SPEAKING BACKWARDS IN BAKWIRI[1]

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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.[2] 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).[3]

(1)   mɔ̀zɔ́   'viper' ==⟩ zɔ́mɔ̀

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

[2]Bakwiri belongs to the Duala Group (Guthrie's A.22).

[3]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)   kómbà   'to take care'   but kómà   'to pick up'   not   *kómà

(2b)   kóndí   'rice'   but línà   'name'   not   *línà

(2c)   zángō   'father'   but úŋʷà   'to pierce'   not   *úŋʷà

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)   mbèzà 'young man'   ==⟹   zàmbé   (with nasalization of the vowel a)[4]

(3b)   kómbà 'to take care' ==⟹   mbákò   (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)   mòkò 'plantain' ==⟹   kòmò   but not *kòmò

This restriction can be explained by perceptual reasons.[4] 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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[4]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)   màìdʐá '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 ==⟹ *kʷàí

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   lìé
(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) lìyé   ==⇒   yèlí

(10b) lówá   ==⇒   wáló

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

(11a) téí   ==⇒   ∅

(11b) mbóà   ==⇒   ∅

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) lùùŋgá   'stomach'   ==⇒   ŋgàà lú

(12b) zééyà   'burn'   ==⇒   yáázè

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

(13) $\begin{bmatrix} S1 \\ + \text{length} \end{bmatrix} \begin{bmatrix} S2 \\ - \text{length} \end{bmatrix} \longrightarrow \begin{bmatrix} S2 \\ + \text{length} \end{bmatrix} \begin{bmatrix} S1 \\ - \text{length} \end{bmatrix}$

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) ʔè zé   'earth'   ==⇒   zè ʔé
       1 2   2 1

(14b) ʔèè zé   'bone'   ⟹   zèè ʔé   not   *zè ʔéé
      1   2   2   1   2   1

(14c) ʔè zèè   'it is not'   ⟹   ze ʔèè   not   *zéé ʔè
      1   2   2   1   2   1

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

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) líòβá 'door'   ⟹   βàà líó

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 $V_1 V_2$ by a sequence of two identical vowels $V_3 V_3$ (in case of a word having the structure $C_1 V_1 V_2 C_2 V_3$) 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 $V_1 V_2$ 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 <u>not</u> dependent on the segment to which it is originally assigned. The same kind of evidence is found with respect to tone.

3.2. <u>Tone</u>. 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) kʷélí 'death' ⟹ líkʷé

(18a) mɔ̀kɔ́ 'one person' ⟹ kɔ̀mɔ́ NOT *kɔ́mɔ̀

(18b) kʷélì 'falling' ⟹ líkʷè NOT *lìkʷé

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[5] consists of interchanging the final parts of two successive syllables:

(19) k[ôn] j[àj] 'big bottom' ⟹ [kàjjôn]

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[5] 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 (on̂) of the first syllable has changed
position with the cluster (àj) 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 dif-
ferent fundamental properties reported above can be attributed entirely
to the nature of the game and not to the nature of the tonal represen-
tation 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.[6]

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 impirical 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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[6]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'   m͡bèzà ⟹ m͡bàzè

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'   lùùŋ͡gá ⟹ láàŋ͡gú

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APPENDIX

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