OPTIONAL, CONDITIONAL, AND OBLIGATORY PRENASALIZATION IN BAFANJI

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Under certain morphologically conditioned circumstances, modifier adjectives in Bafanji may surface with a nasal element preceding the stem-initial consonant. While this nasal prefix is optional, its presence is preferred to its absence. However, adjectives with voiceless fricative initials are never prenasalized in this context. In contrast, when a tense-marking nasal is prefixed to predicate adjectives, even voiceless fricatives may be prenasalized. A functional explanation is offered for this asymmetry, which may account for cross-linguistic norms.

Les adjectifs épithétiques de la langue bafanji peuvent apparaître à la surface avec une nasale qui précède la consonne initiale du radicale, selon certaines conditions morphologiquement déterminées. Cette nasale préfixée est facultative, mais sa présence s'avère préférée à son absence. Toutefois un adjectif qui commence par une fricative sourde n'accepte jamais la nasale dans ce contexte. Par contre, dans le cas des adjectifs attributifs, qui prennent un préfixe nasal comme marqueur du temps, même les fricatives sourdes acceptent la nasale. Une explication fonctionnelle de cette asymétrie peut tenir compte des normes interlinguistiques.

0. INTRODUCTION

Bafanji has a productive process of total reduplication affecting adjectives[1]. A process of optional prenasalization which applies under reduplication in overtly tensed constructions is blocked when the stem begins with a voiceless fricative. However, prenasalization of (non-reduplicated) adjectives is obligatory in overtly tensed predicate adjective constructions, even when the stem is voiceless fricative-initial.

The preliminaries are presented in §1: the segment inventory, and relevant segmental processes. In §2 the process of total adjectival reduplication is presented, as well as a morphologically-triggered process of optional prenasalization which conditionally affects the process. There is a systematic gap in prenasalization: voiceless fricative-initial bases do not undergo the process. Additionally, an instance of obligatory, across-the-board, prenasalization is discussed.

1. PRELIMINARIES

Bafanji is an Eastern Grassfield Bantu language of the Nun group in the Mbam-Nkam family, spoken in the North West province of Cameroon by about 8500 people (Grimes 1988). Speakers refer to their language as Nchufie. The language is head-initial, with a rich system of tonal morphology, and a simple syllable structure. In-depth information on aspects of Bafanji grammar may be found in Koopman and Kural 1994 (the volume in which an earlier version of this article appears), and Jun 1994.

1.1. SEGMENT INVENTORY

(1) Phoneme inventory of Bafanji

p	t	tʃ	cç		i	ɯ	u
p^h	t^h	$tʃ^h$	$cç^h$	k^h	ɛ	ə	ɔ
^mb	nd	$^ndʒ$	$^ɲʃ$	^ŋg		ɑ	

[1] I would like to thank Sophie Ajeakwa, my Bafanji consultant. This research was supported in part by NIH Training Grant T32 DC00008.

f	s	ʃ	ç	
	z̄			ɣ
m	n		ɲ	ŋ
	l̄		ʎ	
			j	w

As shown in §1.2, prenasalization is lexically contrastive only among the aspirated plosives. Following Jun (1994), contrastive prenasalized forms are considered clusters. Voiced stops may be considered redundantly prenasalized, or prenasalized plain stops may be considered redundantly voiced, although nothing of relevance hinges on either phonemicization. Vowels may be contrastively nasalized and/or creaked. The status of v is questionable, as it has been found in only one form. Moreover, g is attested in one lexical environment.

1.2 PRENASALIZATION

As mentioned in §1.1, both voiced and aspirated prenasalized plosives are attested, both in underived and derived environments. However, prenasalized fricatives are not attested in underived environments, though may be derived under certain circumstances. Plain plosives regularly voice upon derived prenasalization. Aspirated plosives do not. In (2) are examples of underived prenasalized forms, indicating that aspirated as well as voiced plosives may follow nasals. Redundant prenasalization is superscripted; contrastive (phonemic) prenasalization is not.

(2) CONTRASTIVE		REDUNDANT	
ntɔ́	six	**ⁿdʒɔ̂:**	egg
ɲɛçʰɔ̀:	mouth	**ᵑgûŋ**	glass
ŋkʰī	water	**ᵑgɔ̀**	stranger

Post-nasal hardening occurs among the glides, the liquids, and the voiced fricatives. Moreover, when z undergoes the process, it palatalizes as well. In (3) are some examples of post-nasal hardening. (Throughout, morpheme boundaries, when isolable, are indicated by a hyphen.)

(3)				
zɔ̂ŋ	dry	**n-dʒɔ̂ŋ**	PAST-dry	was dry
ɣâ	cold	**ŋ-gâ**	PAST-cold	was cold
ʎɛ̂	clean	**n-ɟɛ̂**	PAST-clean	was clean
wũ:	amazing	**ŋ-gũ:**	PAST-amazing	was amazing

2. ADJECTIVES AND ADJECTIVAL REDUPLICATION

The process of adjectival reduplication is presented in this section, as well as the process of prenasalization that may conditionally apply here.

Bafanji adjectives fall into two classes. Adjectives possess either a high-low tonal pattern (Class A), or a low-high-low tonal pattern (Class B).

(4) CLASS A		CLASS B	
çɛ̂	split	**ʃũ̀**	tall
wû:	short	**wũ:**	amazing
pʊ́gʊ̀	red	**pɔ̀gɔ̂**	good

The minimal and near-minimal pairs in (4) confirm the existence of an underlying tonal contrast here.

2.1 ADJECTIVAL REDUPLICATION

Adjectival reduplication occurs in any adjective which modifies a predicate nominal. (Throughout, reduplicated forms are indicated with '='.)

(5) a. **à-kʰâ:** it is small
it-small
á-jè-kʰâ:=kʰâ: it is a small one
it-one-small-small

b. **à-fû** it is white
it-white
á-jè-fû=fû it is a white one
it-one-white-white

c. **à-zɔ̂ŋ** it is dry
it-dry
á-jè-zɔ̂ŋ=zɔ̂ŋ it is a dry one
it-one-dry-dry

à-ɣɔ̂ it is cold
it-cold
á-jè-ɣɔ̂=ɣɔ̂ it is a cold one
it-one-cold-cold

d. **pǐ:ntʃū ʌ̂ê** Pinchu is clean
Pinchu-clean
pǐ:ntʃū mè ʌ̂ê=ʌ̂ê Pinchu is a clean child
Pinchu-child-clean-clean

e. **à-wû:** it is short
it-short
á-ŋɔ̀ wû:=wû: he is a short man
he-man-short-short

The data is arranged so that the initial segment of the adjective decreases in stricture as the list progresses, thus providing tokens of each distinct manner type, if attested. In (5a), aspirated plosive-initial adjectives undergo the process. In (5b) are voiceless fricatives. In (5c) is the voiced coronal fricative as well as the voiced velar fricative. (5d) shows a liquid-initial adjective, and (5e) shows a glide-initial adjective.

There thus far seems nothing peculiar about the process: any adjective of any segmental shape appears to be able to reduplicate freely, suggesting the form undergoes an ordinary process of full reduplication.

2.2 OPTIONAL PRENASALIZATION

The reduplication story becomes somewhat more complex when considering overtly tensed constructions. The FUTURE and PAST prefixes consist of nasality lexically associated with vowel lengthening and tonal material: high for FUTURE, superhigh for PAST. These inflectional tones are phonetically realized both on the

vowel itself, as well as on the inflectional nasal. Additionally, the stem tone is modified. Observe the patterns in (6).

(6)	**à-t^{h}ûŋ** he-kick	he kicks	**à-k^{h}â:** he-run	he runs
	ǎ-:n-t^{h}ūŋ he-FUTURE-kick	he will kick	**ǎ-:ŋ-k^{h}ā:** he-FUTURE-run	he will run
	a᷄-:n-t^{h}ùŋ he-PAST-kicked	he kicked	**a᷄-:ŋ-k^{h}à:** he-PAST-run	he ran

Now observe how tense marking interacts with adjectival reduplication. Note that the copula (**^{m}bə̀**) is present in overtly tensed constructions with predicate nominals.

(7) **a᷄-:m-bə̀-jɛ̀ ŋgə̂ = ŋgə̂** — it was a cold one
it-PAST-COPULA-one-N-cold-N-cold
a᷄-:m-bə̀-jɛ̀ ɣə̂ = ɣə̂ — it was a cold one
it-PAST-COPULA-one-cold-cold

a᷄-:m-bə̀-jɛ̀ ŋk^{h}â: = ŋk^{h}â: — it was a small one
it-PAST-COPULA-one-N-small-N-small
a᷄-:m-bə̀-jɛ̀ k^{h}â: = k^{h}â: — it was a small one
it-PAST-COPULA-one-small-small

a᷄-:m-bə̀-jɛ̀ ɲɟê = ɲɟê — it was a clean one
it-PAST-COPULA-one-N-clean-N-clean
a᷄-:m-bə̀-jɛ̀ ʎê = ʎê — it was a clean one
it-PAST-COPULA-one-clean-clean

ǎ-:m-bə̄-jɛ̀ m̲bɔ̀gɔ̀ = m̲bɔ̀gɔ̂ — it will be a good one
it-FUTURE-COPULA-one-N-good-N-good
ǎ-:m-bə̄-jɛ̀ pɔ̀gɔ̀ = pɔ̀gɔ̂ — it will be a good one
it-FUTURE-COPULA-one-good-good

a᷄-:m-bə̀-jɛ̀ n̲dʒɔ̂ŋ = n̲dʒɔ̂ŋ — it was a dry one
it-PAST-COPULA-one-N-dry-N-dry
a᷄-:m-bə̀-jɛ̀ zɔ̂ŋ = zɔ̂ŋ — it was a dry one
it-PAST-COPULA-one-dry-dry

Nasality optionally—though, according to my Bafanji consultant, preferably—appears on both instances of the reduplicated adjective. (Optional prenasalization is underlined.) The preferential presence of this nasal is discussed in §2.5.

2.3 THE EXCEPTION

Despite nasality's optional though preferred appearance on predicate nominal-modifying adjectives in overtly tensed constructions, there is a systematic exception, exemplified in (8).

(8) **a᷄-:m-bə̀-jɛ̀ fuɔ̂ = fuɔ̂** — it was a bright one — (***a᷄-:m-bə̀-jɛ̀ m̲fuɔ̂ = m̲fuɔ̂**)
it-PAST-COPULA-one-bright-bright
a᷄-:m-bə̀-jɛ̀ fû = fû — it was a white one — (***a᷄-:m-bə̀-jɛ̀ m̲fû = m̲fû**)
it-PAST-COPULA-one-white-white

ẵ-:m-bə̀-jɛ̀ ʃù=ʃû it was a tall one (*ẵ-:m-bə̀-jɛ̀ n̲ʃù=n̲ʃû)
it-PAST-COPULA-one-tall-tall
ẵ-:m-bə̀-jɛ̀ çê=çê it was a split one (*ẵ-:m-bə̀-jɛ̀ n̲çê=n̲çê)
it-PAST-COPULA-one-split-split

Otherwise optional prenasalization is disallowed in all instances of voiceless fricative-initial adjectives.

2.4 OBLIGATORY PRENASALIZATION

In the following constructions, voiceless fricative-initial adjectives and verbs regularly *do* take prenasalization.

(9) ẵ-:n̥-çɛ̀ it was split (*ẵ-:çɛ̀)
it-PAST-split

ẵ-:n-ʃù it was tall (*ẵ-: ʃù)
it-PAST-tall

ă-:ŋ-fu5̄ it will be bright (*ẵ-:fu5̄)
it-FUTURE-bright

ă-:ŋ-fū it will be white (*ẵ-:fū)
it-FUTURE-white

These data indicate that the prenasalization of voiceless fricatives is *not* disallowed categorically. When tone raising would otherwise be the sole indicator of tense marking, as in voiceless fricatives-initial past tense predicate adjective constructions, prenasalization is indeed present.

2.5 DISCUSSION

The patterning of optional prenasalization in Bafanji is consistent with Anderson's (1975) observation, also discussed at length by Steriade (1993), and Ladefoged and Maddieson (1996) that non-continuants are far more likely to accommodate prenasalization than are continuants. This is quite possibly due to the relative articulatory ease with which stops may be prenasalized, thus increasing the number of allowable contrastive configurations, in contrast to the relative articulatory difficulty with which fricatives and non-nasal sonorants are prenasalized. As stops consist of full oral closures, only velic lowering need be implemented during closure, with orality following at release, in order to implement a prenasalized plosive. In contrast, prenasalized fricatives and non-nasal sonorants involve both a change in velic configuration, as well as a change in oral configuration—from stop to fricative, or from stop to approximant—in order for the sequence to be realized. Given their relative difficulty in terms of both articulation and timing coordination, it should not be surprising that the presence of prenasalized fricatives in a system implies the presence of prenasalized plosives. That is, prenasalized fricatives are marked.

Indeed, the observed post-nasal hardening in Bafanji indicates that languages may show synchronic alternations displaying a preference to realize nasal-oral consonant sequences as nasal-stop sequences. In Bafanji, unlike any other system I am aware of, this preference for nasal-stop sequences is both limited in its scope *and* asymmetrical in its force. Preceding *voiceless* fricatives, prenasalization is fully disallowed in reduplicated modifying adjectives, while obligatory

prenasalization indeed produces cross-linguistically dispreferred nasal-continuant sequences in overtly tensed predicate adjectives.

3. CONCLUSION

In conclusion, prenasalization in Bafanji may be *optional*, *conditional*, or *obligatory*. Prenasalization is optional, though preferred, on reduplicated adjectives modifying predicate nominals in overtly tensed constructions. However, prenasalization here is conditional on the quality of the stem-initial consonant: if voiceless fricative-initial, otherwise optional prenasalization is disallowed. Finally, prenasalization is obligatory when tone raising would otherwise be the sole indicator of tense, as in tense marking of voiceless fricative-initial predicate adjectives.

REFERENCES

Anderson, Stephen. 1975. The description of nasal consonants and the internal structure of segments. In C. Ferguson, L.M. Hyman, and J.J. Ohala (eds.), Nasálfest: Papers from a Symposium on Nasals and Nasalization, pp. 1-26. Stanford, CA: Stanford University, Department of Linguistics.

Grimes, Barbara F., ed. 1988. Ethnologue. Dallas: Summer Institute of Linguistics.

Koopman, Hilda and Murat Kural, eds. 1994. Aspects of Nchufie grammar. UCLA Occasional Papers in Linguistics 14.

Jun, Jongho. 1994. An analysis of Bafanji prenasalized consonants. Linguistics in the Morning Calm 3. Seoul: Hanshin.

Ladefoged, Peter and Ian Maddieson. 1996. Sounds of the world's languages. Cambridge: Blackwell.

Steriade, Donca. 1993. Closure, release and nasal contours. In Rena Krakow and Marie Huffman, (eds.), Phonetics and Phonology 5: Nasals, Nasalization, and the Velum, pp. 401-70. New York: Academic Press.

APPENDIX: ELICITED ADJECTIVES

CLASS A		CLASS B	
wû:	short	**wũ:**	amazing
lâ:	sticky	**ʃù**	long/tall
ʌwî	bitter	**zɔ̃**	itchy
ʌê	lean	**pũ:**	left over
zɔ̂ŋ	dry	**pɔ̀gɔ̂**	good
ɣɔ̂	cold	**pùpû**	spoiled
ɣɔ́ɣɔ̀	foolish		
fúfù	white		
fuɔ̂	bright		
ʃî	black		
çê	split		
púgù	red		
$p^hû$:	ugly		
$k^hâ$:	small		