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SOME COMMENTS ON NASALIZATION IN LELE

Pamela C. Simons, The Evangelical Alliance Mission
Donald A. Burquest, University of Texas at Arlington

This paper shows that in Lele, with few exceptions, vowel nasalization is associated with glides. This glide/nasalization association is examined briefly in closely related languages, and while a complete explanation is lacking at this point, some evidence from other Chadic languages is explored, leading to the proposal of a possible historical development from nasal consonants which were lost adjacent to glides.

Cet article démontre que la nasalité des voyelles en Lele est associée aux semi-voyelles dans presque tous les cas. Cette association de semi-voyelles à la nasalité est étudiée dans les langues étroitement apparentées; faute d'une explication complète à présent, des preuves sont apportées par d'autres langues tchadiennes, suggérant éventuellement un développement historique par lequel les consonnes nasales auraient disparues, quand ces mêmes consonnes se trouvaient juxtaposées aux semi-voyelles.

Lele is an East Chadic A language (Newman, 1977) spoken south of Kelo, prefecture de la Tandjile, Republic of Chad. It is not listed in Greenberg (1963), but it is mentioned by Baumann and Westermann (1957) and Hoffman (1971). It is closely related to Nancere and so falls clearly into Newman's (1977) East Chadic A Nancere subgroup. In citing examples in this paper we present both the standard orthographic form and a broad phonetic form. Tone is represented as high ['], low [']. with mid unmarked.

There are many instances in Lele in which nasalization is contrastive in minimal pairs. Note the following examples:

(1)a.	kaya	[kaya]	'finish!'
	kanya	[kāyā]	'thing'
b.	kasiya	[kàsiyà]	'shame'
	kasinya	[kāsīyā]	'intestines, excrement'
c.	hay	[hay]	'dry, to be dry'
	hany	[hāy]	'to rake'

In all such instances of nasalization it seems to be the case that it is the entire word which is nasalized; in particular, note that all vowels and glides in the word show nasal counterparts.

It is striking, however, that nasalization does not occur on vowels adjacent to nasals, even in instances in which the vowel occurs between two nasals. Such vowels may in fact be lightly nasalized, but the degree of nasalization is insignificant when compared to that found contrastively in non-nasal environments. Note the following examples:

(2)	an	[an]	'to go out'
	ma	[ma]	'to die'
	bendiy	[bé ⁿ díy]	'his brother'
	mbaw	[^m bàw]	'(kind of dance)'
	meneng	[mènèŋ]	'six'
	nam	[nám]	'(kind of tree)'

In addition to the nasalization they manifest, all the examples in (1) contain the nasalized glide /ỹ/ (written orthographically in nasalized words as ny). Further examples show that the nasalized glide /w̃/ may also be found in nasalized words (written as nw). Note the Examples in (3):

(3)a.	piiny	[piĩỹ]	'to blow'
	many	[māỹ]	'to contradict'
	manyo	[māỹō]	'small'
	aany	[āỹ]	'to take'
b.	'dunwa	[dũwā]	'to stink'
	danw	[dāw̃]	'(kind of gazelle)'
	hanw	[hāw̃]	'every one' (ideophone)
	'danywa	[dāỹwā]	'bitterness'
	inyew	[iỹēw̃]	'a little bit'

Further, note that the nasalization seems to be directional, applying from right to left, and that it is interrupted by the presence of a stop (including nasal consonants):

(4)	kangnye	[káŋỹé]	'some (definite)'
	garbinya	[gárbĩyá]	'sadness, grief'

There are some cases in which words which do not have glides are nasalized, but they are few in number and seem to be highly specific:

(5)	ndenn	[ndé̃]	'(kind of tree)'
	njenn	[njé̃]	'(kind of bird)'

More than half of such words known are ideophones as shown in (6), which suggests that perhaps even those in (5) above have their historical origin as ideophones as well:

(6)	honn	[hō̃]	'completely (dry)'
	puunn	[pũũ]	'very (irritated)'
	jonn	[jō̃]	'very (sad)'
	hunn	[hũ̃]	'(beat) severely'

Only one of such words known is polysyllabic, and both its length, absence of glide, and apparent direction of nasalization (instead of right to left, the nasalization appears to proceed from left to right, because the final vowel is not nasalized) are unusual. It is doubtful whether this word is of Lele origin (the orthographic form here is that which would be appropriate for Lele):

(7)	hannhaanndi	[háháádi]	'(kind of bird)'
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The lack of nasalization on words containing nasals in (2) above may be interpreted as an example of the principle expressed by Schane (1971), that when a phonetic characteristic becomes contrastive in one environment, it is lost from those contexts in

which it is not contrastive. The fact that nasalization in Lele now has the entire phonological word as its domain suggests that there is some assimilatory pattern of nasalization involved. Such a nasalization process would be expected to find its fullest manifestation initially on segments adjacent to nasals. The fact that it does not occur in the present language in that context implies that it has been lost there. As Schane points out, such a historical development serves to heighten the degree of contrast for that phonetic characteristic in those contexts in which it is allowed to continue to occur.

As a final descriptive comment, note that some cases of word-level nasalization are a result of suffixation:

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|-------|--------------|------------------|------------|
| (8)a. | tama | [tamá] | 'wife' |
| | tamay | [tamáỹ] | 'his wife' |
| b. | suma | [sùmá] | 'ear' |
| | sumay | [sùmáỹ] | 'his ear' |

Note, however, that it is not the case that all such cases of suffixation result in nasalization:

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|-----|--------------|------------------|------------|
| (9) | guba | [gùbà] | 'knee' |
| | gubay | [gùbày] | 'his knee' |

Thus, while it is tempting to attempt to associate the nasalization with (inalienable) possession, examples like (9) make such an interpretation untenable.

It is striking, however, that all the examples of (8) show a nasal element in the stem. We saw above in (2) that a nasal alone is not sufficient to produce nasalization, and in (1) and (3) that there seems to be an association of nasalization with the presence of a glide. The data in (8) and (9) suggests that both factors, a nasal and a glide, must be present in cases of possession. Indeed, there are in the language no syllables of the form nasal+vowel+glide which are not nasalized. Note, however, that nasalization does not automatically take place if the nasal and glide are adjacent:

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|------|--------------|------------------|------------------|
| (10) | dayna | [dayna] | '(kind of drum)' |
| | kamya | [kàmyà] | 'breast, milk' |

But note (11):

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|------|---------------|------------------|------------|
| (11) | homnya | [hòmỹá] | 'sickness' |
|------|---------------|------------------|------------|

That is, in such cases there is possible contrast, but syllables of the shape nasal+vowel+glide, are always nasalized.

We have been unable to find much help in understanding Lele nasalization from examining data of related languages. Within the Nancere subgroup we find some reflections of nasalization, although there is not enough consistency to be completely convincing (the data here is written phonetically only, with tone unmarked):

(12)a	<u>Lele</u>	<u>Kabalai</u>	<u>Gabri</u>	<u>Nancere</u>	
	kama	kamə	kã	ka	'water'
	poriŋ	pərəŋ	pođiŋ	pəri	'four'
b	kāsīyã	kasī	kasī	kasiə	'excrement'
	dāy	dāye	dāyi	dāya	'bitter'
	dūwã	duwa	dowe	duwa	'to stink'
	kūy	kuya	kwiye	kwīə	'to fry'

Examples in (12)a show nasalization which seems to result from the loss of a nasal consonant, accounting for the unusual [ã] in Gabri. Those in (12)b show that when nasalization is present, it is associated with a glide or a nasalized high vowel (which is, of course, reminiscent of the nasalized glides of Lele). This data thus suggests a possible analysis.

In addition, there is another bit of comparative evidence, the third person possessive marker, which seems to offer some insight. In Margi the relevant marker is *-nyí*:

(13)	dnyí	'his/her father'
	mnyí	'his/her mother'
	mwálnyi	'his/her friend'

Angas shows a similar form in the third person, *nyə*, with a bimorphemic possessive form *kəni*:

(14)	mús kəni	'his/her cat'
	wók kəni	'his/her compound'
	mól kəni	'his/her brother'
	shwé kəni	'his/her guinea-corn'

Thus there is a degree of evidence for a third person marker containing a front vowel and a nasal, which may be the historical correlate of the nasalization in some possessive forms in Lele.

We suggest a historical development as follows (N represents any nasal, V any vowel, and Y any glide); for purposes of illustration, we arbitrarily make the assumption that nasalization of vowels is conditioned by a preceding nasal environment:

Stage I--nasalization is associated with nasals, including nasalized /y/ and /w/; thus there are pairs of words like:

NVN̄	CVN̄Ȳ	CVYV
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Stage II--clusters of nasals with /y/ and /w/ are reduced to glides only, but the effect of the nasalization remains, bringing about contrastive nasalization; for reasons unknown, the third person singular possessive pronoun has a nasalizing effect only if there is a nasal elsewhere in the word:

NVN̄	CVȲȲ	CVYV
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Stage III--following Schane's principle of maximization of contrast, nasalization is lost in those cases in which it was no longer contrastive, viz. adjacent to nasals:

NVNV	CVȲȲ	CVYV
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Stage IV--perhaps simultaneous with Stage III, contrastive nasalization comes to be associated with the entire word, although stopped in its effect by stops (see Bybee Hooper, 1976:32ff for illustration of this principle in the Granada dialect of Andalusian Spanish):

NVNV

C[~]V[~]Y[~]V

CVYV

Synchronically, the best analysis would seem to be one in which nasalized and oral glides are distinguished, with the presence of a nasal glide serving as the conditioning environment for nasalization throughout the word unless interrupted by the presence of a stop (neatly handled by an autosegmental treatment in which the feature [nasal] is interpreted as functioning on a tier separate from the remaining features). Given such an analysis, the third singular possessive pronoun would be seen to have two forms, one oral and one nasal, with the nasal form conditioned to occur only in conjunction with words which have a nasal in the stem.

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