

## THE TENTH VOWEL IN PROTO-KWA

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Volume XIII, No. 1, of our journal, JWAL, (1983) is extraordinarily interesting. No less than five of the articles, including my own, are concerned with a set of closely related problems in the phonology of what we could tentatively call "Proto-Guinea Coast" during the transition period while we rearrange "Kwa." I continue for the moment to use "Kwa" as a deictic rather than as a genetic category as I explain on pp. 146-7. I was further pleased to see from Gerhardt's article on Eggon (spoken directly north of Idomoid) that we are indeed there in a different province. Finally, it is good to hear once again from our old friend, Andre Wilson.

Capo leads off with a stimulating and provocative article challenging the various attempts to reconstruct nine- or ten- vowel systems with cross-height vowel harmony for Proto-Kwa and for such entities as Proto-Gbe, Proto-Gã-Adangme, and Proto-Yoruboid. Stewart makes a spirited and very informative rejoinder in which he goes into the whole problem of the vowels of Proto-Tano-Congo. I shall not enter into this large and technical question, but shall content myself with some peripheral remarks that I hope will be helpful.

In the first place, almost the entire discussion so far has been based on articulatory phonetics, only a few but crucial parts of which have had the benefit of laboratory work of anything like the standard set by Ladefoged (1964). In the second place, as Stewart says (p. 29), we are beginning to get acoustic instrumental work that basically substantiates what we have learned from articulatory phonetics, but with startling qualifications. He cites (p. 29) Painter's findings (1973) that in Akan [e] and [o] are higher than [i] and [u]. Donwa, cited in Elugbe (1983, p. 80), finds the same thing to be true of Isoko, an Edoid language. As can be seen from Faraclas's report on pp. 136-7 of my article, in Igede the corresponding vowels are very close to each other respectively, but [i] and [u] are both a bit higher than their counterparts, [e] and [o]. As for Stewart's view that the shwa, which I write as "a" for typographical reasons, is higher than [ɛ] and [ɔ], this is certainly not the case in Igede, where Faraclas finds that shwa (the tenth vowel) is the lowest vowel of all. Mona Lindaw Webb's unpublished results with a different informant similarly show ten clear vowels, but are different in detail, and I am not the one to interpret them. In one case she shows the shwa as starting higher than [ɛ] and [ɔ], but descending sharply to a low level. She comments that this may be the effect of the low tone on that syllable following a high-mid. Her sampling of Igede speech was recorded in Ibadan and processed in California.

Regarding Yoruba, I will let Stewart argue with Oyelaran. Bamgboṣe's point (1967) is that in the Ekiti (and Ifaki) dialects [i] and [i̯] never contrast and likewise [u] and [u̯]. Their occurrence is always predictable from other vowels in the utterance. The corresponding nasal vowels, however, do contrast phonemically. Fresco (1970), pp. 35, 53) makes the point that in the dialects of Yoruba where nine oral vowels occur phonetically, with cross-height vowel-harmony, [i̯] and [u̯] are found only in the prefixes, pronouns, and auxiliaries and never in the stem. The preverbal elements therefore harmonize with the stem and are determined by it; they do not have an independent existence. I found this to be true in Ekiti in a long historical text (Armstrong 1969). Yoruba generally has partial harmony, even in the dialects with seven oral vowels. I pointed this out in my review of Abraham's Dictionary of Modern Yoruba in 1959, but the editor of Africa, in his wisdom, cut this out of what was already a controversial review. I had already noticed e-o, e-ɔ-a harmony in Central Idoma in 1951, but did not publish it. From what Ladefoged says (1964, p. 38), Jack Berry may have been the first to publish an account of the CHVH system, in Nzima and Ahanta, in 1955. Ladefoged's diagrams of Igbo vowels were the first to show the pharyngeal principle of V-harmony. But the "new orthography" kept him from seeing it at that time.

The point of this paper is that [i̯] and [u̯] do indeed occur phonemically in the root or stem syllables of some of the languages of the Kwa group. We can begin with the fact that Ladefoged (1964b) found that Èbìrà, the Igbira dialect of Okene, has a harmonizing nine-vowel system, and all nine vowels, including /i/ and /u/ do occur in the verb stems and in the stem-syllables of the nouns as well as in the prefixes. The same is true of Ega, in the Ivory Coast, as described by Bole-Richard (1983, pp. 55ff). Stewart says the same thing of Akan in his Table 10, p. 26, although his forms are reconstructions.

Stewart's article is concerned with "Proto-Tano-Congo" (= "Kwa-Congo", "Congo" = Proto-Bantu in effect.) It seems to me that this definition of the problem is unbalanced and that Proto-Bantu cannot represent "Congo" in such phrases as "Volta-Congo." We seem still to be judging Proto-Bantu by demographic and geographic rather than by strictly linguistic criteria. As Stewart himself said in 1970 (I quote from memory), Proto-Volta-Comoe (=Akan) is as old an entity as Proto-Bantu. Proto-Tano-Jukunoid, Proto-Tano-Benue-Congo, or even Proto-Tano-Idomoid would imply more balanced comparisons. Proto-Bantoid is older than Proto-Bantu, if not so well studied. Using it as the second member would enable us to consider the Tiv six-vowel system:

i u  
e a o  
a

with its front-unrounded vs. back-rounded opposition. In Tiv we do not have the expanded-unexpanded contrast; and there is no vowel harmony. Proto-Tano-Benue-Congo would enable us to consider the thirteen-vowel system of Ngwe, described by Ladefoged and Dunstan (Ladefoged 1964, pp. 33-36) and the ten-vowel system of the Cross-River language, Kohomono, reported by Tom Cook (see Lindau 1975, p. 17) and the Central Delta languages reported by Williamson (1984, p. 4), that is, Abua, Oduā, Kugbo, and Ogbia.

Lindau (1975) has done a careful pioneer study of the West African harmony systems--both acoustic and ciné-radiological. She sums up a great deal of work by saying (p. 17), "Over the years many features have been proposed for African vowel harmony: tense, raised height, breathy, covered--just to mention a few. There is now substantial evidence that the main phonetic control of the vowel harmony is the movement of the tongue root (Lindau et al. 1972; Retard 1973; Painter 1973). The tongue root mechanism is mostly combined with vertical larynx displacements, and sometimes with movements of the back pharyngeal wall. Thus it seems that what a speaker tries to accomplish is variation of the pharyngeal size." I think it is time we give up the "tense" feature in favor of Lindau's "[1-Expanded] = wide pharynx vowels, (1975, pp. 20, 78-9). Welmers (1973, p. 35) says of the description of Igbo *i-e-o-u* as "tense" and *i-a-o-u* as "lax;" "Precisely the opposite is the case, perceptible muscular tension is involved in narrowing the pharyngeal passage." Stewart once said that the retracted vowels of Akan sound "strangled."

Lindau says (p. 17), "The maximal system is 5 + 5 vowels, but these ten-vowel systems are relatively rare. They have been reported for some Kwa languages, namely Sele (Allen 1974), Abe (Stewart 1971), Igede (Bergman 1971), and Engenni (Thimas 1969); for some Benue-Congo languages, namely Ogbia (Williamson 1972), Abuan (Wolff 1969), and Kohumono (Cook 1969); and for some Gur languages: Kasem, Sisala, Mianka (Bendor-Samuel 1971). Among Nilo-Saharan languages ten-vowel systems are found in Kalenjin, Päkot, Acholi, Lotuko (Antell et al. 1974). It is therefore by no means unreasonable to posit ten-vowel systems for Proto-Kwa, Proto-Gur, and even (Doneux 1975) Proto-Atlantic; a view that is strengthened by the ten-vowel system with rigid cross-height harmony of Diola-Fogny (Sapir 1965, 4-6). So far as I can tell, Faraclas's acoustic study of Igede (in Armstrong 1983, pp. 136-7) is the first published acoustic chart of such a ten-vowel system. Lindau made a similar study of Igede with a different informant in 1978, but I think it is still not published. It is Bergman who first reported that Igede has a ten-vowel system (1968; 1971).

In JWAL XIII, Elugbe gives us a detailed reconstruction of a ten-vowel system for Proto-Edoid, together with data on Dẹgema,

which still retains a live ten-vowel system. He shows that in Degema and Proto-Edoid *i*, *u*, and *a* all occur in stem syllables. There is an interesting cognate reflex between Degema and Igede in his list: *i-va* 'two', Igede *ānyēwā* 'twins' [*ānyī* 'children'/'*ē-wā* 'two', only in this form; otherwise 'two' is *Imīlyè*,] (cf. Idoma *Èpà* 'two'.)

The Igede material helps us address ourselves to Stewart's view (1983, p. 31) that *a* is "sub-phonemic." He does not even include it in Proto-Tano-Congo (p. 31), presumably because it is not in Proto-Banut. (It may be worth recalling Ladefoged's (1964) ciné-radiological study of the speech of Dunstan's Ngwe informant, where it is shown that the thirteen vowels of Ngwe (western Cameroun) differ greatly and systematically as regards laryngeal expansion. Dunstan gives no evidence of Ngwe having a harmonic system, however.) We assume that Stewart intends that everything between Volta-Comoe and Bantu be covered historically by "Proto-Tano-Congo."

The following Igede forms will show that the shwa is indeed phonemic in Igede. (Note again that I write shwa as *a* for typographical reasons.) Some of the words are from Bergman, But all have been cross-checked with my own informant, Mr. O. Idoko. Since all the pronouns are harmonic, it is only by a spelling convention that I do not write them as prefixes.

*īlā* 'fire', *ī lā* 'they/own, possess, have', *okīla* 'other'  
*ō bā* 'he stopped (transitive)', *o ba* 'he followed' (low-mid tone)  
*īwā* 'ten', *iwa* ~ *īwa* 'they' (harmonic alternants),  
                   *īwā* 'mane, ram's mane'  
*ida* 'crying', *īdā* 'oil', *ī dā* 'they shot (arrow)'  
*ūgā/pl ēgā* 'locust-bean tree', *ūgā* 'hospitality'  
*yā* 'say, speak; transplant', *ō yā* 'he spoke'  
*ya* 'be proud, show off; take in hand for some purpose, use',  
           *ō ya rì* 'He has eaten it'

It is evident that a number of Niger-Congo languages exist in which the often reconstructed ten-vowel system still is in use. They tend to be located in positions peripheral to the main groups of their close relatives and to be both isolated and conservative in other ways as well. Igede and Degema, reported in JWAL XIII No. 1, both have rigid cross-height vowel harmony based on the expanded vs. nonexpanded contrast found elsewhere. In Igede I take the nonexpanded vowels to be the unmarked set, since they make up 86 percent of the vowels in text. I should be surprised to find that they are actually retracted. In Lindau's formalism (1975, p. 20), it is rather a case of 1-expanded vs. 0-expanded, or "wide pharynx-neutral pharynx." The shwa is weakening in Igede precisely because it is the most highly marked vowel of the set and because of its harmonically asymmetrical relation to /a/.

Lindau's many diagrams, showing the acoustic and articulatory features of these harmonizing systems, as well as Faraclas's acoustic chart and diagram of Igede show that this whole phenomenon is very subtle and complicated, and that we are just beginning to get the measure of it. For example, in the Igbo eight-vowel system, the fact that /a/ normally alternates with /e/ harmonically rather than with /o/ suggests to me that Proto-Igboid may once have had a ten-vowel system and that the shwa went to /e/ in the course of reduction. The same /a/ ~ /e/ alternation holds for the nine-vowel Igbira vowel system (Ladefoged 1971, p. 78, and 1964b, p. 30).

Ladefoged comments (1971, p. 74), "On the whole, the traditional phonetic description of vowels cannot be more simply interpreted in acoustic terms than in articulatory terms." It is certainly true that articulatory phonetics as practiced by a trained and experienced observer is the most portable technique we have, and it has amply proved its usefulness. But when we consider that the child learns its language acoustically, and that on the basis of that method of transmission we are theorizing about linguistic relationships covering thousands of years and thousands of miles, we may decide that we need all the help we can get from acoustic phonetics.

I should like to close with a scientific-artistic anecdote. One September day in a year that might have been 1962 I visited Earl Stevick in Washington D.C. while he was having a Yoruba lesson with a dental student at Howard University, Mr. Arẹmu, who later became my dentist in Ibadan. They were struggling over Stevick's pronunciation of *gbé* 'live, inhabit'. Stevick's very American vocalization was what we would now recognize as being with a narrow pharynx and a raised larynx. The resultant vowel was what Chomsky and Halle (1968, pp. 315-16) call "covered," with "the particular dull quality" that they mention. Stevick would say, "*gbé*" and Arẹmu would say, "Not *pé* [kpé], *gbé*!" Stevick would answer, "I said '*gbé*,'" and Arẹmu would reply, "No, not *pé*, *gbé*!" This went on for several interchanges, and I do not know if they ever did sort it out. This was before--just before--Ladefoged's ciné-radiological study of the Igbo vowel system which revealed in principle what was happening in such cases. But I had been studying singing intensively in New York, and it was obvious to me that Arẹmu's vocalization of [e] had the beautifully musically rounded, resonant, Italianate *bel canto* quality that I was spending good money to acquire. The effect was emphasized by the voiced plosive [gb], whose action in increasing the pharyngeal space has been described by Perkell (1965, cited in Chomsky and Halle 1968, p. 325). Stevick's covered [e] was perceived by Arẹmu as being preceded by a voiceless stop, [kp], orthographically *pé* in Yoruba, (cf Lindau 133-5).

I suggest that the voiced stop merely helps out the pharyngeal expansion of the vowel, which in Yoruba is of the expanded set in any case. I suggest further that these expanded vowels have been a

great help to African singing. Being portable, they may lie behind the talent for singing that American black people have been famous for for many generations. Consider the well-known Negro spiritual,

"Deep...river, My home is over Jordan....!"

Deep...river, Lord! I'm goin' to cross over into Camp Ground!"

What a wonderful succession of resonant vowels for a baritone or contralto voice!

(Pike's report on his ethnographic exploration of a music studio (1943, pp. 17-21) remains to this day the best phonetician's account of singing. His reminder of the complexity of the problem of managing the numerous variables involved is still apposite. But who has risen to his challenge to do a phonetic study of the very human activity of singing?)

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