

tone preserving vowel reduction in Lendu*

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Vowels in Lendu may be reduced if the tones they bear can be preserved by being shifted to adjacent segments. In CV words this is possible only if C belongs to a class of consonants, C'. In CV₁V₂ words, V₁ may be reduced but direction of tone shifting depends on presence or absence of a morpheme boundary between the vowels.

1. Introduction

In connection with the vowel reduction, the stability of tone patterns will be tested on a series of examples taken from Lendu, a Central Sudanic language¹ spoken in North Eastern Zaire.

Two cases of tone shift² associated with vowel reduction are presented:

- (1) Leftward tone shift onto the adjacent consonant:

CV → C
T T

- (2) Rightward tone shift onto the adjacent vowel:

CV₁V₂ → CV₂
T₁T₂ T₁ T₂

In both cases tone melody (in Goldsmith's sense) remains *unchanged*.

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¹Following J. Greenberg's [1963] classification.

²Here I am concerned only with "lexical" tones shifting.

Lendu presently has three level tones and one contour (Rising).³ In CV words, vowel reduction (hereafter VR apparently restricted to [-low] vowels) may take place if and only if C belongs to a certain subset C' (of the consonantal set C = {p, b, ʔp, ʔb, t, d, ʔt, ʔd, ʔc, ʔj, j, k, g, kp, gb, ʔm, n, n̥, tʃ, dʒ, tʃ̥, dʒ̥, f, v, ø, ø̥, s, z, ʃ, ʒ, h, r, ʀ, l }) characterized by the aptitude for receiving the "free" tone. C' consists of s, z, tʃ, dʒ, r, ʀ,⁴ and I don't know of any property that all and only these consonants have other than the aptitude for tone bearing.⁵

If C belongs to the complement C'' of C', whose members are never toned, no VR can take place. Therefore, it seems to me a natural assumption to posit that, all vowels being basically toned (and surfacing as such), all consonants are basically toneless and only a subset C' of them may surface toned (as result of VR).

2. Tone Shifting in CV Words

In the monosyllabic pattern C₁³ 6 which is the preferred word pattern in Lendu, VR may apply provided the rightmost consonant belongs to C'. Whenever the VR process takes place, tone shifts leftwards onto the adjacent C' consonant.

Consider the following:

- | | | | | |
|-----|-----------------------|-------------------|-----|--------------|
| (3) | sʰ | or | ʃ | 'to shoot' |
| | tʃé | or | tʃ̥ | 'underneath' |
| | krò | or | kr̥ | 'to cut' |
| | sí (northern variant) | ś (standard form) | | 'skin' |

The examples in (3) support the hypothesis in (4).

³More details about Lendu tone system and tone processes can be found in Trifković (1977, forthcoming).

⁴Underscore indicates added articulatory features (here: affrication).

⁵I do not use the feature [syllabic] to characterize C' because in Lendu consonant "syllabicity" would merely mean "sometimes tone bearing" (i.e. derived tonological aptitude).

⁶More precisely, the preferred word type is CV. Occasionally also CCV occurs. Quite exceptionally, I found also CCR.

(4) Vowel Reduction for C'V

$$\begin{array}{ccc} C'V & \rightarrow & C \\ T & & T \end{array}$$

If the adjacent consonant belongs to C'', this process is blocked.

$$(5) \quad \begin{array}{ccc} C''V & \not\rightarrow & *C \\ T & & T \end{array}$$

In fact, no word final C'' are found in the language, whilst toned word final C' frequently occur.

3. Tone Shifting in CVV Words

Lexical formation in Lendu involves suffixation. Consider, for example, the -i, i.e. -V₂, suffixed to CV roots giving morpheme sequences CV+V, i.e. derived V₁V₂ sequences. If C belongs to C', the shift in (6) takes place.

$$(6) \quad \begin{array}{ccc} C'V+i & \rightarrow & C'i \\ T_1T_2 & & T_1T_2 \end{array} \quad , \text{ i.e. } \quad \begin{array}{ccc} C'V+V & \rightarrow & C'V \\ T_1T_2 & & T_1T_2 \end{array}$$

Examples are seen in (7).

$$(7) \quad \begin{array}{l} s\dot{s} + i \rightarrow \dot{s}i \\ r\dot{t} + i \rightarrow \dot{r}i \end{array} \quad \begin{array}{l} \text{'variety of grass'} \\ \text{'ghost'}$$

If C belongs to C'', no VR takes place and both vowels are retained.

$$(8) \quad \begin{array}{ccc} C''V+i & & , \text{ i.e. } \\ T_1T_2 & & C''V_1V_2 \\ & & T_1T_2 \end{array}$$

Examples are seen in (9).

$$(9) \quad \begin{array}{l} t\dot{j}\dot{d}i \not\rightarrow *t\dot{j}i \\ n\dot{o}i \not\rightarrow *n\dot{o}i \end{array} \quad \begin{array}{l} \text{'bees'} \\ \text{'woman slave'}$$

In fact, this is the history of derived CV₁V₂ word pattern in Lendu.

The obvious generalization is: when a CV morpheme final vowel drops, the tone shifts leftwards onto the adjacent C (see (4) and (6)). If the adjacent C belongs to C'', i.e. cannot receive it, VR is blocked (see (5) and (8)).

Now let us consider another process in which underlying $\begin{array}{c} CVV \\ TT \end{array}$ (instead of derived ones as in (8) above) are involved. This underlying pattern happens

to be the surface pattern presently exhibited by the northern variant of the language. Compare:

(10)	Northern variant	Standard language	
	ɲà	ɲà	'hippo'
	kíè	ké	'man'
	bàò	bò	'raining season'
	bàí	bí	'moon'
	ʔjàú	ʔjǔ	'mouse'

A systematic relation between Northern and Standard forms is revealed which could be captured either by (11) below or by assuming that both forms are derived from a common source. Even if this were the case, I don't see why (11) should be excluded as an intermediate stage.

$$(11) \quad C''V_1V_2 \quad \rightarrow \quad \begin{array}{c} C''V_2 \\ \swarrow \quad \searrow \\ T_2 \quad T_2 \end{array}$$

This relation holds with C'VV forms as well:

(12)	tʂòò	tʂò	not	*tʂò	'mouth'
	rìè	rè	not	*rè	'bird'
	sùú	sǔ	not	*sù	'slaver'

The formula in (13) is thus parallel to that in (11).

$$(13) \quad C'V_1V_2 \quad \rightarrow \quad \begin{array}{c} C'V_2 \\ \swarrow \quad \searrow \\ T_1 \quad T_2 \end{array} \quad \text{not} \quad *C'V_2 \\ T_1T_2 \quad \quad \quad \quad T_1T_2$$

Therefore, independently of the subcategorization of C, in basic vocalic sequences we can posit:

$$(14) \quad \text{Vowel Reduction for } CV_1V_2 \\ CV_1V_2 \quad \rightarrow \quad \begin{array}{c} CV_2 \\ \swarrow \quad \searrow \\ T_1 \quad T_2 \end{array} \\ T_1T_2$$

This process deletes V_1 and the tone shifts rightwards onto the adjacent morpheme-mate V_2 even if the adjacent C could receive it by leftward shift. Rightward shift being preferred (whenever possible), in order for (6) to be derivable instead of (13) we have to suppose that either tone shift is blocked across morpheme boundaries or that it takes place before V_2 is suffixed.

4. Conclusion

In Lendu, vowels can be deleted provided their tone can be preserved by shift. The condition under which tone can be shifted is statable as follows:

- a. on adjacent segments
 - b. within morpheme boundaries
 - c. preferably onto following vowel
 - d. alternatively, onto preceding consonant, provided it belongs to C'
- In short, VR may be stated as in (15).

$$(15) \text{ Vowel Reduction (VR)}$$

$$V \rightarrow \emptyset / \left\{ \begin{array}{l} \#C_1^3 \text{ --- } V+ \\ \#C_0^2 C' \text{ --- } + \end{array} \right\}$$

If neither rightward nor leftward tone shift is possible, VR is blocked. This tone preserving condition on VR is tentatively translated in terms of phonological context in (15).

Reference to C' being necessary, the question arises whether C' is a natural class in phonology. I don't know the answer.

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