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# A THEORY OF THE ORIGIN OF AKAN VOWEL HARMONY

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Akan (Twi-Fante), the dominant indigenous language of Ghana, is one of the many African languages which have vowel harmony based on the so-called 'lax/tense' distinction: as a general rule words consisting of a one-morpheme stem with or without prefixes have either 'lax' or 'tense' vowels throughout, e.g. *nŃm* "drink", *nŃm* "suck", *wbenŃm* "you will drink", *wubenŃm* "you will suck". In recent years Ladefoged (1964), myself (1966) and Pike (1967) have expressed the view that the so-called 'lax/tense' distinction, in these African languages at least, is not so much a matter of laxness *vs.* tenseness as of unadvanced *vs.* advanced position of the tongue root. In this paper I consider an Akan problem which raises a further general question, namely that of the relationship of the so-called 'lax/tense' distinction to the voiceless/voiced distinction.

There is reason to suspect that Akan vowel harmony has its origin in the voiceless/voiced distinction. As I have shown elsewhere (1967), the consonant system has the distinctions *p/t/k/kw*, voiceless/voiced, and occlusive/continuant, and the vowel system the distinctions *i/u/e/o/a*, oral/nasal, and root-unadvanced/root-advanced ('lax/tense'), but there is no voiceless/voiced or occlusive/continuant distinction in final consonants and this, taken together with other facts, suggests a theory on the following lines: (i) at one time final consonants had the full range of consonantal distinctions and there was no root-unadvanced/root-advanced ('lax/tense') or oral/nasal distinction anywhere; (ii) *either* final voiced consonants *or* final voiceless consonants became spontaneously root-advanced ('tense'), while final occlusive consonants became spontaneously nasal; (iii) vowels became root-advanced ('tense') before root-advanced ('tense') consonants and nasal before nasal consonants; and (iv) a number of changes eroded the voiceless/voiced and occlusive/continuant distinctions in final position (although the nasal occlusive *n* and the oral continuant *r* survived as conditioned variants of the final alveolar consonant after nasal and oral vowels respectively). This suggests in turn that the vowel harmony came about as a result of the root-advancing ('tenseness') which emerged spontaneously in certain final consonants spreading not only to the preceding vowel but to the entire preceding part of the word.

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The problem is whether the root-advancing ('tenseness') is more likely to have arisen in the voiceless or in the voiced consonants. Jakobsonian phonologists would presumably consider it more likely to have arisen in the voiceless consonants as they identify 'tenseness' in vowels with the 'fortis' feature in consonants and the 'fortis' and voiceless features commonly occur together. Their identification of the 'tense' and 'fortis' features, however, is derived from their view of 'tenseness' as actual tenseness, whereas in the light of recent work on African languages, as has been seen, it seems to be not so much tenseness as advancing of the tongue root. Now tongue root advancing is more likely to have arisen in the voiced than in the voiceless consonants, since in voiced consonants the throat cavity is sometimes enlarged to allow a greater flow of air for the vibration of the vocal cords (see Hudgins and Stetson 1935) and tongue root advancing is one of the ways of enlarging it.

The plausibility of this refinement of the theory can be demonstrated by instances in present-day languages of root-advanced ('tense') vowels occurring to the exclusion of root-unadvanced ('lax') vowels in the vicinity of voiced consonants. There is in fact one instance in Akan itself; in southern dialects the root-advanced ('tense') vowels *i*, *u*, *e*, *o* generally occur to the exclusion of their root-unadvanced ('lax') counterparts *ɪ*, *ʊ*, *ɛ*, *ɔ* after 'compact' voiced stops, e.g. *jɪmɪ* "be stupid", *gu* "cast down", *je* "accept", *jɛɛŋ* "think", *gorɔ̃* "play", *jɔ̃o* "become cool".

There is another instance in my own idiolect of the Aberdeenshire subdialect of the Scottish dialect of English. Word-final unstressed '-ie', which frequently constitutes a diminutive suffix, has at least the two variants *ɛ*, *i*. It is invariably *i* after a stressed syllable with *i*, *u*, *æi*, *ɔu*, e.g. 'jeelie' *jili* "jelly", 'hoosie' *husi* "house", 'wife' *wɛɪfi* "woman", 'dowie' *dɔui* "sad"; cf. 'lassie' *luse* "girl", 'berrie' *berɛ* "berry", 'bonnie' *bɔnɛ* "beautiful". It is also invariably *i* after a voiced stop or fricative, e.g. 'laddie' *ladi*, 'bedie' *bɛdi*, 'froggie' *frɔgi*; compare the last example with 'frockie' *frɔke*.

Yet another instance is provided by standard English pairs such as 'breath' *brɛθ*, 'breathe' *brið*. It is true that here the 'tenseness' of the vowel and the voicing of the final consonant are not historically related, but the similarity of "laxness" and 'tenseness' to voicelessness and voicing respectively may well have been a factor favouring the survival of the vowel alternation.

#### REFERENCES

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#### DISCUSSION

*Brend:*

I trust it was clear from my paper that the spectrographic measurements I made did seem to confirm your postulation of tongue-front position for the one set of vowels. The expected acoustic result, i.e. the lowering of the first formant, did regularly occur.

*Carnochan:*

It is interesting to suggest that different positions of the root of the tongue are associated with the tense-lax distinction sometimes described for vowel-harmony. I welcome this for Igbo, as it would provide a physiological similarity of articulation of the vowels in successive syllables, for which the tongue positions are otherwise quite different, thus offering additional phonetic exponents for the R/L prosodic elements of structure already established.