Chain-shifting Mutation as Compound Opacity: Vowel Raising in Mayak

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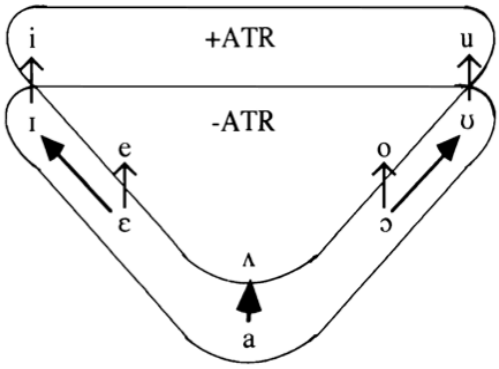
The Phenomenon: Andersen (1999) argues that Mayak (Western-Nilotic) has besides different patterns of [ATR]-harmony (cf. past *-u* in (1-a)/the thin arrows in (1-b)) a morphological vowel raising process (VR) triggered by specific affixes which shifts high/low [–ATR] vowels to [+ATR], but mid [–ATR] vowels to high (cf. Antipassive *-ɪr* (1-a)/the thick arrows in (1-b)).

(1) **Mayak: [ATR]-Harmony and Chain-Shifting Mutation** (Andersen, 1999:16)

a.

			Past	**Antipassive**	
	[ɪ]	ʔɪt̪	ʔið-u	ʔit̪-ir	‘shape’
	[ɛ]	dɛc	dɛj-u	dɪj-ɪr	‘grind’
[–ATR]	[a]	ʔam	ʔam-u	ʔʌm-ɪr	‘eat’
	[ɔ]	kɔc	koj-u	kʊj-ɪr	‘take’
	[ʊ]	gʊt̪	guð-u	gut̪-ɪr	‘untie’
	[i]	tiŋ	tiŋ-u	tiŋ-ir	‘hear’
[+ATR]	[ʌ]	nʌk	nʌɣ-u	nʌk-ɪr	‘beat’
	[u]	t̪uc	t̪uj-u	t̪uc-ir	‘send’

b.



Theoretical Impact: If Andersen’s claim is correct, Mayak vowel raising instantiates a striking case of chain-shifting and “quirky” (phonologically non-uniform) mutation, a phenomenon which – if existent – is a major piece of evidence for the stipulation of mutation-specific rules/constraints (Lieber 1992, Zoll 1996, Wolf 2005a,2005b) or the assumption of a basically unrestricted morphology component (Green 2005, Iosad 2006,2007,2008). Crucially, Mayak VR can also *not* be captured as affixation of floating sonority grid marks (Trommer 2010,2011) since it makes vowels *less*, not more sonorous. **Claim:** In this talk, I show that the Mayak data follow from the interaction of two different types of opacity: *First*, Mayak shows slightly different [+ATR]-spreading processes at different strata in the sense of Stratal OT (Bermúdez-Otero 2010). *Second,* [+ATR]-spreading is restricted by a containment-based markedness constraint which evaluates surfacing and non-pronounced vocalic features on a par (van Oostendorp 2011). **Analysis:** I argue that all affixes triggering VR are stem-level affixes, where stem-level phonology exhibits a standard type of [±high] harmony which raises mid vowels to high before high vowels. Independent evidence for this claim comes from the fact that VR-affixes also involve characteristic irregularities and trigger other alternations specific to them. Moreover, all VR-affixes are high. The shift of [–ATR] low and high vowels to [+ATR] is stem-level spreading of a [+ATR] feature which is associated to the affix vowel (in VR-affixes which are consistently [+ATR]) or a floating part of the suffix (in VR-affixes with [–ATR] alternants). This leaves the puzzle why stem mid-vowels do not get [+ATR] ([ɛ,ɔ] *⇒ [i,u]). I derive this fact from the constraint in (2), which blocks shifting to [+ATR] for [–ATR] mid vowels (e.g. $[\varepsilon_{[-h-l-A]}]$) even if these are raised to [+high] (e.g. $[\text{ɪ}_{[+h-l-A]}]$). Since (2) applies to containment-based representations where features may be marked for non-pronunciation, but not completely delinked from their segmental hosts, it blocks composite shifts such as [ɛ] ⇒ [i].

(2) *E̯: Assign ∗ to every vowel associated to [–high], [–low] and [+ATR]

Also for (2), there is independent evidence in Mayak: The [+ATR] mid vowels [e,o] have a highly restricted distribution, basically resulting from word-level [+ATR] spreading, irrelevant for VR. Finally, I show that, as expected under this analysis, not all VQA-affixes trigger all shifts attributed to VQA, and discuss parallels and differences of the Mayak data to similar patterns of chain-shifting vowel harmony in Romance (Mascaró 2011).