

PHRASAL VOWEL HARMONY: THE VIEW FROM AFRICA

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BACKGROUND

First some background:

- This talk presents some examples from a survey chapter on phrasal harmony we are revising for the Oxford Handbook of Vowel Harmony.
- We drew a lot of inspiration from previous surveys of cross-word vowel harmony: Casali (2008), Downing (2018), Hyman (2002), Kaisse (2019), Obiri-Yeboah & Rose (to appear) and van der Hulst (2018: 46).
- **We thank you in advance for feedback on these cases. We hope to learn of additional cross-word vowel harmony cases from you!**

INTRODUCTION

- Vowel harmony is typically claimed to be a word bound process in surveys of vowel harmony systems.
 - (See, e.g., Archangeli & Pulleyblank 2007, Hyman 2002, Kaisse 2017, 2019, Krämer 2003, Rose & Walker 2011, van der Hulst & van de Weijer 1995.)
- ‘Word’ is usually taken to refer to the phonological word, not the grammatical word, since compounds are often disharmonic.
- In addition, vowel harmony is said to rarely cross lexical word boundaries, either within compounds or within phrases.

AFRICAN LANGUAGES WITH CROSS-WORD VH

However, it is not difficult to find cases where vowel harmony applies in a domain larger than the prosodic or grammatical word. Indeed, cross-word harmony is well-attested in African languages from many parts of the African continent:

- **Akan** (Casali 2012, Dolphyne 1988, Kügler 2015)
- **Chumburung** (Snider 1989)
- **Degema** (Kari 2007)
- **Gua** (Obiri-Yeboah & Rose, to appear)
- **Gwa Nmle** (Obeng 1995)
- **Kinande** (Mutaka 1990, 1995, 2007; Hyman 2002; Archangeli & Pulleyblank 2002; Kenstowicz 2009; Downing & Krämer 2017)
- **Kɔnni** (Cahill 2007)
- **Luo** (Swenson 2015)
- **Nawuri** (Casali 2002)
- **Nkami** (Akanlig-Pare & Asante 2016)
- **Somali** (Andrzejewski 1955, Hall et al. 1974, Nilsson & Downing, to appear)
- **Tafi** (Bobuafor 2013)
- **Tutrugbu** (Essegbey 2019; McCollum et al., to appear)
- **Vata** (Kaye 1982, Kimper 2011)
- **Wolof** (Ka 1994, Sy 2005)

IS CROSS-WORD VH A PHONETICALLY NATURAL POSTLEXICAL PHENOMENON?

Kaisse (2017, 2019) suggests that cross-word vowel harmony, like other postlexical phenomena,

- phonologizes “local adjustments” that “start life as natural local effects,
- and these effects are not sensitive to grammatical information but rather to temporal adjacency (Kiparsky 1982 et seq.)”
- Postlexical phenomena are almost always “phonetically natural, optional, dependent on rate or style or both,
- and generally are not too far from their phonetic precursors (Kaisse 2019).”

GOALS OF THE TALK

However, as we show in this talk, cross-word harmony often does not have the characteristics said to be typical of classic postlexical phenomena:

- Cross-word harmony often applies **subject to prosodic or morphosyntactic conditions,**
- **Harmony can be non-local and can affect several syllables, not just one adjacent syllable.**

Moreover, **lexical words are commonly targeted** by cross-word harmony.

STRUCTURE OF THE TALK

To illustrate these points, we present a sketch of 5 languages from different language families illustrating different parameters of cross-word vowel harmony:

- Gua (Kwa, Ghana)
- Kinande (Bantu, DRC)
- Vata (Kru, Ivory Coast)
- Somali (Cushitic, Somali)
- Wolof (Atlantic, Senegal and Gambia)

The talk ends with concluding remarks.

HOW MANY VOWELS? UNDER WHAT CONDITIONS?

Case study I: Gua (Obiri-Yeboah & Rose, to appear)

Gua is a Hill Guang language (Tano, Kwa), spoken in Ghana.

ATR vowel harmony applies **regressively within words**. It can also apply across phonological word boundaries, to the final vowel of a preceding word, including lexical words, leading to disharmony within the word:

àkpákò	bè	dá	àkpákù	bùrùfè	éhòtóò
he-goat	come.PRES	there	he-goat	urinate.PRES	blood
‘A he-goat comes there.’			‘A he-goat suffers from bilharzia.’		

Regressive cross-word harmony affecting just the final vowel of a preceding word seems to be very common in Kwa languages. (See Hyman 2002, Kaisse, 2019, for overviews.)

EURYTHMIC DOMAINS FOR CROSS-WORD HARMONY

As Obiri-Yeboah & Rose (to appear) demonstrate in detail, even though it just targets a single syllable, cross-word harmony in Gua cannot be just a phonetically-motivated local effect:

- It applies only if the trigger and target word are parsed into the same eurhythmically-defined prosodic domain.
- Note the **mismatch between syntactic and prosodic domains** in the following examples of 4-word sentences:

Harmony between words 3 and 4

àné	kítè	òkótó	<u>dùúdùbí</u>
man	held	crab	tiny

‘A man held a tiny crab.’

No harmony when the same words occur in positions 2 and 3

mí òkótó		<u>dùúdùbí</u>	hè
my crab		tiny	fell

‘My tiny crab fell.’

CASE STUDY 2: KINANDE CROSS-WORD HARMONY

While regressive cross-word harmony only affects a single vowel in Kwa languages like Gua,

- in other languages (e.g., Chumburu, Kinande, Luo), **cross-word harmony can affect an entire lexical word.**

We illustrate with **Kinande** (Bantu JD42; DRC), based on data taken from Mutaka (1990, 1995, 2007).

CASE STUDY 2: KINANDE CROSS-WORD HARMONY

Kinande has several ATR harmony processes:

- Within words, progressive ATR harmony applies only to high vowels,
 - while regressive ATR harmony applies to all preceding vowels.
- Regressive vowel harmony also applies across word boundaries, **optionally to an entire word**,
 - under certain phonological and syntactic conditions.

CASE STUDY 2: KINANDE CROSS-WORD HARMONY

Phonological condition on cross-word harmony:

- The final vowel of the target word must be [+high]:

/ε-βI-tʂʊŋú βí-kù:hì/ ‘short potatoes’ [literally, *potatoes short*]

→ ε-βI-tʂʊŋú βí-kù:hì OR ε-βI-tʂʊŋú βí-kù:hì OR e-βi-tʂʊŋú βí-kù:hì

cf. ε-mí-twɛrɔ mí-kù:hì ‘short nails’ * e-mí-twɛró mí-kù:hì

Syntactic condition on cross-word harmony:

- The target vowel must be within the same DP as the trigger:

• ε-kI-tʂʊŋʊ ‘potato’ ki-némundí-húk-u-a ‘(it) will be cooked’

→ ε-kI-tʂʊŋu ki-némundí-húk-u-a ‘the potato will be cooked’

DP IS COMMON CROSS-WORD HARMONY DOMAIN

It seems fairly common for cross-word harmony to target another word within the same DP (Obiri-Yeboah & Rose, to appear). Other examples include:*

- Konni (Cahill 2007)
- Degema (Kari 2007)
- Akan (Kügler 2015)

As Downing & Krämer (2017) argue, this kind of syntactic restriction on cross-word harmony makes it implausible to consider it a phonetically-motivated "local effect."

*Note that cross-word harmony also applies in syntactically-defined domains besides DP in the above-listed languages.

PROSODIC CONDITIONS ON ITERATIVITY IN VATA

Case study 3: Vata (Dida Kru; Ivory Coast; Kaye 1982, Kimper 2011), cross-word VH can be either iterative or non-iterative, depending on the length of the target word:

- **Iterative: sequence of monosyllabic words** (both lexical and functional) can optionally all be targeted by ATR harmony:

ɔ ka za pi

3SG FUT food cook *'He will cook food'*

a. ɔ ka za pi b. ɔ ka zΛ pi c. ɔ kΛ zΛ pi d. o kΛ zΛ pi

PROSODIC CONDITIONS ON ITERATIVITY IN VATA

- **Non-iterative: only the final syllable of a multisyllabic word** can be targeted, blocking further harmony:

ɔ nɪ saka pi

3SG NEG rice cook *'He didn't cook rice'*

a. ɔ nɪ saka pi b. ɔ nɪ sakʌ pi c. * ɔ nɪ sʌkʌ pi

This shows that **cross-word VH can be sensitive to specific prosodic information** about a target, such as whether it is the final vs. non-final syllable of the word, and iterate only as long as the target is a final syllable.

HOW LARGE CAN THE DOMAIN BE?

Case study 4: Somali (Cushitic; Somalia) is often cited (Hyman 2002, Kaisse 2016, Krämer 2003:24) as a language where ATR vowel harmony

- **can take an entire clause as its domain**, based on work by Andrzejewski (1955) and Hall et al. (1974).

A recent phonetic study by Nilsson & Downing (to appear; data also cited in Downing 2018) didn't manage to confirm this claim, however.

SOMALI VH DOMAIN IS LARGER THAN PWORD

Regressive ATR Harmony (tremas indicate [+ATR] vowels) can extend to functional morphemes in the verbal complex – like the indefinite subject pronoun *la* – which might be parsed as one PWord with the triggering verb, depending on your analysis:

- *Waa [l^ä bööää]* ‘One jumps’ vs. *Waa [la cunaa]* ‘One eats it’

ATR VH also affects non-clitic-like function words outside the verbal complex, and arguably outside PWord, – like the statement marking formative *waa*, especially when it is adjacent to the triggering word (note lack of harmony in the above example):

- ***Wää*** *sügäy* ‘He has waited’ vs. ***Waa*** *sugay* ‘He has ascertained it’

– Or a subject pronoun + *má* question particle:

- *Täni mä döön baa?* ‘Is this a boat?’ vs. *Tani ma gabár baa?* ‘Is this a girl?’

SOMALI VH DOMAIN IS LARGER THAN PWORD

Furthermore, regressive ATR harmony is systematically found within compounds, thus affecting lexical words in some contexts:

- *bäd-wëyn* ‘ocean (lit. big sea)’ cf. *bad* ‘sea’
- *dhägäx-mädöw* ‘flintstone (lit. black stone)’ cf. *dhagax* ‘stone’

Note, no progressive ATR harmony within compounds:

- *libäax-badéed* ‘shark (lit. lion of the sea)’
- *häbëen-bár* ‘midnight’

IS SOMALI VH DOMAIN THE CLAUSE?

Recall that Andrzejewski (1955) and Hall *et al.* (1974) claim that harmony is able to affect all the words in a clause:

- *Bëerä cüsüb bää löö **sämëëyëy**.* ‘New gardens were made for them.’ vs.
- *Beera cusub baa loo beeray.* ‘New gardens were cultivated for them.’ (Hall *et al.*, 1974: 261; cited in Krämer, 2003).

Nilsson & Downing’s (to appear) study does not confirm this claim.

- Note that Andrzejewski mentions that fast speech rate is probably a factor favoring harmony extending throughout a clause. He also worked on a different dialect.

OUR RESULTS: SOMALI VH DOMAIN IS SMALLER THAN A CLAUSE

At a normal speech rate, it is common to get **disharmonic stretches**:

- Bërbërá ayúu tégäyää. ‘He is going to Berbera.’
- Bërbërá buu tégäyää. ‘He is going to Berbera.’

Longer harmonic stretches often have **more than one source of [+ATR]** – bolded; this isn’t always clearly noted in previous work.

- Wúxüü äädäy Bërbëra. ‘He went to Berbera.’
- Wüü wëyn yähäy. ‘He is big.’

We suspect that Armstrong (1964: 156) is correct in proposing that there is a **distinct process of fronting and raising harmony** triggered by [i] and [y]:

- Müüsää yimid. ‘Musa has arrived.’ (cf. Muúsa)

SOMALI VH DOMAIN IS SMALLER THAN CLAUSE

We conclude that while Somali vowel harmony is not PWord-bound, it is not an across-the-board, postlexical process.

It normally applies to both lexical words and function words within morphosyntactically-defined domains smaller than the clause:

- Compounds
- Certain function words preceding the verb, within and outside the verbal complex.

CASE STUDY 5: NON-LOCAL CROSS-WORD VH IN WOLOF

Case study 5: Wolof

Work by Ka (1994) and Sy (2005) shows that the domain of ATR harmony in Wolof (Atlantic; Senegal) is the phonological phrase:

- ATR spreads progressively beyond lexical words to function words, which can be several syllables long (Ka 1994:49); high vowels are neutral and transparent to VH:

kəriŋəŋ boobule ‘that coal of his/hers just mentioned’

vs.

xaritam bɔɔbulɛ ‘that friend of his/hers just mentioned’

NON-LOCAL CROSS-WORD HARMONY IN WOLOF?

Ka (1994) argues that these function words cannot be analyzed as suffixes or clitics,

- because they can be separated from the word they modify by syntactic units, such as relative clauses and other nominal modifiers.

Wolof progressive cross-word ATR harmony (Sy 2005: figs. (12) and (13))

[-ATR] noun

[+ATR] noun

(a) [kɛr ga]	'the shade'	[kəɾ gə]	'the house'
(b) [kɛr gu weex ga]	'the white shade'	[kəɾ gu weex gə]	'the white house'

NON-LOCAL CROSS-WORD HARMONY IN WOLOF?

This kind of non-local harmony is, as far as we know, only attested in Wolof.

To account for it, Kaisse (2019) makes the interesting proposal that harmony is a **morphological agreement feature** in the examples in b., so they would not illustrate phonological non-local harmony.

Whatever we think of this proposal,

- it is clear Wolof cross-word harmony has grammaticalized in a way that is far removed from the temporal adjacency expected for postlexical phenomena.

CONCLUSION

In this talk we have briefly surveyed representative cases of cross-word vowel harmony patterns.

Even though the patterns in this short survey apply in a fairly local phrasal domain,

- they do not fit the postlexical model, which proposes that postlexical processes “start life as natural local effects and these effects are not sensitive to grammatical information but rather to temporal adjacency (Kiparsky 1982 et seq).”

As we have shown in the cases of cross-word harmony presented here, harmony is often **sensitive to grammatical, phonological or prosodic information.**

CONCLUSION

As a result, the data presented provide interesting challenges to theories of the phonology-syntax interface:

- In some languages, cross-word vowel harmony applies in phonologically or prosodically-defined domains that are not sensitive to syntactic boundaries;
- While in others, the domain is syntactically defined and harmony applies in very specific morphosyntactic contexts:
 - DP,
 - compounds,
 - VP (V+Obj),
 - (extended) verbal complex.

CONCLUSION

In closing, we would like to highlight that if vowel harmony is typically claimed to be a word-bound process, then that is most likely due to underreporting, a point that is also made by Kaisse (2019).

To understand how common phrasal harmony might be, **we need more phonetic and phonological studies of more harmony systems** which include more phrasal data.

THANK YOU FOR COMMENTS AND QUESTIONS!

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