you (sg) greeted us (excl)'
	[ɛka:n]	'to do'	[aka:noli]	'he did to us (excl)'
			[aka:nutoli]	'he did not do to us (excl)'
			[aka:nolika:n]	'he did to us (excl)'
	[gacamen]	'to like'	[acameneri:t]	'he does not like'
			[acameneri:tool]	'he does not like him'

The suffixes [-oli] and [eri:t] have [ATR] feature as a part of their UF. That feature does not spread to the word roots whether it is precessing the suffixes or following it in reduplication. However, it does spread to the other inflectional suffixes.

1.4.2 Infix [-o:]

Infix [-o:] is only used in the noun reduplication to give a word a sence 'each'. For example:

(14)	[gasɛr]	'a spoon'	[gasero:sɛr]	'each spoon'
	[funak]	'a day'	[funago:nak]	'each day'
	[alɛ:h]	'a child'	[alɛ:xo:lɛ:h]	'each child'

We can see that the infix [-o:] has [ATR] feature, but it does not spread it to the reduplicated root like the suffixes [-oli] and [eri:t]. Unfortunately it is not possible gramatically to check if its value would spread to other inflectional affixes.

1.4.3 Suffix [-ul]

Suffix [-ul] is an inflectional suffix which usually gives deixis to verbs. Consider the following examples:

(15)	[ɛwə:k]	'to call'	[ɛwə:ɡul]	'to call (towards speaker)'
			[ʊwə:ɡʊləm]	'call me'
			[awə:ɡʊlətəm]	'he did not call me'
	[gawəlɔ]	'to descend'	[gəwəloul]	'to descend (towards speaker)'
			[ʊwəlɔlə]	'you descended (towards speaker)'
			[ʊwəlɔləwəlɔ]	'you descended (toward speaker)'
	[ɛŋar]	'to take'	[ɛŋərul]	'to bring'
			[ʊŋarləm]	'bring me'
			[aŋarlɔ:t]	'he did not bring'
			[aŋarlɔ:ta:l]	'he did not bring us (incl)'
	[garaben]	'to be late'	[nɪrabɛnʊl]	'I am late here (towards addressee)'
	[ɛsɛn]	'to give'	[ʊsɛnʊl]	'give (towards speaker)'
			[ʊsɛnʊləm]	'give me'
	[ɛpur]	'to go out'	[əpʊrlɔ:t]	'she didn't come out'

This is the most confusing bit of data. Some examples show that [-ul] does not spread its value to other morphemes, like the inflectional suffixes we discussed in 2.3.1. Other examples, on the other hand, show that the [ATR] is spread to the whole word. The most puzzling phenomena is that the suffixes 'looses' its [ATR] feature when other suffixes are added. In some cases the vowels of the suffix is even deleted.

1.5 Cross-word assimilation

There are also some separate words which also undergo the vowel harmony. In a quick speech the

words [ɛ:nɪ] and [bɛ/bʊ] can inherit the [ATR] feature from the following them word forming one phonological word. [ɛ:nɪ] is usually contracted to [ɛn].

- (16) [ɛn ucamen] 'if you want'
[ɛn uɟuh] 'if you can'
[bɛ ɛɟɔw] 'will go'
[bɛ emir] 'will know'
[bʊ gata:sɔ] 'will wash myself'
[bʊ guɟe:k] 'will work'

The same thing happens with the word [ʊmʊ] – the auxiliary for human class (for the non-human class it takes the consonant of the class).

- (17) [ʊmʊ nɛɟɔw] 'I'm going'
[ʊmʊ nejo:l] 'I'm coming'
[ʊmʊ ŋgahaŋkɛn] 'I'm making an effort'
[ʊmʊ ŋgəjelo] 'I'm resting'
[wa:f ʊwʊ do] 'there is a thing inside'

However, the underlying form of all these words is perceived by language speaker as ones without [ATR] value: [ɛ:nɪ], [bɛ], [bʊ], [ʊmʊ].

1.6 Borrowed words

Borrowed words quite often do not obey certain rules of the language. So we will mention them just briefly.

It seems like in words of Mandinka origin quite often the final [o] has the [ATR] value by default.

- (18) [ɛfalo] 'donkey'
[ɛwa:to] 'hour'
[sa:ɟo] 'Sadio' (family name)
[ɛlowa:to] 'public place'

If there is a suffix attached to such a word the value of the final vowel will spread to this suffix.

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