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Tone sandhi as a diagnostic for the morphological status of reduplication in Mina

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Roadmap

- ⊗ Introduce Mina
- ⊗ Outline basics of Mina tones
- ⊗ Build a diagnostic for morpheme/word boundaries based on limitations on tone combinations.
- ⊗ Apply diagnostic to two types of reduplication to show that one is morphological and the other is not.
- ⊗ Present other differences between morphological and non-morphological reduplication
- ⊗ Conclude with future courses of study and implications for Mina syllable structure

Mina

- ⊗ Also called Gen (Gě) or Gengbe.
- ⊗ A Gbe language spoken in Southern Togo and South-Western Benin
- ⊗ Niger-Congo > > Atlantic-Congo > > Volta-Congo > > Kwa > > Left Bank > > Gbe > > Mina (<http://www.ethnologue.com/language/gej>)
- ⊗ Data for this study was elicited at Indiana University Bloomington from a native Mina speaker in his late forties from Batonou, a village near Glij and Anéxo, Togo.

Four Tones in Mina

- ⊗ (H)igh - (x́)
- ⊗ (L)ow - (x̀)
- ⊗ (R)ising - (x̋)
- ⊗ (F)alling, rare in unaffixed bases, not intrinsic to verb roots.

(Near) Minimal Triplet

gb́ó



near to

gb̀̀



to arrive

(è).gb̂ǎ



(N).goat

Tone Combinations within a word

- ⊗ LL: x̀x̀ (to welcome)
- ⊗ LH: ènú (thing)
- ⊗ LR: èdě (palm fruit)
- ⊗ HL: úsù (man)
- ⊗ HH: xóxó (old)
- ⊗ **HR: Unattested within a word**
- ⊗ RL: ègbǎǹ (male goat)
- ⊗ RH: vǐdé (nearly)
- ⊗ **RR: Unattested within a word**

All Tone L, H, R
Combinations are
attested between
words.

Why *RR and *HR within a word?

- ⊗ Evidence from compounding illustrates the following process:

R → H / H _
/ R _

HR → HH

H		R		L
(à).tí	+	gǎ	+	(è).nì
N.tree		to pull down		N.cow



H. H. L
(à).tí.gí.nì
N.elephant

RR → RH

R R
(è). \widehat{g} bě + (à).v \check{u}
(N).bush (N).dog



R.H
(è). \widehat{g} bě.v \check{u}
(N).bush dog

Developing a Diagnostic: Word Boundaries

- ⊗ RR and HR can occur across a word boundary (but not a morpheme boundary).
- ⊗ RR and HR are natural indicators of word boundaries.
- ⊗ Example (Verb + Object):
gǎ vǐblènú.á
pull down toy.DEF
'Pull down the toy.'

Developing a Diagnostic: Morpheme Boundaries

- ⊗ Can $R \rightarrow H$ be used to tell us if a boundary is morphological?
- ⊗ Only if:
 - ⊗ 1) $R \rightarrow H$ is always triggered by a preceding H or R.
 - ⊗ 2) $R \rightarrow H$ is always triggered by morphology.
- ⊗ ISSUE: Some syntactic relationships trigger $R \rightarrow H$ regardless of the preceding tone.

Positional R→H: Predication (v₃-to be scared)

- ⊗ Following H

é v₃
3psNOM scared
'He/She/It is scared.'

- ⊗ Following R

(à).v₃ v₃
dog scared
'A dog is scared.'

- ⊗ Following L

m₁ v₃
1psNOM scared
'I am scared.'

Positional R→H: Noun Modification (ṽṽ-scared)

- ⊗ Following H

kpákpá ṽṽ
duck scared
'scared duck'

- ⊗ Following R

(à).ṽ ṽṽ
(N).dog scared
'scared dog'

- ⊗ Following L

úsù ṽṽ
man scared
'scared man'

Revised diagnostic

- ⊗ RR and HR indicate word boundaries.

Examples: Verb+Object structures

- ⊗ If $R \rightarrow H$ **regardless of the preceding tone**, then we cannot tell the morphological status of the boundary.

Examples: Predication, Noun Modification

- ⊗ If $R \rightarrow H$ is **triggered by a preceding H or R** (but not L) then the boundary is morphological.

Reduplication

- ⊗ Part of speech change: Verb→Noun or Verb→Adjective
(ex. $\widehat{\text{kpó}}$ -to see → $\widehat{\text{kpókpó}}$ -sight/seen)
- ⊗ Intensification, repetition, pleuractionals
(ex. $\widehat{\text{kpó}}$ -to see → $\widehat{\text{kpókpókpó}}$ -to see several times)
- ⊗ Negative adjective derivation
(ex. $\text{mà}\widehat{\text{kpó}}$ -to not see → $\text{mà}\widehat{\text{kpómàkpó}}$ -unseen)
- ⊗ Adverb derivation
(ex. $\widehat{\text{kpó}}$ -to see → $\widehat{\text{kpókpómè}}$ -in seeing)
- ⊗ Ideophones
(ex. çyĩm -the manner of a bird rising →
 çyĩm çyĩm çyĩm -the manner of a bird rising repeatedly)

Reduplication of L and H verb stems

	Root	Nominal/Adjectival	Intensity
a)	ɖà (to boil)	ɖà ɖà (boiling, boiled)	ɖà ɖà ɖà (to boil rapidly)
b)	ɖù (to eat)	ɖù ɖù (eating, eaten)	ɖù ɖù ɖù (to eat a lot)
c)	ɖá (to be smart)	ɖá ɖá (intelligence, smart)	ɖá ɖá ɖá (to be very smart)
d)	fá (to be cold)	fá fá (coldness, cold)	fá fá fá (to be very cold)

If tone simply copies from base to reduplicant, does R reduplicate as RR (non-morphological) or as RH (possibly morphological)?

Reduplication of R tone stems

	Root	Nominal/Adjectival	Intensity
a)	vǔ (to be scared)	vǔ vǔ (fear, scared/ scary)	vǔ vǔ vǔ (to be very scared)
b)	βǔ (to tremble)	βǔ βú (trembling)	βǔ βǔ βǔ (to tremble a lot/ to shake)
c)	iǔ (to call)	iǔ ió (calling, called)	iǔ iǔ iǔ (to call repeatedly)

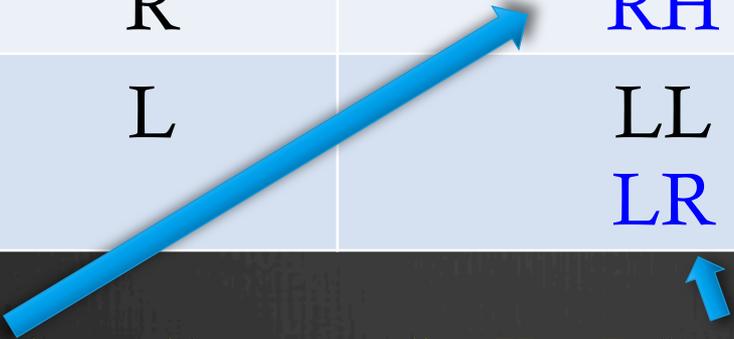
The sequence LR is needed to show that
 $R \rightarrow H$ is being triggered by the preceding
R.

Free Variant of L tone allomorph

	Root	LL Pattern	LR Pattern
a)	ɖà (to boil)	ɖà ɖà (boiling, boiled)	ɖà ɖǎ (boiling, boiled)
b)	ɖù (to eat)	ɖù ɖù (eating, eaten)	ɖù ɖǔ (eating, eaten)
c)	ɟì (to go)	ɟì ɟì (going, gone)	ɟì ɟǐ (going, gone)
d)	gɛ̀ (to be yellowed)	gɛ̀ gɛ̀ (yellowing, yellowed)	gɛ̀ gɛ̌ (yellowing, yellowed)

Tone Patterns in Nominal/Adjectival Reduplication

Verb Root	Reduplicated form
H	HH
R	RH
L	LL
	LR



If $R \rightarrow H$ is **triggered by a preceding H or R** (but not L) then the boundary is morphological.

Conclusions

- ⊗ RR and HR mark word boundaries.
- ⊗ R → H, when triggered by a preceding R or H marks morpheme boundaries
- ⊗ Based on this diagnostic, reduplication for part of speech change is morphological while reduplication for intensity is not.

Other differences: Verb+Object Sequences

Phrase
φύ σι
swim water
'to swim'

Nominal
σι φύ.φύ
water swim.swim
'swimming'

Intensity
φύ σι φύ σι φύ σι
swim water swim water swim water
'to swim intensely or for a long time'

Other differences: Disyllabic Roots

	Root	Nominal/Adjectival	Intensity
a)	$\widehat{d}zràdó$ (to repair)	$\widehat{d}zà.\widehat{d}zràdó$ (repairedness, repaired)	$\widehat{d}zràdó \widehat{d}zràdó \widehat{d}zràdó$ (to repeatedly repair)
b)	$trǒvá$ (to come back)	$tǔ.tróvá$ (coming back, came back)	$trǒvá trǒvá trǒvá$ (to come back repeatedly)

Other differences: CLV Roots

	Root	Nominal/Adjectival	Intensity
a)	β̃l̃i (to wrestle)	β̃i.β̃l̃i or β̃i.β̃l̃i (wrestling)	β̃l̃i β̃l̃i β̃l̃i (to wrestle for a long time)
b)	kl̃ö (to fade)	k̃ö.kl̃ó (fading, faded)	kl̃ó kl̃ó kl̃ó (to fade dramatically)
c)	g̃bl̃ě (to spoil)	g̃b̃ě.g̃bl̃é (spoilage, spoiled)	g̃bl̃ě g̃bl̃ě g̃bl̃ě (to be in terrible shape/completely spoiled)
d)	t̃ř̃i (to hate)	t̃ř̃i.t̃ř̃i (hatred, hated)	t̃ř̃i t̃ř̃i t̃ř̃i (to absolutely hate)
e)	sr̃ǰ (to study)	s̃ǰ.sr̃ǰ (studying, studied)	sr̃ǰ sr̃ǰ sr̃ǰ (to study a lot/for a long time)
f)	nr̃ě (to sharpen)	nr̃ě nr̃é (sharpening, sharpened)	nr̃ě nr̃ě nr̃ě (to sharpen repeatedly/for a long time)
g)	wl̃ă (to hide)	wă.wl̃á (hiding, hidden)	n/a

CLV vs. CGV roots

	Verb Stem	Gloss	Nominal/Adjectival	Gloss
(a)	bjš	to ask	bjš.bjś	asking, asked
(b)	fjž	to teach	fjž.fjź	teaching, taught
(c)	sjă	to dry	sjă.sjâ	drying, dried
(d)	hjä	to need	hjä.hjâ	need, needed
(e)	hwę	to stink	hwę.hwę	stinking, stinky

Future Study

- ⊗ Evidence for diphthongs or asymmetrical treatment of CL and CG onset sequences.
- ⊗ Measure vowel length and look at correlations with R tone.

References

Capo, Hounkpati B. C. *A Comparative Phonology of Gbe*. Berlin: Foris Publications, 1991. Print.

"Gen." *Ethnologue*. Web. 25 Mar. 2015. <<http://www.ethnologue.com/language/gej>>.

'Lect' Genealogy (Capo 1991)

