

# Adjectival reduplication in Lobi (Gur) as Morphological Doubling\*

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May 3, 2024

## 1 Introduction

Lobi (also called Lobiri) is a Gur language spoken in Burkina Faso, Côte d’Ivoire, and Ghana.

- All of the data presented here was collected with Sansan Claude Hien, a Lobi speaker from Côte d’Ivoire.

Lobi adjectives appear to reduplicate for intensity as in (1).

### (1) Adjectival intensity via apparent reduplication

- a. k<sup>h</sup>ér bɔ́  
woman good  
‘a good/beautiful woman’
- b. k<sup>h</sup>ér bɔ́ (bɔ́) bɔ́  
woman.SHORT good.SHORT good.SHORT good  
‘a very good/beautiful woman’

- This process is mentioned in previous descriptive work, where it is referred to as reduplication (Becuwe, 1982, p. 433-35).

In this talk I argue that **intensive adjectives do not involve (phonological) reduplication**. Instead, I show that the forms and distribution of intensive adjectives are predictable from other morphosyntactic processes in the language.

### Goals:

- Describe the form and distribution of long and short forms of nouns and adjectives.
- Describe the adjective doubling pattern.
- Show that repetition of adjectives does not involve phonological reduplication, but is instead predictable based on the suppletive allomorphs of the long and short form of adjectives.

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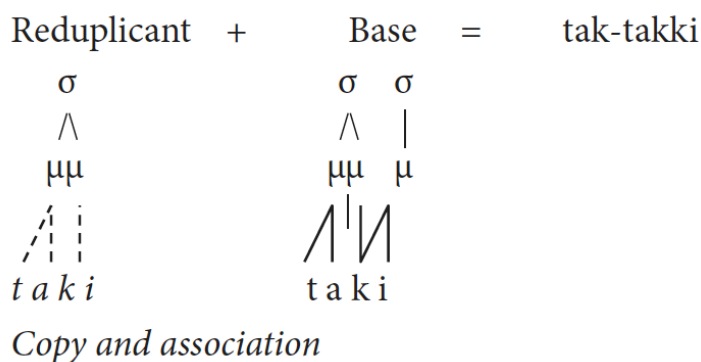
\*We would like to thank the members of the Spring 2022 undergraduate Field Methods class and the year-long 2022-2023 Field Methods class at UC Berkeley for their work in documenting, describing, and analyzing aspects of the Lobi language. Their insights have contributed greatly to this work. Any mistakes are the authors’.

## 2 Brief overview of phonological and morphological reduplication

**Reduplication** is the doubling or repetition of some (part of a) morpheme, word, or phrase in order to express some grammatical meaning (Inkelas and Downing, 2015).

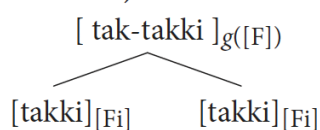
**Two prominent models of reduplication** are *phonological doubling* and *morphological doubling*.

- **Phonological doubling** (with prosodic affixation) proposes that morphemes that involve reduplication are prosodic affixes:
  - underspecified CVs
  - prosodic units without segmental content (moras, syllables)
- During the phonological component, the segments or phonological features of the base are doubled and associate, to the extent possible, with the empty CVs, resulting in repeated strings.



- **Predictions:**
  - A phonological doubling (with prosodic affixation) account predicts that all instances of a given morpheme will have the same prosodic shape, unless other markedness constraints are at play.
  - It also predicts that the reduplicant should be predictably phonologically derivable from its base, since copying takes place in the phonological component of grammar.
- **Morphological doubling** (Inkelas and Zoll, 2005) proposes that reduplication involves two instances of a given morpheme in the morphology, before phonological evaluation.

Reduplication in Morphological Doubling Theory (Inkelas and Zoll 2005)



*Truncation    No truncation*

- Any phonological manipulation of one or both copies takes place during the phonology, after both allomorphs have been selected.
- **Predictions:**
  - Morphosyntactically conditioned suppletive allomorphy should be able to affect the choice of allomorphs of a given morpheme in a morphological doubling account (but not a phonological doubling account).

Some cases of reduplication across languages seem to require a phonological account, and some a morphological account.

- This is the basis of Inkelas’s *Dual Theory of Reduplication* (Inkelas, 2008)

**In Lobi**, there are multiple reduplication processes in different morphosyntactic contexts, some of which can be accounted for using phonological doubling (not discussed here), but at least one of which requires a morphological doubling analysis.<sup>1</sup>

- Lobi adjective intensification adds to the small but compelling list of cases where morphological doubling is the best analysis of repetition of (part of) a morpheme.
- I sketch an analysis that formalizes morphological doubling in DM, which has, to my knowledge, not previously been done.

## 3 Long and short forms

### 3.1 Nouns

- Most nouns have two distinct surface forms<sup>2</sup>, a *long* and *short* form.
  - For example, the long form of ‘house’ is [cʊɔɾ] and the short form is [cɔ].

#### 3.1.1 The morphosyntactic distribution of long and short forms

- In addition to nouns, adjectives and demonstratives can surface with long or short forms.
- Which form surfaces depends on the morphosyntactic distribution of the noun, namely, the position of the noun within the noun phrase, and what other elements are present in the phrase.
  - The long form appears in isolation, and when followed by a definite marker or short form demonstrative.
  - The short form appears everywhere else: when the noun is preceded by a possessive pronoun or possessor noun, or when it is followed by an adjective, numeral, or long form demonstrative.

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<sup>1</sup>For a description of the phonologically derivable nominalizing reduplication in Lobi, see Sib (2016).

<sup>2</sup>In fact, most nouns have three distinct surface forms. The third form, not described here (though it does not pose any problems for the analysis of reduplication proposed here), appears in plural contexts.

(2) **Distributions of long and short nouns and adjectives**

a.	Noun	<u>cʊər</u>	‘house’
b.	Noun=Def	<u>cʊər=rá</u>	‘the house’
c.	Noun=Dem	<u>cʊər=ké</u>	‘this house’
d.	Noun Dem	<u>cʊ</u> úrɛ	‘this house’
e.	Noun Adj	<u>cʊ</u> sɪɛr	‘red house’
f.	Noun Adj=Def	<u>cʊ</u> sɪɛr=rá	‘the red house’
g.	Noun Adj Dem	<u>cʊ</u> sɛ úrɛ	‘this red house’
h.	Noun Adj Adj	<u>cʊ</u> sɛ tʰíí	‘an old red house’
i.	Noun RED Adj	<u>cʊ</u> sɛ sɪɛr	‘a very red house’

- Maximally one element in the noun phrase surfaces in its long form in any given noun phrase.
- It is always the final element that has a long form that surfaces as long.

**3.1.2 The morphophonological form of long and short nouns**

- Long/short form pairs do not all show the same kind of morphophonological relationship, though there are common sub-patterns.<sup>3</sup>
  - Some long/short pairs involve differences in vowel (3).

(3) **Long/short nouns: Vowel length**

	Long form	Short form	Gloss
a.	lɔ́	lɔ	‘farm’
b.	ɲɔ́	ɲɔ	‘arm’
c.	nɔ́	nɔ	‘leg’
d.	tʰɪɪ	tʰɪ	‘medicine’
e.	tʰíí	tʰí	‘soil’
f.	põõ	põ	‘rope’
g.	júú	jú	‘head’
h.	lɔ́	lɔ	‘door’
i.	tʰʊʊ	tʰʊ	‘honey’
j.	dɔɔ	dɔ	‘fire’
k.	daa	da	‘wood’
l.	péé	pé	‘intestine’
m.	gúú	gú	‘wall’
n.	poo	po	‘marshland’
o.	faa	fa	‘leaf’
p.	bíí	bí	‘soup’

- Some involve alternations between diphthongs and monophthongs(4).

<sup>3</sup>Miehe (2007) call the nouns in each of these sub-patterns distinct noun classes, treating the long forms as suffixed. However, there’s nothing about this system, synchronically, that seems noun-class-like: There is no agreement or concord, the nouns with each type of morphology do not seem to form semantically natural classes, and knowing the singular form of a noun does not help predict what the plural form will be or vice versa.

(4) **Long/short nouns: Diphthongs versus monophthongs**

	Long form	Short form	Gloss
a.	hɔɔ	hɔ	‘road’
b.	bɔɔ	bɔ	‘poverty’
c.	t <sup>h</sup> ɔɔ̃	t <sup>h</sup> ɔ̃	‘thing’

– Some differ in the presence versus absence of a final syllable (5).

(5) **Long/short nouns: Final syllable<sup>4</sup>**

	Long form	Short form	Gloss
a.	pár(á)	pá	‘place’
b.	t <sup>h</sup> ómǎ̃/t <sup>h</sup> ómǎ̃́	t <sup>h</sup> ó	‘fish’
c.	bímí́/bímí́́	bí	‘belly’
d.	bīnā́/bmā́	bī	‘dance’
e.	jírí́/jírí́́	jí	‘eye’
f.	gbǔnā́	gbǔ	‘cheek’
g.	ńímǎ́/ńímǎ́́	ńí	‘tooth’

– Others differ in the presence or absence of a final consonant (6).

(6) **Long/short nouns: Final C**

	Long form	Short form	Gloss
a.	ʃɔr	ʃɔ	‘fufu’
b.	der	de	‘flavoring from shea tree’
c.	pór	pó	‘yam’
d.	təmĩn	təmĩ	‘blood’
e.	mũsum	mũsu	‘money’
f.	kpɛ̃nɟɛr	kpɛ̃nɟɛ	‘basket’
g.	lōmbir	lōmbi	‘bird’
h.	tōmbir	tōmbi	‘body’

– And many nouns show multiple of the above differences between long and short forms.

– Some have both final C and diphthong/monophthong alternations (7).

(7) **Long/short nouns: Final C + diphthongs**

	Long form	Short form	Gloss
a.	j’ié(r)	j’é	‘face’
b.	cɔɔ(r)	cɔ	‘house’
c.	ɲɔɔ̃(n)	ɲɔ̃	‘water’
d.	jiɛ(r)	jiɛ	‘year’
e.	kpié(r)	kpé	‘hat’
f.	fɔɔ(r)	fɔ	‘neck’
g.	t <sup>h</sup> ɔɔ̃(n)	t <sup>h</sup> ɔ̃	‘potash’

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<sup>4</sup>One word shows an alternation in the presence versus absence of a final vowel: t<sup>h</sup>ɔm(ɔ)/t<sup>h</sup>ɔm, ‘work’.

- A large class of nouns shows final C and vowel length alternations (8).

(8) **Long/short nouns: Final C + vowel length**

	Long form	Short form	Gloss
a.	puu(r)	pu	‘pigeon’
b.	mānjī̃(n)	mānjí	‘papaya’
c.	bisāā̃(n)	bisá	‘child’
d.	dūū(n)	dū	‘vulture’
e.	māntuu(r)	māntu	‘partridge’
f.	ɲūkpúú(n)/ɲōkpúú(n)	ɲūkpú/ɲōkpú	‘calabash’
g.	bōdáa(r)	bōdá	‘poor person’
h.	jótī̃(n)	jótí	‘hair’
i.	súú(n)	sú	‘fur/body hair’
j.	kūkūū(n)	kūkū	‘chest’
k.	kaa(r)	ka	‘hole’
l.	caa(r)	ca	‘ethnicity, type’
m.	nūū(n)	nū	‘ear’
n.	nī̃(n)	ní	‘oil’
o.	lāá̃(n)	lá	‘salt’
p.	tāā̃(n)	tā	‘drink’
q.	lókáá(r)	lóká	‘bag’
r.	sī̃(n)	sí	‘urine’
s.	nóó̃(n)	nó	‘meat’
t.	kūū(n)	kū(*n)	‘man’

- A sub-type of noun that shows both a final C and vowel length alternation also shows a vowel quality alternation (9).

\* Not all nouns with a high front nasal vowel in the long form show quality alternations (cf. ‘oil’ in (8n)).

(9) **Long/short nouns: Vowel length and quality**

	Long form	Short form	Gloss
a.	bī̃̃(n)	bé	‘dog’
b.	cī̃̃(n)	cé	‘guinea fowl’
c.	jī̃̃(n)	je	‘unclehood’

- Still other nouns lack distinct long and short forms, surfacing consistently across contexts (10). (This is a very abbreviated list, though it is meant to be representative.)

(10) **Nouns that don’t alternate**

	Long and short form	Gloss
a.	k <sup>h</sup> uɓ	‘bone’
b.	kpòó	‘heart’
c.	bem	‘deer’
d.	kókó	‘monkey’
e.	bɔ	‘goat’
f.	k <sup>h</sup> ér	‘woman’
g.	bi	‘child’

- Some of the nouns that do not alternate look remarkably like the short or long forms of nouns that do alternate:
  - For example, many nouns with a final -r simply lose the -r in the short form, but not ‘woman’ (10f).
  - Many nouns with long vowels lose a degree of vowel length in the corresponding short form, but not ‘heart’ (10b).
  - Most nouns that are CV in their short form have a CVV, CVVC, or CVC long form, but not ‘soup’ (10g) or ‘goat’ (10e).
- On the whole, long forms are not predictably derivable from a given short form.
  - For example, if we have the short form [lɔ́] we don’t know whether its long form will have no change, a long vowel, a final consonant, a diphthong, and/or a different vowel quality: [lɔ́, lɔ́́, lɔ́r, lɔ́́(r), lɔ́]
- The short forms seem plausibly derivable from the long forms; most cases involve truncation by one segment or mora (a vowel or coda C).
  - However, many involve truncation of more than one segment (a full syllable in (5), or both final C deletion and vowel length reduction).
  - Not all nouns truncate; many do not alternate at all (10).

### Interim summary:

- Most nouns have distinct long and short forms whose distribution is morphosyntactically predictable (see section 3.1.1).
  - The shape of a long form is not predictable given a short form, nor vice versa.
    - \* This suggests that **long and short forms of nouns are morphosyntactically conditioned suppletive allomorphs.**
  - Common alternations between long and short forms include:
    - \* Presence versus absence of a final consonant (with exceptions like ‘woman’ [kʰɛ́r])
    - \* Diphthongs versus monophthongs
    - \* Long vowels versus short vowels (with exceptions like ‘heart’ [kpòó])

## 3.2 Adjectives

- Many adjectives, like nouns, have distinct short and long forms (11).
- The same kinds of alternations that we saw among nouns are also present among adjectival long and short forms:
  - vowel length alternations (11a-d)
  - diphthong/monophthong alternations (11d,e)
  - presence of final C (11b-d,f)
- Like nouns, not all adjectives alternate (11g-j).

(11) **Example long and short forms of adjectives**

	Long form	Short form	Gloss
a.	p <sup>h</sup> aa	p <sup>h</sup> a	‘new’
b.	gbááá(n)	gbáá	‘tall’
c.	tííí(n)	tíí	‘old’
d.	kũntííí(n)	kũntíí	‘big/old’
e.	bóó	bó	‘good’
f.	sɛɛ(r)	sɛ	‘red’
g.	bríí	brí	‘black’
h.	blóó	bló	‘white’
i.	dèéé	dèé	‘ugly’
j.	pəl	pəl	‘clean’

The crucial contexts for comparison with apparent reduplication are noun phrases with multiple adjectives, as in (12).

- In such cases, only the final adjective surfaces in its long form. Any preceding adjectives (and the noun) surface in their short form.

- (12) cə                      sɛ                      tííí(n)  
house.SHORT red.SHORT old  
‘an old red house’

## 4 Adjectival reduplication

For a small set of adjectives, intensification of the adjectival meaning is marked through vowel lengthening (13).

(13) **Adjectival intensity marked through vowel lengthening**

- a. cə                      bu  
house.SHORT small  
‘a small house’
- b. cə                      buuuuu  
house.SHORT small.EMPH  
‘a very small house’

For the rest of the adjectives, intensification is marked through repetition (14).

(14) **Adjectival intensity marked through repetition**

- a. t<sup>h</sup>ɪr tííí(n)  
tree old  
‘an old tree’
- b. t<sup>h</sup>ɪr tíí                      (tíí)                      tííí(n)  
tree old.SHORT old.SHORT old  
‘a very old tree’



- c. cə                    pəl  
house.SHORT clean  
‘a clean house’
- d. cə                    pəl    pəl  
house.SHORT clean clean  
‘a very clean house’
- e. k<sup>h</sup>ér    bʊ́s  
woman good  
‘a good/beautiful woman’
- f. k<sup>h</sup>ér                    bʊ́                    (bʊ́)                    bʊ́s  
woman.SHORT good.SHORT good.SHORT good  
‘a very good/beautiful woman’

Here I focus on the repetition pattern (14).

- The pattern in (14) appears on first glance to be a canonical case of (phonological) reduplication.
  - Intensity is a common meaning expressed via reduplication across languages (Moravcsik, 1978).
  - Reduplication often involves a full word or morpheme in the base, and a partial copy of that word or morpheme in the reduplicant, much like the relationship of the final copy and preceding copies of the adjectives.
- However, the repetition of adjectives for intensification would be challenging to account for with any phonological account of reduplication, such as phonological doubling.
  - Phonological doubling with prosodic affixation predicts that a single prosodic affix will determine the size of all reduplicative affixes in a given meaning context.
  - However, we see that some early copies of adjectives are CV while others are CVC (14) (and, in fact, these are just two of many possibilities).
- Additionally, the form and distribution of all copies of the adjective in intensification contexts are predictable based on what we already know about long and short forms in the language.
  - The final copy of the adjective surfaces in its long form.
  - Preceding copies surface in the morphological short form (cf. (11)), which is not phonologically predictable.
  - The long and short forms in intensification contexts match the long and short forms of the same morphemes in other contexts.

- **A brief sketch of a morphological doubling account** (updated to be DM-compatible):
  1. Two copies of the adjective are present in the morphosyntax, before allomorph selection occurs.
    - \* I make no claims here about whether these two copies arise in the narrow syntax or via morphological operations like node insertion + copying in a DM-style approach.
      - But if anyone has ideas about how to tease these two approaches apart, I'd love to hear them!
  2. Allomorphs are selected based on the morphosyntactic distribution of each copy of the adjective (i.e., regular vocabulary insertion in a DM-style account):
    - \*  $\sqrt{\text{GOOD}} \leftrightarrow /b\acute{u}\acute{o}/$  | *phrase final*
    - \*  $\sqrt{\text{GOOD}} \leftrightarrow /b\acute{o}/$
  3. Phonology applies after vocabulary insertion.
- In sum, if we assume suppletive allomorph selection is morphological, and morphology applies before phonology, then Lobi adjective doubling must happen in the morphosyntax, before allomorph selection takes place.

## 5 Conclusions

- Lobi nouns and adjectives have **distinct long and short morphological forms** whose distribution is morphosyntactically predictable.
  - Long forms appear in isolation and before definite and demonstrative enclitics.
  - Short forms appear elsewhere: before anaphoric demonstratives, adjectives, numerals, and in possessive constructions.
  - The short form is not predictably derivable from the long form or vice versa, so they are **best analyzed as suppletive allomorphs**.
- Lobi displays **repetition of adjectives for intensification**.
  - This is best analyzed not as phonological reduplication, but as two copies of the same adjective present in the morphosyntax, each being subject to separate instances of vocabulary insertion such that the correct allomorphs get inserted.
  - This can be **analyzed as *morphological doubling*** (Inkelas and Zoll, 2005).
- **Implications for reduplication:**
  - We can add Lobi adjective intensification to the small list of cases of reduplication that are best analyzed as morphological doubling rather than phonological doubling.
  - Not all apparent reduplication can be analyzed as phonological doubling.

- **Implications for descriptions of Lobi:**

- In purely descriptive work, there’s nothing wrong with calling adjective intensification constructions ‘reduplication’, but we should be clear that the forms of intensive adjectives and their distribution are directly related to long/short forms.
- The literature is inconsistent on whether nasal vowels and/or long vowels are contrastive in Lobi. If it’s correct that long/short forms are suppletive as argued here, then at least one (vowel nasalization or length) must be underlyingly contrastive. (Feel free to ask me more about this!)

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