

PITCH, TONE AND INTONATION IN IGBO

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The Igbo language consists of a number of dialects spoken by some four million Africans in the Eastern Region of Nigeria. The dialect of the Igbos I have worked with is the Central dialect, which is partly characterised phonologically by two systems of syllable prosodies, h/\bar{h} , [h and non-h], on the one hand, and n/\bar{n} [n and non-n] on the other. I have given an account of these systems in "The Phonology of an Igbo Speaker", in the *Bulletin of the School of Oriental and African Studies*, 1948. I mention the two systems here only to explain the use of the letter h and the tilde in the reading transcription of the examples below,¹ the h marking aspirated syllables, and the tilde nasalised syllables.

Hitherto Professor Ida Ward and other writers on Igbo and indeed on other West African tone languages, have used the words "pitch" and "tone" as roughly equivalent. I find this is a disadvantage, and suggest that it would be preferable to distinguish "pitch" and "tone" from one another, restricting "pitch", perhaps to a phonetic description of the utterance, and "tone" to a classificatory and phonological usage. The pitches are many, but the tones are few.

Up to the present, members of word classes in Igbo have been divided into tonal groups, and, particularly in the case of the verbs, have been given tonal labels; High Tone Verbs, and Low Tone Verbs. I find this also a disadvantage, as in certain forms, both high tone and low tone verbs are perceived on the same low pitch of the voice, and in certain other forms, the prefixes and suffixes of low tone verbs are perceived on a high pitch of the voice. If the verbs are given labels such as Group 1 and Group 2, this will obviate such difficult statements as in a particular grammatical structure "the high tone verb becomes low".

Changes in the pitch of the voice in connected speech in Igbo have up to now been described in terms of 'tone patterns', and a beginning has been made by Ward to relate the tone pattern and the grammar of the piece. I can see, however, little difference between the obligatory tone patterns of $\text{ɔ } \bar{h}\bar{\text{ɔ}}\bar{\text{r}}\bar{\text{o}} \text{ } \bar{e}\bar{k}\bar{e}$ and $\text{ya } \bar{a}\bar{h}\bar{\text{o}} \text{ } \bar{e}\bar{k}\bar{e}$ (verbal clause, Tense 1(a) and (b) respectively), "he saw a python", and the obligatory intonations of "he went on and on" and "he went on talking"; I would draw attention to the change from a lower to a higher pitch of the voice in going from "went" to

¹ My researches have been largely based on an analysis of a number of Folk Tales, written down and recorded by Mr. J. O. Iroaganachi.

"on" in the first example, and the change from a higher to a lower pitch in the second. I would like to regard these different changes of intonation as among the exponents of the two different grammatical structures, and I see good reason for treating the pitch changes in the connected Igbo clauses similarly, under the heading of intonation.

My researches in Igbo have aimed at carrying the study of such correspondences between the intonation of the piece and the grammatical structure further, and the results so far obtained suggest that the pitch phenomena can be dealt with more satisfactorily by a polysystemic approach than by trying to state one tonal system for the dialect as a whole. The provision of tone marks for a reading transcription of Igbo is, of course, of some concern, but is a matter separate from a linguistic analysis, and is a practical rather than a theoretical problem. Similar remarks apply to the provision of vowel and consonant letters of a reading transcription. In my view, it is not possible for such a transcription to reflect very closely a linguistic analysis. The latter can only be presented for very small pieces at any one time, showing the system of alternances set up for each place in structure in turn.

I will consider one such system, that of the juncture of Nominal Phrase and Verbal Phrase in the Verbal Clause, Tense 1(a). The examples are given at A below:

A. *Verbal Clause* Tense 1, (a)

- | | |
|--------------------------------------|---|
| 1. ; otù wāāyè, mètàrà, otù wá. | (...there was a certain woman who had a daughter) |
| 2. otù wòkhó^, wèrè, ototò ndiiyòm. | (A certain man had many wives) |
| 3. wāāyè nnekwú, vùrù, ọzò; | (The chief wife led the way) |
| 4. ; ọwò, dhàrà, nà àlà ọmò anòmànò. | (famine fell on the land of the animals) |
| 5. ; wāāyè à, gàrà; | (the woman went...) |
| 6. ;nà ọmò anòmànò niilè, yèrè, iwu; | (that all the animals had made a law) |

My analysis recognises on formal grounds Sentence, Clause, Phrase and Word, as technical terms, and the punctuative signs in the examples show the limits of these units. The point marks the sentence boundary, the semi-colon that of the clause, the comma that of the phrase, and the space that of the word. These signs are not here used as ordinary punctuation marks, and they do not imply any pause, although in reading the continuous texts from which these pieces are selected, my informant usually paused at the full stops. In each example, the word or words up to the first comma constitute a nominal phrase, and the following word is the verbal phrase. The verbal phrase is pronounced on a low pitch of the voice, and the voice comes to a low pitch during the last syllable of the nominal piece. This is achieved in examples 1, 4, and 5 with the whole syllable being perceived on a low pitch, and in examples 2, 3, and 6 by the voice falling in pitch from a higher to a low pitch. It may be pointed out that this juncture feature is not restricted to any particular class of word; in example 5 the word *a* is a deictic word; in example 6, the word *niile* is an adjective; and in the other examples the last word before the first comma is a noun.

Further examples could be given where the nominal phrase ended in a pronoun, in a numeral, and, in cases of extended nominal phrases, in a verb. I interpret this feature as the juncture of nominal phrase and verbal phrase, and it would appear to offer formal criteria for the relation of subject and verb in clauses designated Tense 1(a). In this place in structure, there is an alternance of two terms, the phonetic exponents of which are 1) a falling pitch of the voice (see fig. 1), and 2) a low level pitch of the voice. If one now turns to the verb word, each of the syllables is perceived on a low pitch of the voice, so that for these places in structure there is no alternance at all. There is just one tonal term, low. This illustrates in a very simple form the desirability of considering the system for each place in structure separately, and is what I understand by a polysystemic approach. It may be asked is not 'low' the same in both systems. Phonologically, it cannot be so, for the value of a term in a system is related to the number of terms in that system. The value of "low" in a system of two terms is therefore different from the value of "low" in a one-term system. If the question means however, is the phonetic exponent of "low" the same for the different elements of structure, the answer is that this may well be so.

I will now turn to the juncture of the nominal phrase and verbal phrase in the verbal clause, Tense 1 (b). Examples are given at B.

B. *Verbal Clause* Tense 1,(b)

- | | |
|--|---|
| 1. wāāyè, àh̃ø yà | (The woman saw him) |
| 2. wāāyè à, àh̃ø yà. | (This woman saw him) |
| 3. wā yà, àh̃ø yà. | (Her daughter saw her) |
| 4. okhòngòlo, ágyø. | (Praying Mantis refused) |
| 5. wāāyè, àh̃ø yà. | (The woman cooked it) |
| 6. wā yà, àh̃ø yà. | (Her daughter cooked it) |
| 7. wāāyè mma dí, àbhà, na ime ọlǒ dí ya. | (The favourite wife went into her husband's room) |
| 8. wāāyè à, abhà, na ime ọlǒ dí ya. | (The woman went into her husband's room) |
| 9. ẹyi, àdhàa, na ime ọṽø. | (The elephant fell into the pit) |
| 10. wāāyè ãh̃ø, adhàa, na ime Imò. | (The woman fell into the Imo river) |

In the first six examples the verbs are Group 1 verbs (old High Tone verbs), and in the last four examples the verbs are Group 2 verbs (old Low Tone Verbs). All the verbs have an open vowel prefix in this form, and each group subdivides into those verbs requiring no suffix, as in examples one to four, and seven and eight; and those requiring a suffix, as in examples five and six, and nine and ten. The suffix is an open vowel, and its phonetic form is prosodically related to the rounding or lack of rounding, and to the front, central or back quality of the verb stem syllable.

The pitch features of the juncture can also be stated as two sub-systems, one for the Group 1 verbs, and the other for the Group 2 verbs. In the former case, where the

last syllable of the nominal phrase is on a low pitch of the voice, the verbal prefix is also on a low pitch. Where the last syllable of the nominal phrase is on a high pitch of the voice, the verbal prefix is also on a high pitch, but the two high pitches are not the same; the second is a step down from the first. This step down relationship of succeeding high tone syllables is indicated by a vertical mark on the vowel letter, as in example 3. Once again, the juncture exhibits a two term system, low and step down. It may be asked why this step down relationship cannot be regarded as a mid tone. Consideration of example 3 may supply the answer. In the pronunciation of this sentence there are indeed three steps down, and sentences can be found with even more. This would account for Ward's saying that she did not know how many tonal levels there were in Igbo. I consider them all to be phonologically high tone syllables, as a study of Igbo sentences of similar grammatical structure reveals a very limited tonal system for each place. Whether successive high tone syllables are phonetically level in pitch, or whether the second is on a lower pitch than the first is regularly related to the grammar of the piece and to the phonological sub-classification of the items concerned, the sub-classification being determined by the tonal behaviour of the items considered over as wide a set of contexts as necessary.

With regard to the clauses where the verb is a member of Group 2, it is found that where the last syllable of the nominal phrase is high, then the prefix of the verb is low, and where the last syllable of the nominal phrase is low, then the verbal prefix is high. In the section B examples, as with those in section A, there is no restriction as to the class of word that occurs finally in the nominal phrase; the tonal relationship is one of nominal phrase and verbal phrase, and not a relationship of words. In example 1, the final word of the nominal phrase is a noun, in example 2, a deictic word, and in example 3 a pronoun.

Perhaps I may say a little about the nominal phrases which include the deictic word *a*. A comparison of B 1 and B 2 shows that the intonation of *wāayē* is different in these two examples. This deictic word requires a high tone syllable immediately preceding it, and I consider this high tone as one of the exponents of the deictic piece. There is another deictic word *āñò*, illustrated in example B 10, which has a two term tonal alternance for the preceding syllable, high, and low, and the two words *a* and *āñò* have to be treated separately, and must certainly be subclassified differently from one another, and perhaps ought to be regarded as members of different word classes, altogether.

My final set of examples is given below, at C.

It will be noted that the differences between the pairs of Igbo sentences are related to different Tenses, but that the English translations make use of the same tense in English. The difference in the usage of the two forms in Igbo is as follows. No (b) forms are found as the first verb forms in any text; the Folk tales, for instance, never begin with a (b) form, while many of them do with an (a) form. The (a) forms, however, are not restricted to the first verb place, but are found elsewhere as well.

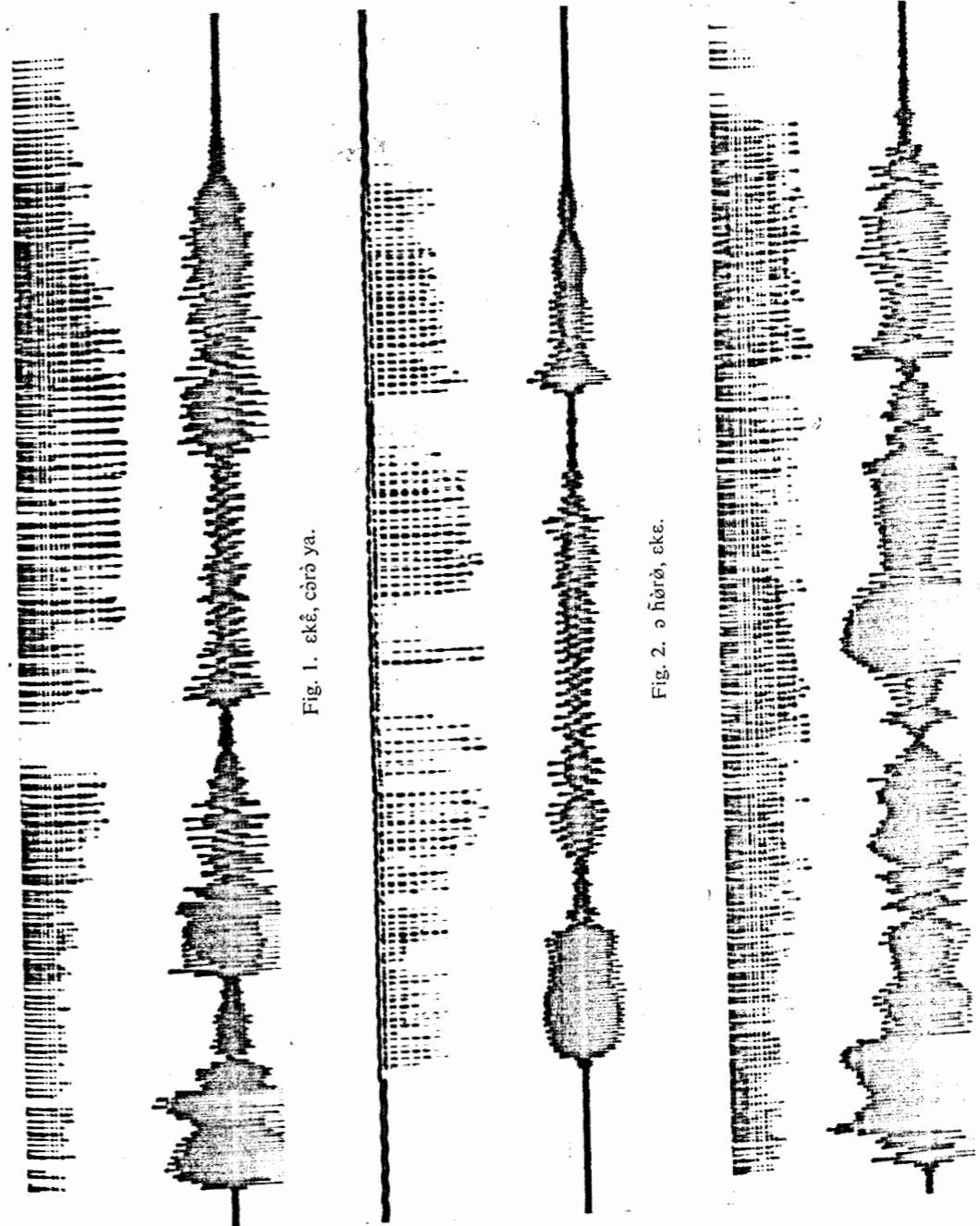


Fig. 1. eké, còrò ya.

Fig. 2. ò hùrò, eke.

Fig. 3. ya áhò, eké.

The writer is considering whether it would not indeed be preferable to relate differences between (a) and (b) forms to a 'dimension' other than 'Tense'.

C. *A Comparison of Verbal Clause, Tense 1(a) and Tense 1(b).*

Tense 1 (a)		Tense 1 (b)	
1. ɔ̃ ñòrò, ɛkɛ.	(Now, he saw a python)	ya áñò, ɛkɛ.	(He saw a python)
2. ɔ̃ ñòrò, àkhwa.	(Now, he saw some eggs)	ya áñò, àkhwa.	(He saw some eggs)
3. ɔ̃ ñòrò, mbè.	(Now, he saw a tortoise)	ya áhò, mbè.	(He saw a tortoise)
4. ɔ̃ ñòrò, èwò.	(Now, he saw a monkey)	ya áhò, èwò.	(He saw a monkey)

The examples at C are all third person singular, and all include a final nominal phrase, consisting in each case of a final two syllable noun. It will be seen that in each pair of sentences, the verb forms are different, and that the pronominal forms differ too. In addition, the tone marks indicate that the intonations of the verbal phrases are different. In the verbal phrases alone, there are then, a number of different exponents related to the different tense forms. Further to this, the tonal junction with the nominal phrase is different from one form to the other, and for the first two pairs of examples the tonal relations between the two syllables of the nominal phrases differ. The use of the tone marks in the reading transcription indicates where the differences are found.

Figures 1, 2, and 3 show the record of the reaction of a pitch meter to three spoken Igbo examples. The apparatus used was developed by Mr. H. J. F. Adam, during the time he was Chief Technician at the School of Oriental and African Studies. The pitch meter is the middle stage of a three stage set up, 1) the amplifier to feed in the signal, 2) the pitch meter, and 3) a double beam oscilloscope for the visual display of the analysed signal and simultaneously of the oscillogram of the signal. The signal is fed to a voice cone in the pitch meter, to the front surface of which is connected a flexible bar holding a series of pretuned reeds, responding to a frequency of 50 to 300 cycles per second. In front a second bar is mounted, holding a series of silver contact blades, so as to allow only one vibrating reed to make contact at a time, and thus having the effect of a switch for this one circuit. From the contacts a series of leads is taken to a series of equal resistors mounted in four banks in absolute series. As the contacts are connected at varying points of equal steps, it follows that if a voltage is applied across these banks, dependent on where the contact meets this total resistance, a varying voltage will now be available to be taken to the oscilloscope, having the effect of deflecting the beam a given amount according to the voltage produced. The difficulty of interference from strong harmonics has been largely eliminated by making the lower frequencies give greater deflection of the beam than the higher ones. Thus in the figures, the longer the vertical black line, the lower was the fundamental frequency of the voice. The horizontal white lines arise from dots placed on the face of the oscilloscope to act as a scale. The pitch

meter can be set with all the reeds available, in which case the distance the beam can be deflected is spread over the whole frequency range that the meter can deal with; or it can be set to deal only with one of a small number of octaves, when the deflection available is shared between the frequencies of a smaller band width. Blank spaces in Figure 2, corresponding to wave forms on the oscillogram, are due to the fact that the fundamental of the voice was below the lowest frequency the pitch meter could respond to at the particular setting.

The example spoken for Figure 1, *εkê, h̃òrò ya*, is a Nominal Clause, with a Nominal Phrase, *εkê*, and a Verbal Phrase, *h̃òrò ya*, Tense 1, (a), like those dealt with at A above (p. 000). I would draw attention to the increase in the length of the vertical lines of the tonogram, corresponding to a fall in the fundamental of the voice during the pronunciation of the *-kê* syllable. In this particular utterance, the vocal cords scarcely stopped vibrating during the velar closure. The fall in pitch is related to the junction of Nominal Phrase (Subject) and Verbal Phrase, in Verbal Clause Tense 1(a), and is discussed above (See p. 000).

Figures 2 and 3 are related to the discussion under C above, and attention is drawn to that part of the tonogram corresponding in each case to the pronunciation of *εkê*, the Nominal Phrase following the Verbal Phrase in Verbal Clause, Tense 1 (a) and 1 (b) respectively. In Figure 2, decreasing length of the vertical lines towards the end of the tonogram corresponds to the rise in the pitch of the voice which one hears; the second syllable of *εkê* is higher in pitch than the first. In Figure 3, the slightly increased length of the vertical lines towards the end of the tonogram corresponds to the step down in pitch that is perceived in the pronunciation as the speaker passes from the first to the second syllable of *εkê*.

The tonograms obtained with the help of the pitch meter largely confirm the impressions of perception by listening, but presenting greater detail. The very large number of different pitch features are schematised into a small number of tones. These are related regularly to the grammatical structure of the piece on the one hand, and to the phonological classification of the items on the other. The grammar is not deduced from the intonation, but there are regular sets of correspondences to state, linking two levels of linguistic analysis, grammar and phonetics by means of a third level, phonology.

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