

RESIDUAL VOWEL REDUCTION TO /I/ IN FUNCTIONAL MORPHEMES IN BANTOID

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Kuznetsova & Anderson (2020:7): Two **general paths of vowel reduction** are often distinguished:

- **centripetal**: centralization towards schwa
- **centrifugal**: dispersion towards the three corner vowel qualities *a*, *i*, *u*, which are the most peripheral in F1/F2 space



Kapatsinki et al. (2020):

- ***centrifugal**: The few reported cases of apparent centrifugal vowel reduction do not result from reductive sound change
- As a **result of reduction** vowels:
 - shorten
 - devoice
 - unround
 - and centralize
 - (with some raising)

Kapatsinki et al. (2020) on quality changes in reduction:

- **centralization**
- raising
 - ✎ despite being common in Romance and Slavic (Crosswhite 2001; Barnes 2006)
- (lowering can only affect high vowels lowering to mid, but never to low)



In many languages of Northern Sub-Saharan Africa (NSSA) vowel qualities of **functional morphemes** tend to be **neutralized** through raising, fronting and unrounding towards /i/

- typologically uncommon
- targets functional morphemes
- has a non-trivial spatial distribution within NSSA

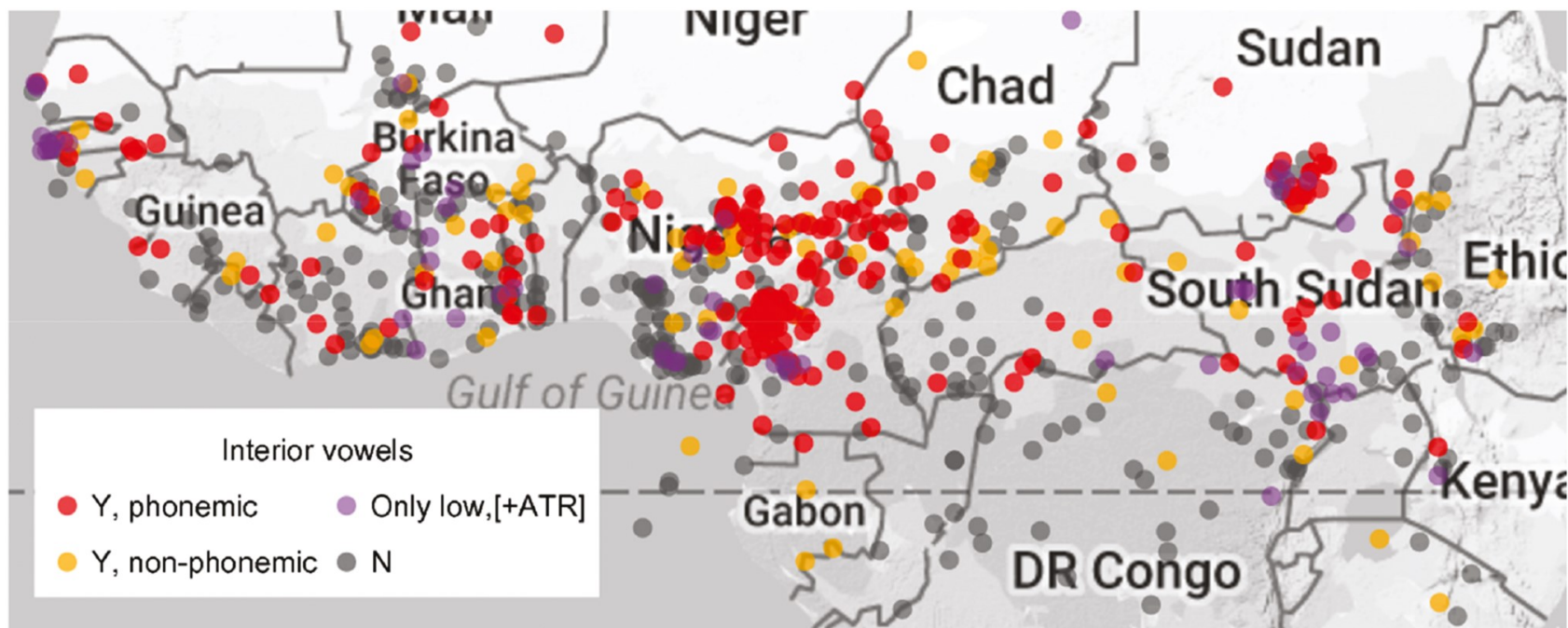


- In languages of NSSA, **vowel reduction** in prosodically weak positions **within lexical morphemes** proceeds **through the typologically more common processes** of shortening, devoicing, unrounding and centralization.
 - Reduction is often driven by the phenomenon of **stem-initial prominence** (cf. Lionnet & Hyman 2018:652–55; Idiatov & Van de Velde 2021:93-94)
 - **Negative evidence**: no noticeable skewing towards front articulations of vowels or palatalization effects on consonants in lexicons of languages affected by phonological erosion.



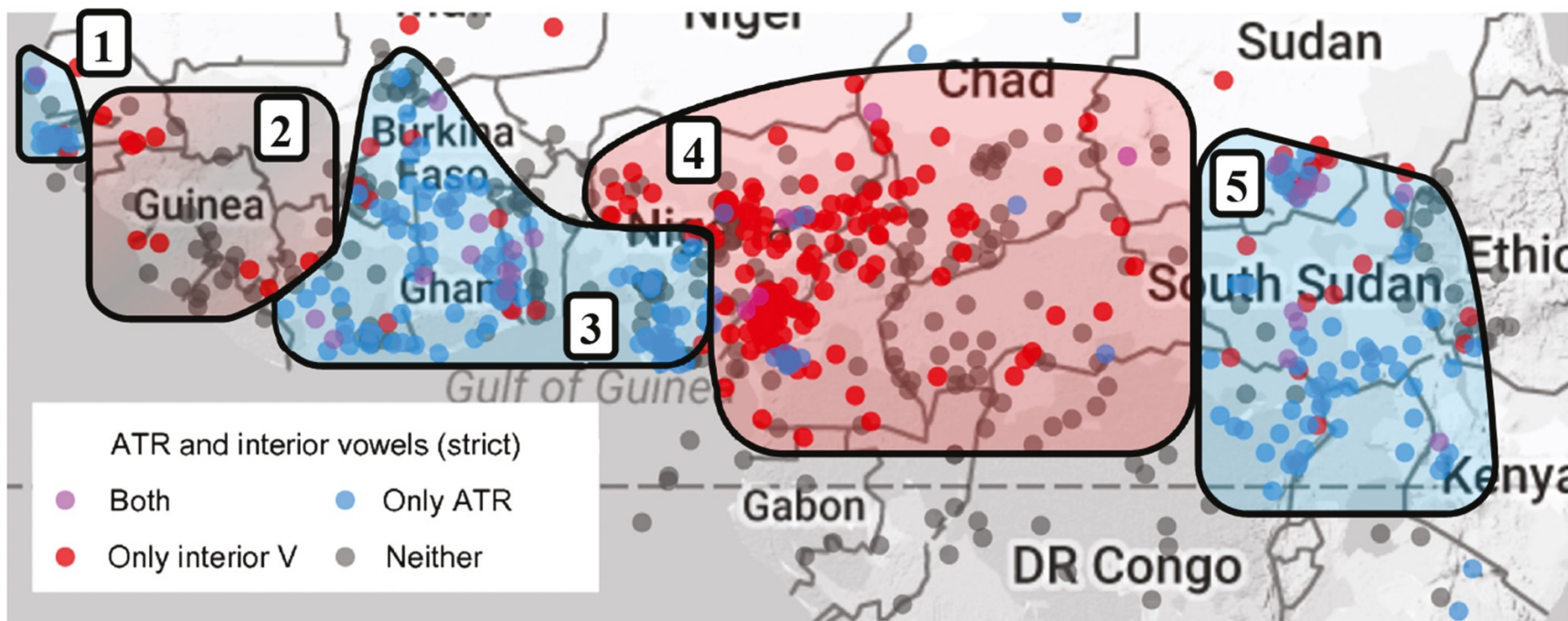
- Reduction towards /i/ in functional morphemes has a **non-trivial spatial distribution within NSSA** with its distribution crossing genealogical boundaries.
 - The details of this spatial distribution are work in progress.
 - More likely to be found as an active process in **languages without interior vowel phonemes**, such as /i ɯ ɜ ə ʌ ... /.
 - **Residual reduction towards /i/:**
 - The residual status is most clear in languages with current reduction through **centralization**
 - Restricted to **petrified or remnant morphology**.

REDUCTION TOWARDS /i/: SPATIAL DISTRIBUTION



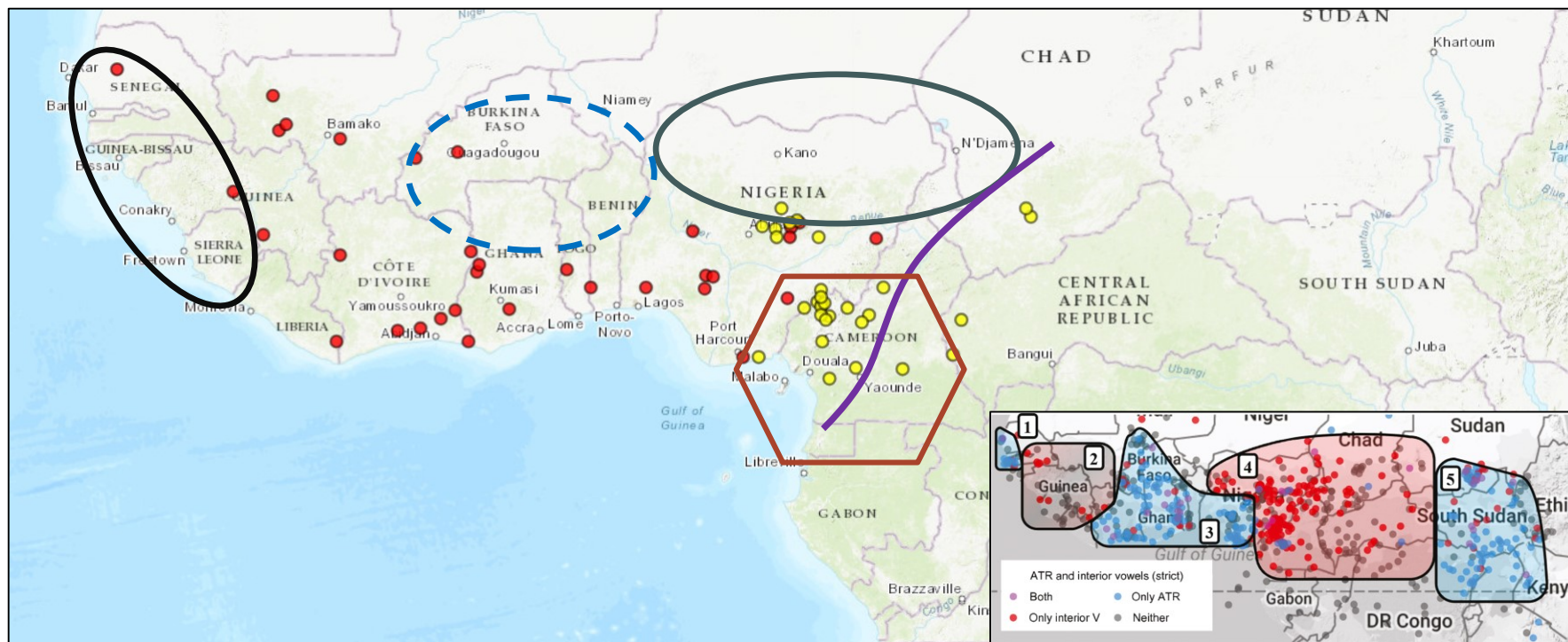
Geographic distribution of interior vowels in NSSA (Rolle et al. 2020:142)

- Rolle et al. (2020) an areal study of vowel systems in NSSA



[1] Atlantic ATR zone, [2] Guinean ATR-deficient zone, [3] West African ATR zone, [4] Central African ATR-deficient zone (includes **Central African interior vowel zone**), [5] East African ATR zone.

REDUCTION TOWARDS /i/: SPATIAL DISTRIBUTION



● Active reduction towards /i/

● Residual reduction towards /i/

- The details of this spatial distribution are work in progress.

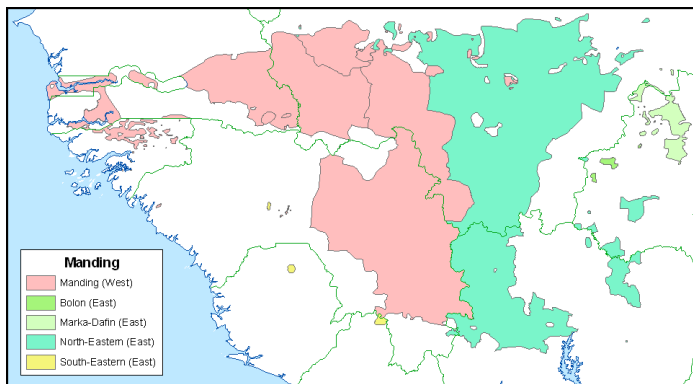
[4] Central African ATR-deficient zone
(includes Central African interior vowel zone)



- **Active reduction** towards /i/ in functional morphemes:
 - Reduction towards /i/ in **TAMP markers** in **Greater Manding** languages (Mande)
 - **Partial CI-reduplication** (aka high vowel reduplication, partial initial high vowel reduplication, CV[+ high] reduplication, etc.; cf. Ibrahīm 2015)



- Reduction towards /i/ is common in **TAMP markers** in **Greater Manding** languages (cf. [Idiatov 2020](#):65)



Mande > Western Mande > Central Mande > Greater Manding (> Manding, Jogo-Jeli, Mokole)

(1) TAMP_0 S **TAMP₁** (O) V-TAMP₂ X TAMP_3

- Idiatov ([2020](#)) focuses on positive **PFV** and **historically related markers**, but similar reduction is also observed for other TAM values.

Reconstruction	Reflexes with raising towards /i/
*kà	Maninka of Niokolo ^H <i>ka</i> ~ ^H <i>ke</i> (INF), Mauka <i>kè</i> (INF, COND ⁺), Bamana of Kolona <i>kĩ</i> (INF)
*yá	Ivorian Manding lects of Tenen <i>yé</i> ~ <i>yé</i> (PRF ⁺), Mau <i>yé</i> (PRF ⁺); Standard Bamana <i>yé</i> (PFV _T ⁺)
*tà	Northern Lele <i>ré</i> ~ <i>ré</i> (<i>dé</i> ~ <i>dé</i> after a nasal) (PFV _T ⁺), Maninka of Kita <i>ti</i> ~ <i>di</i> (PFV _T ⁺), Kakabe <i>ti</i> (PFV _T ⁺)
*nà(-RES COP)	Marka <i>ní</i> (PFV _T ⁺), Kakabe <i>ni</i> (SBJV ⁺)
*bá(-RES COP)	Ivorian Manding lects of Tenen <i>wé(é)</i> (PRF ⁺), Finan <i>wéé</i> (PRF ⁺); Bolon <i>wé</i> (PFV _T ⁺)
*-tà	Jogo <i>-re</i> (PFV ⁺), Kakabe <i>bá.tí^(L)</i> (PRF ⁺)
*mààŋ	Bamana of Kolona <i>mí</i> (PFV ⁻)



- This reduction is **probabilistic** (a tendency not a rule)
- Some **phonological environments** are **more propitious for this** reduction than others:
 - **place of articulation of C₋**: palatal *y* > coronal *t* > velar *k* > bilabial *b*
 - **nasalization of C₋**: oral > nasal
 - position wrt the **utterance edge**: obligatory internal (TAMP₁) > often final (TAMP₂, TAMP₃)



- Particularly striking evidence is found in Kakabe (cf. Vydrina 2017)
 - With the exception of the PFV_T⁺ *ka*, all light monosyllabic TAMP₁ markers in Kakabe have the shape *Ci*
 - ☞ PROG⁺ and COP⁺ *bi*, IPFV⁺ *si*, SBJV⁺ *ni*, and the allomorph *ti* of PRF⁺



- Neutralization through raising, fronting and unrounding towards /i/ in functional morphemes in Greater Manding can be analyzed as a type of **vowel reduction process**.
- The relevant functional morphemes can be safely construed as **prosodically weak** thanks to the fact that they are typically affected by a whole range of **concomitant lenition** and **neutralization processes**
 - The **consonants** of the TAMP markers tend to undergo lenition mirroring similar lenition processes affecting word-internal consonants, viz. $t > d > r > \emptyset$; $k > g, x, y > \emptyset$; $b > w > \emptyset$; $y > \emptyset$.
 - The long vowels are **shortened**.
 - The **tonal distinctions** of TAMP markers tend to become neutralized, with the markers becoming toneless or H, as is common for clitics and suffixes.



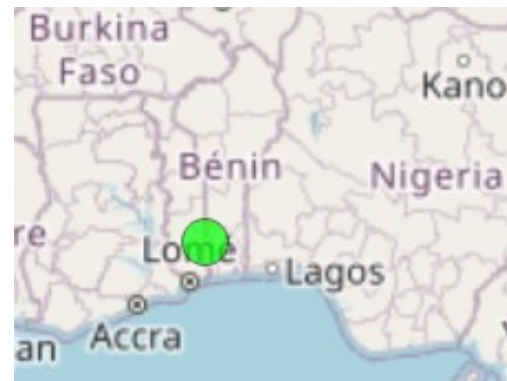
- **Partial CI-reduplication** as a frequent example of reduction towards /i/ in functional morphemes in NSSA.

Ibrahim, Njoya. 2015. *A typology of CI-reduplication in Niger-Congo and beyond*. Hamburg: Universität Hamburg PhD thesis.

“In the recent literature, there is a general consensus on the analysis that reduplication consists in a process of affixation (see in particular Lieber 1992 and Marantz 1982). A reduplication morpheme can be a prefix or a suffix.” (Brousseau & Lefebvre 2002:198)

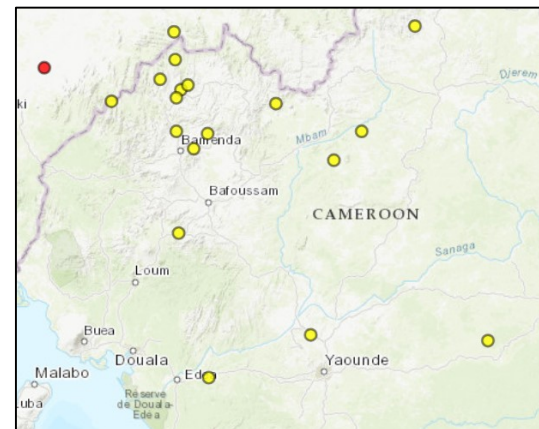
- In NSSA, partial CI-reduplication always involves a **prefix**, viz. RED-STEM.
- In some languages, VRED may assimilate to the **rounding** of VSTEM or graveness of CSTEM (cf. Ibrahim 2015).

- Partial CI-reduplication in **Fongbe** (Kwa; Brousseau & Lefebvre 2002:195-215).
 - Function: NMLZ of verbs.



(39)	a.	<i>zì-zè</i>	<	<i>zè</i>	'to split'
	b.	<i>gbì-gbá</i>	<	<i>gbá</i>	'to build'
	c.	<i>xì-xò</i>	<	<i>xò</i>	'to buy'
	d.	<i>kpí-kpábá</i>	<	<i>kpábá</i>	'to flatten'
	e.	<i>dì-dà</i>	<	<i>dà</i>	'to prepare'
	f.	<i>wì-wlán</i>	<	<i>wlán</i>	'to write'

- In non-Bantu Bantoid and northwestern Bantu, the reduction towards /i/ in functional morphemes (when present) is almost always **residual**.
- The residual status is clear in the majority of languages in my sample as currently they use reduction through either **centralization** towards /ə/ or **raising & centralization** towards /i/.
- In at least two languages (Tikar and Nizaa) without active reduction through centralization, the residual status is suggested by the fact this reduction appears to be limited to **petrified** and **remnant morphology**.

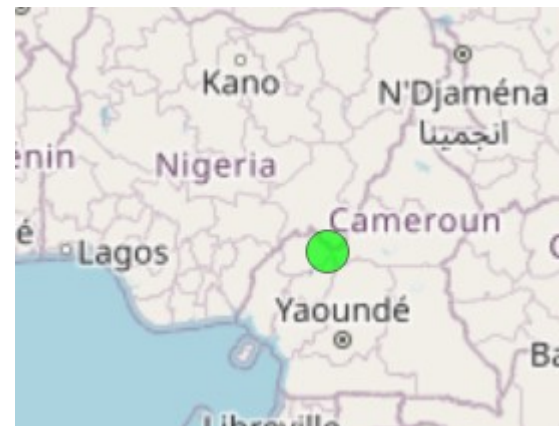




■ Lamnso' (Grassfields) (cf. McGarrity & Botne 2001, Anderson 2015)

- CV noun class markers (prefix and enclitics) are all *Ci*

- E.g., including CL 6 *mi-*, compare Proto-Bantu **ma-*.



- In lexical morphemes, vowels in prosodically weak positions appear to have been deleted, as the typical root shape is (N)C₁(w)V(V)(C₂) (verbs are just C(w)VC)
- Lamnso' also has /ə/, also found in prosodically strong positions
- There are also functional morphemes with /ə/ rather than /i/
- No vowel reduction in partial reduplication



- All Bantoid languages with **CI-reduplication** that have /i/, use **/i/** as VRed (cf. Ibrahima 2015) ➞ **Ci-reduplication**

Bafut, Fe'fe', Babungo, Isu, Zhoa, Weh, Makaa...

- **Ci-reduplication** is an example of **residual reduction towards /i/** that was overlaid with centralization
 - **VStem /i/** always gives **VRed /i/**, and not /i/.
 - Sometimes, **VStem other than /i/** may also trigger **VRed /i/** rather than /i/

E.g.: Petit Diboum dialect of Fe'fe' (Hyman 1972); Mungbam (Lovegren 2013)

- Cases of **petrified VRed /i/** in languages with active Ci-reduplication



- Active **Ci-reduplication**

nè 'big' → nǐ-nè 'very big'

bàŋ(ə) 'red' → bǐ-bàŋə 'brighth red'

- An IPFV and PLA **infix -i**

bòʔə PFV → biòʔə IPFV 'carry on head or shoulder'

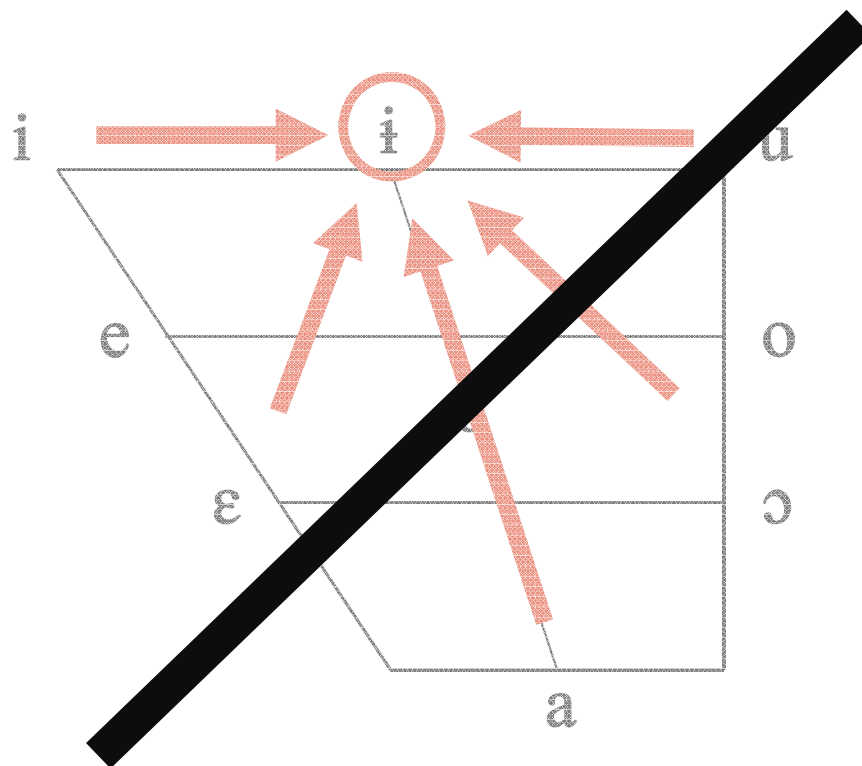
káŋí PFV → kíáŋé 'roast'

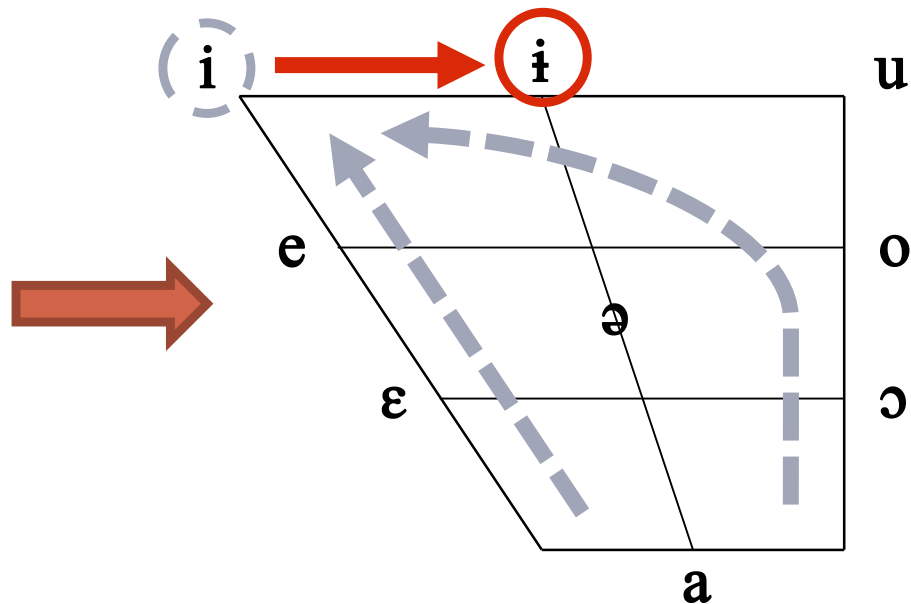
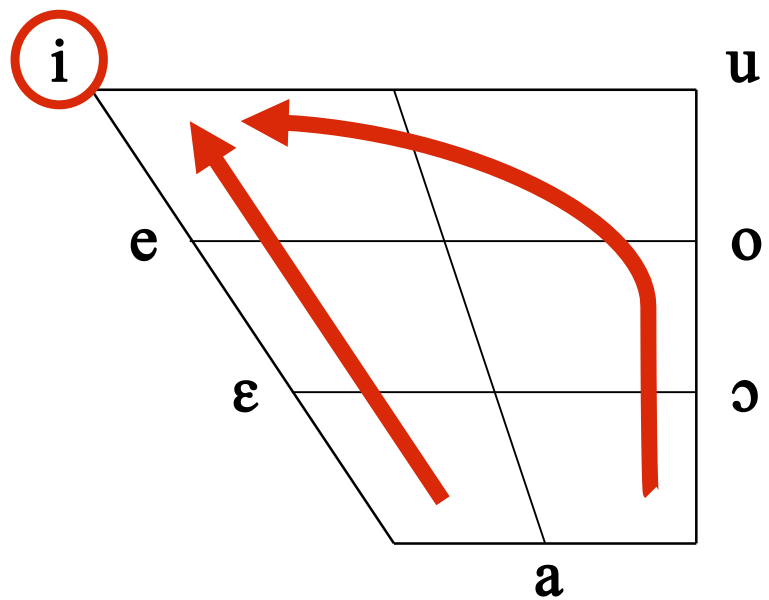
- Kießling (2006) argues that the infix *-i* goes back to ***CI-reduplication**, that is the **VRed** was ***/i/**

*C₁i-C₁VC₂V *b₁i-b₁òʔə

*C₁i-ØVC₂V *b₁i-Øòʔə

C₁-i-VC₂V b₁-i-òʔə







- Recognizing the existence of an areal tendency to reduction towards /i/ in functional morphemes in large parts of NSSA allows us to offer **a principled solution for two types of reconstruction-related issues**:
 - When **multiple, but only slightly formally divergent cognate sets** and reconstructions have been proposed for a given functional morpheme
 - The nominal prefix of **class 13**: De Wolf (1985) for Proto-Benue-Congo ***ti-** vs. Meeussen (1967) ***tu-** for Proto-Bantu, one of its major branches
 - Creissels (2020) reconstructs several **Mande PL markers** differing in their **u/i vocalism**, such as Manding **-lú** vs. **-lí** and Soninke **-nu** (Eastern) vs. **-ni** (Western), as sourced from the Proto-Mande associative plural marker ***ni**.



- Recognizing the existence of an areal tendency to reduction towards /i/ in functional morphemes in large parts of NSSA allows us to offer **a principled solution for two types of reconstruction-related issues**:
 - It can guide us in the search for **the most plausible lexical source** of a given functional morpheme
 - Creissels (2020) relates the future (“potential”) auxiliary *sí* ~ *sé* in Mandinka to the Mandinka verb *sé* ‘reach; overcome’
 - But the source that would be typologically and comparatively more plausible is the verb **sá* ‘come’, absent as a lexical verb in Mandinka itself