

SPEAKING BACKWARDS IN BAKWIRI<sup>1</sup>

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1. Introduction

During the last few years word games have become very popular among linguists and, in fact, now have a literature of their own. Conklin [1956], Haas [1957] [1969], Burling [1970] and Sherzer [1970] give us an idea of what manipulations can be used in such games.

In this paper I shall present a word game played by young Bakwiri speakers on the southern slopes of Mount Cameroun.<sup>2</sup> This word game consists basically of taking the last syllable of a word and transposing it before the first one. I will confine my illustrations to bisyllabic words; what this means is that the second syllable is placed before the first as seen in (1).<sup>3</sup>

(1) mɔ́zɔ́ 'viper' ==> zɔ́mɔ́

While the description of this word game is interesting in itself, I should like to address myself to the theoretical implications of this process of syllable transposing. In order to do so I shall first look at the status of nasalization, glottal stops and glides in Bakwiri and, then, turn to issues relevant to the prosodic features of vowel length and tones. Finally, I will attempt to define the level of psychological

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<sup>2</sup>Bakwiri belongs to the Duala Group (Guthrie's A.22).

<sup>3</sup>In this study, the sign ==> represents the transformation operated by the word game.

reality of such a word game and also mention the relevance of created word games as a way of gaining insight into phonological systems.

## 2. Segmental Phenomena

2.1. Nasalization. In Bakwiri, nasalization occurs as a phonological process but the conditioning environment is quite restricted. It is true that we have a phonetic nasalization when a vowel is followed by a nasal but the degree of nasalization is much greater when the vowel is followed by a nasal + consonant cluster as shown in (2). This cluster nasal and consonant is one phonemic unit in Bakwiri when the consonant is a voiced stop (otherwise this cluster cannot occur).

- (2a) kóm<sup>h</sup>bà 'to take care' but kómà 'to pick up' not \*kóm<sup>h</sup>à  
 (2b) kón<sup>h</sup>dí 'rice' but lí<sup>h</sup>nà 'name' not \*lí<sup>h</sup>nà  
 (2c) zán<sup>h</sup>gō 'father' but ú<sup>h</sup>wà 'to pierce' not \*ú<sup>h</sup>wà

By using the word game we can create or suppress the correct environment and consequently create or suppress the nasalization as shown in (3).

- (3a) m<sup>h</sup>bèzà 'young man' ==> zám<sup>h</sup>bè (with nasalization of the vowel a)<sup>4</sup>  
 (3b) kóm<sup>h</sup>bà 'to take care' ==> m<sup>h</sup>bákò (with denasalization of the vowel o)

If, as opposed to a cluster nasal and consonant as we saw in the previous examples, the invented environment is a nasal, nasalization does not occur (or at least to a much lesser degree) as in (4)

- (4) m<sup>h</sup>kò 'plantain' ==> kòmò but not \*k<sup>h</sup>òmò

This restriction can be explained by perceptual reasons.<sup>4</sup> In the case of cluster nasal and consonant the soft palate has to be closed faster and more efficiently to allow the realization of the consonant; in order to keep the nasal perceptible, it should consequently open earlier and faster, leading to a heavier nasalization of the preceding vowel in this

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<sup>4</sup>See Appendix.

case (as opposed to the case of the sequence VNV where the soft palate has plenty of time to reach its closed position after the nasal has been realized).

2.2. Glottal Stop. In Bakwiri, as in German for instance, glottal stop occurs only before a vowel in word initial position as shown in (5)

(5) /ìkʷá/ 'salt' ==> [ʔìkʷá]

This glottal stop is perceived with difficulty in initial position but it becomes obvious when the syllables are reversed in the word game.

(6) ʔìkʷá ==> kʷàʔí

The presence of the glottal stop is not due to a sequential constraint against vowel sequences in the language since there are words as in (7) which permit such vowel sequences.

(7) màìdžá 'blood'

What this shows is the psychological reality (i.e. the awareness speakers have) of the initial glottal stop; the reason why the glottal stop is transposed with the vowel is to prevent the loss of a syllable. If the vowel were moved to the end without the glottal stop, the resulting unacceptable game form in (8) would reduce the word to only one syllable.

(8) ìkʷá ==> \*kʷáí

Thus, the glottal stop provides one more piece of evidence that the unit moved by the word game is the syllable.

2.3. Glides. One of the problems in the analysis of Bakwiri is establishing whether forms as in (9) are to be analyzed with an intervocalic glide or not.

- |      |             |          |      |
|------|-------------|----------|------|
| (9a) | 'stone'     | lìyé or  | líé  |
| (9b) | 'excrement' | lówá or  | lóá  |
| (9c) | 'small'     | tèyí or  | tèí  |
| (9d) | 'village'   | mbówà or | mbóà |

The word game provides the criterion for setting up underlying forms as seen in the left column of (10) and (11). After the game has operated some forms have an initial glide as shown in (10).

(10a) líyé ==> yèlí

(10b) lówá ==> wáló

On the other hand, some forms are unable to undergo the game as in (11) presumably because they have no underlying glide and therefore consist of only one syllable.

(11a) tǎí ==> ∅

(11b) m̂bóà ==> ∅

### 3. Suprasegmental Phenomena

3.1. Vowel Length. If we look at (12) we can see that when a word has a long vowel, which I prefer to call a "double" vowel, the length is not transposed with the syllable but rather stays in the same place.

(12a) lùùŋǎ 'stomach' ==> ŋǎàlú

(12b) zǎéyà 'burn' ==> yáázǎ

If we call S1 the first syllable and S2 the second syllable, the generalization of this transformation can be written as in (13).

(13)  $\left[ \begin{array}{c} S1 \\ + \text{length} \end{array} \right] \left[ \begin{array}{c} S2 \\ - \text{length} \end{array} \right] \longrightarrow \left[ \begin{array}{c} S2 \\ + \text{length} \end{array} \right] \left[ \begin{array}{c} S1 \\ - \text{length} \end{array} \right]$

From the examples presented in (12) it can be argued that there is a constraint which does not allow a double vowel in word final position. If we look at (14) we can see that all combinations are possible and therefore that this argument does not hold.

(14a)  $\begin{array}{cc} \underline{zè} & \underline{zè} \\ 1 & 2 \end{array}$  'earth' ==>  $\begin{array}{cc} \underline{zè} & \underline{zè} \\ 2 & 1 \end{array}$

(14b)  $\begin{matrix} \text{ʔéé} & \text{zé} \\ \underline{1} & \underline{2} \end{matrix}$  'bone'  $\implies$   $\begin{matrix} \text{zèè} & \text{ʔé} \\ \underline{2} & \underline{1} \end{matrix}$  not  $\begin{matrix} * \text{zè} & \text{ʔéé} \\ \underline{2} & \underline{1} \end{matrix}$

(14c)  $\begin{matrix} \text{ʔé} & \text{zèè} \\ \underline{1} & \underline{2} \end{matrix}$  'it is not'  $\implies$   $\begin{matrix} \text{zè} & \text{ʔéè} \\ \underline{2} & \underline{1} \end{matrix}$  not  $\begin{matrix} * \text{zèé} & \text{ʔè} \\ \underline{2} & \underline{1} \end{matrix}$

In (14b) the length of the syllable is not moved when the two syllables are reversed. The same phenomena occurs in (14c) where the length of the second syllable stays at its initial position after the transformation. In both cases (14b and 14c) the length of rhythmic pattern does not change when the syllables are reversed by the game. We can now generalize as in (15)

(15)  $\begin{bmatrix} \text{S1} \\ \alpha \text{ length} \end{bmatrix} \begin{bmatrix} \text{S2} \\ \beta \text{ length} \end{bmatrix} \longrightarrow \begin{bmatrix} \text{S2} \\ \alpha \text{ length} \end{bmatrix} \begin{bmatrix} \text{S1} \\ \beta \text{ length} \end{bmatrix}$

The "double" vowel can also be formed by two different vowels. Then, the native speaker is sometimes unable to apply the word game rules, but in other cases he can give the expected form as in (16)

(16)  $\text{liòβá}$  'door'  $\implies$   $\beta\grave{a}\grave{a}|\acute{o}$

The problems encountered by the native speaker in applying the word game rules in this case can have two origins. Either it can be a difficulty in replacing a sequence of two different vowels  $V_1V_2$  by a sequence of two identical vowels  $V_3V_3$  (in case of a word having the structure  $C_1V_1V_2C_2V_3$ ) or, to me, it seems more likely the speaker feels he is violating the length pattern by putting a double vowel in a position where there was a single vowel before the transformation. It seems that the native speaker is unable to reduce a sequence  $V_1V_2$  when  $V_1$  differs from  $V_2$  in the same way he does when  $V_1 = V_2$ .

All these data seem to suggest that, in Bakwiri, the length pattern is stored with the lexical item and consequently is not dependent on the segment to which it is originally assigned. The same kind of evidence is found with respect to tone.

3.2. Tone. Basically Bakwiri has two contrastive tones, high and low (cf. Hombert [forthcoming a]). As seen in the left hand column of (17) and (18), these two tones combine freely to create four tone classes of bisyllabic words, respectively: Low-Low, High-High, Low-High, High-Low. In these examples an important observation is that the tone pattern for a given lexical item is not affected by the displacement of the first syllable as seen in the right hand column of (17) and (18).

(17a) mɔ̀kɔ̀ 'plantain' ==> kɔ̀mɔ̀

(17b) kʷéíí 'death' ==> ííkʷé

(18a) mɔ̀kɔ̀ 'one person' ==> kɔ̀mɔ̀ NOT \*kɔ̀mɔ̀

(18b) kʷéíí 'falling' ==> ííkʷè NOT \*ííkʷé

Thus if the tone pattern is Low-High as in (18a) it stays Low-High; if it is High-Low as in (18b), it stays High-Low after the first and second syllables change their position. Even with words longer than bisyllabics where the initial syllable should move, the predicting rules are more complex. The tone pattern is identical before and after the transformation.

As I suggested earlier for the length pattern, the tone pattern seems to be stored with the lexical item, that is, without a particular tone being attached to a particular segment and, in our case, not even to a particular syllable.

However, while these data suggest that some provision should be made in phonological theory to capture the native speaker's knowledge of length and tone pattern, they are not in themselves conclusive.

It is interesting to note that in the Thai word game reported by Haas (1969) just the reverse is found. As seen in (19), this Thai word game<sup>5</sup> consists of interchanging the final parts of two successive syllables:

(19) k[ón̂] j[àj] 'big bottom' ==> [kàjjón̂]

<sup>5</sup> In the same paper Mary Haas also describes a Burmese word game where tone and vowel length are also moved with the segment, for instance:

'fire place' mí bòw ==> mòw bí

Then, in this example the cluster ( $\overset{\wedge}{on}$ ) of the first syllable has changed position with the cluster ( $\overset{\wedge}{aj}$ ) of the second syllable. What is important here is, in this case, the tones change with the transposed segments suggesting that in Thai tones may be best analyzed as a segmental feature on syllabic segments (cf. Leben [1973]). In fact, one of the hotly debated issues on the status of tone is whether tone should be represented as a segmental feature or as a suprasegmental feature (see Wang [1967], Woo [1969], Leben [1971, 1973]).

I would like to suggest that word games can provide important insight into this controversy. However, while one might be tempted to conclude that tone is a feature of word in Bakwiri but of vowel in Thai, there is one important problem which must be faced before the data from word games can be accepted as conclusive. This is the fact that the Thai word game is considerably different than the Bakwiri word game. In Bakwiri I have argued that the syllable is the unit that is transposed; in Thai, on the other hand, segments are transposed. Perhaps the different fundamental properties reported above can be attributed entirely to the nature of the game and not to the nature of the tonal representation in these two languages. In other words, we are in the presence of two sets of parameters: one set is language specific, the other set is word game specific. Determining which set is responsible for the observed tonal properties is a problem which must be resolved before any definite conclusion can be drawn from the data I have presented.

#### 4. Conclusion

It is obvious that we need more extensive studies of word games; languages which are known to have such games should be investigated from the perspective of gaining insight into question of phonological theory and, where word games do not exist, they should be created experimentally by the linguist. One such experiment which could conceivably resolve the problem mentioned above would be to introduce the Thai word game

to Bakwiri speakers.<sup>6</sup>

Of course, it may turn out that a language is, by its linguistic structure, more likely to have a word game of one kind rather than another (cf. Hombert [forthcoming b]).

Thus, in a language where words are monosyllabic, it might be less likely to find full interchanging syllables since a full syllable is a full word, and this word game would turn into a syntactic game rather than a morphologic one. Finally, pursuing this line of thought, if tone is a segmental feature in a language, that language may be more prone to a segment-switching game rather than a syllable-switching game - a language where tone is a supersegmental feature may have a preference for a syllable-switching game. All these conjectures can and should be subjected to empirical investigations by means of experimentation.

By way of conclusion, I would like to emphasize that this study is based on only one informant, and as Sherzer (1970) shows in his Cuna word game, variations among native speakers are also linguistically very interesting. Nevertheless, I think that this empirical study provides a tremendous amount of linguistic information; in particular about the psychological reality of the syllable, about a rather unusual conditioning factor for nasalization. It also provides an easy way to detect the existence of glides and most important of all suggest that, at least in this language, the tone pattern and the length pattern are stored with the lexical item and are not attached to a particular segment.

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<sup>6</sup>Since the presentation of this paper, I taught the Thai word game to my informant, using bisyllabic words with identical tones on both syllables to illustrate the rules (interchanging only vowels) for instance:

'young man'      m̂bèzà ⇒ m̂bàzè

Then I asked her to perform on words where the tones were not identical on both syllables - we got the expected outputs both for tone pattern and length pattern retentions.

'stomach'      lùùḡá ⇒ l'ààḡú

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## APPENDIX

The following illustration shows the timing of soft palate movements during VNV and VNCV sequences.

