The Phonosemantics of the Open Front Unrounded Vowel /a/ in Standard Igbo and Ogbunike Igbo Variety

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Abstract: Among the phonemes of the Igbo language is the open front unrounded vowel /a/. It is here argued that it has certain phonosemantic connotations when uttered alone at different pitches in standard Igbo and Ogbunike Igbo variety. We further examine the role tone plays in revealing the phonosemantic associations of this vowel. The primary data were supplied by the two authors as Igbo native speakers, combined with the first author's intuitive knowledge of Ogbunike variety. The secondary data were obtained from Swadesh 100 Wordlist, the authors-adapted Wordlist of 141 words, and other existing literature. Three other competent Igbo native speakers were orally interviewed and their judgements helped for the analysis. A qualitative research approach was adopted for the analysis, revealing that, in addition to the earlier findings in the literature that the vowel has phonosemantic connotations of VIGOROUS ACTIVITY, STRONG, BRIGHT, and EXTENDED, it connotes BRAVERY, DOMINEERING, INTIMIDATING, VERSATILITY, and SPREADING. Finally, it could also be confirmed that, through additional changes in pitch, /a/ also connotes SURPRISE in Standard Igbo and Ogbunike Igbo Variety, but ATTENTION in Ogbunike Igbo Variety.

Keywords: African linguistics; language and communication; language education; tone languages; phonology; semantics

1. Introduction

The [+open, -back, -round] vowel /a/ is a *phoneme* in the Igbo language and many other of the world's languages.[1] In Igbo, as in many other languages, this phoneme combines with other phonemes in conformity with the language's phonotactic constraints to form meaningful words. For example, the combination of /a/, /k/ and /a/ gives the word *áká /áká/* 'hand', just as different combinations of /a/, /ị/, /b/ give rise to *bịà /bìá/* 'come' or *bịà /bìà/* 'came'[2] and *ịbà /íbà/* 'to enter'/'fever/malaria'. The customary view in linguistics is that individual phonemes do not possess but only distinguish between meanings (e.g., Dennis, 2013; Koerner, 1993). This view, however, has been challenged by theories such as *phonosemantics* (e.g. Maduka-Durunze, 1998), which claim that the vocal organs of articulation are often used to accomplish the same goal as that achieved with the hands, eyes, facial muscles in gesturing to express meanings in a non-arbitrary way (see Section 2). If true, this implies that the phoneme /a/, just as other phonemes in language can, in addition to meaning-distinguishing functions, also *express* meaning, albeit connotative rather than referential meaning. The main claim of this paper is that this is the case for /a/ in Igbo. Sometimes, other connotative meanings accompanying the vowel clearly manifest with its production at different pitches. This phenomenon further underscores the importance of tone in the Igbo language.

The phonosemantics of /a/ in Standard Igbo (subsequently SI, the variety of the language that is generally accepted for use in schools, administration, and literature) and Ogbunike Igbo variety, subsequently OIV, a variety spoken in Ọmambala Onitsha Inland West Igbo Cluster (Uwaezuoke, 2019b), is the target of our investigation.[3]

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[1] The phoneme, a familiar construct from the structuralist linguistics of the early 20th century, is any meaning-distinguishing sound in a language (e.g., Yule, 2010, p. 42).

[2] The tone of the word final /a/ brings about the different meanings of the lexical item *bịa*.

[3] Ọmambala covers Oyi, Ayamelum, Anambra East and Anambra West Local Government Areas of Anambra State, Nigeria. Ogbunike speech community shares some linguistic similarities with neighbouring communities,

The rest of the paper is organized as follows. Section 2 provides relevant theoretical background, followed by a discussion of the employed methodology in Section 3. Data presentation and analysis are undertaken in Section 4, while Section 5 provides summary and conclusions.

2. Theoretical background

2.1. Phonosemantics

The term *phonosemantics* is coined from two independent words: phonology and semantics (Butler, 2017, p. 5), and denotes connections between sound and meaning in a word below the level of the morpheme (Michael, 1958). The notion is controversial, and researchers such as Dennis (2013) and Koerner (1993) contend that an individual phoneme cannot have any meaning on its own. Nuckolls (1999), for example, proposes that "the 'oil' in *roil*, *boil*, and *oil* could be analysed as a phonestheme meaning 'something liquid'". But as Agrawal (2020 p. 454) shows, this hypothesis is falsified by words *foil*, *coil*, *moil*, *soil* and *toil*. The whole concept, of course, challenges the fundamental principle of "the arbitrariness of the linguistic sign" (Saussure [1916] 2011), which influenced the definition of phonology such as "the scientific study of the arbitrary vocal symbols used in human speech and the patterns into which these symbols enter to produce intelligent, meaningful utterances" (Oyebade, 2018, p. 2).

Researchers into phonosemantics and related notions such as "sound symbolism" (see Zlatev 2013) have tried to use empirical evidence to justify the idea that (some) sounds nevertheless may have inherent or "natural" meanings (Agrawal 2020, p. 453; Butler 2017, p. 5, 9; Maduka-Durunze, 1998, p. 44; Magnus, 2000; Varenina, 2018, p. 511). Noting evidence from a few studies conducted in different languages (Grosvald & Corina, 2012, p. 77-87), Varenina (2018) examines nine groups of English phoneme combinations and concludes that they have some specific common meanings, implying that the relationship between the phonemes and what they connote is non-arbitrary.

Many studies have also been carried out on the inherent meaning of definite sound segments. For example, Ohala (1984) argues that the sound /i/ (ee), a close-vowel, indicates SMALL as can be seen in English *tiny*, French *petit*, German *kleine*, and Japanese *chiisai*; while, the more open vowels tend to be associated with large size, as in the English *large*, French *grand*, German *groß*, and Japanese *ookii*. Also, through their examination of phonemic commonalities worldwide, Blasi, Wichmann, Hammarström, Stadler, and Christiansen (2016) suggest that some phones (individual sounds) are indeed traditionally associated with specific ideas, irrespective of the language or language family. They support their argument with the concept BREAST, which they discover to be associated with the bilabial nasal /m/, perhaps echoing "the mouth configuration of suckling babies or...the sounds feeding babies produce" (Butler, 2017, p. 6, 9-10).

Maduka-Durunze (1998) argues that words that robustly contain sound symbolic elements are of three kinds. First, there are *ideophones*, described by Voeltz and Kilian-Hatz (2001, p. 3) as vivid representation of ideas in sound, whereby such ideas could refer to states, events, emotion, and colour, and exemplified by Uchechukwu (2007, p. 27) in Igbo data *chọ́rị́ chọ́rị́* 'small and numerous', *nị́gánị́gá* 'slim'/'emaciated'. Closely related to this, or perhaps even a subtype, is *onomatopoeia,* defined as sound-imitative words or *ǹsìnụ̀ụ̀dà* (lit. 'come from sound') and in Ọkaasụsụ Igbo (1986 p. 90) translated as 'sound of sound' (Egenti, 2024, p. 139), e.g. *wóò wóò* 'sound of a barking dog'; and many more terms in different languages (Maduka-Durunze, 1998, p. 6). Finally, there are *phonoaesthemic words* which contain segments that are sound symbolic and cluster both in phonological form and in meaning, e.g. *fl-* words such as *fly*, *flit*, etc that suggest light airborne motion

such as Ogidi, Oze, Nkwelle-Ezunaka, Umunya and Umudioka, notwithstanding that it does not belong to the same Local Government Area with Ogidi and Umudioka.

and *cl-* cluster like in *click*, *clatter*, *clap*, etc that suggest light, hard and sharp noise (Maduka-Durunze, 1998 p. 25).

Maduka-Durunze proposes that ideophones and onomatopoeia differ in that linguistic sounds mimic only non-linguistic, environmental sounds in onomatopoeia; while in ideophones, linguistic sounds mimic other non-sound impressions such as touch, taste, sight, and so on. But as mentioned, the two may be seen as subtypes, and adopt Wescott's (1977) terminology and regard ideophones as *phenomime* ideophones (often symmetrical in shape, e.g. *kịrịkịrị́, nịgịnịgị́*), and onomatopoeia as *phonomime* ideophones (often non-symmetrical in shape, e.g. *kpókóróḿ, gbíḿ*) (Maduka-Durunze, 1998, p. 55).

Agrawal (2020) proposes specific universal "psychological meanings" to all individual phonemes in the International Phonetic Alphabet (IPA) system and suggests how they are used for expressive purposes. These semantic features were applied to 245 words of the English, French and German languages along with some additional evidence supporting the validity of the allocation. The psychological meanings, or connotations, of front vowels, most relevant for the present study, identified by Agrawal are shown in Table 1.

Table 1. Agrawal's (2020, p. 467) Psychological Meanings of IPA Front Vowels

S/n	Vowel	Psychological Meaning
1.	/ɪ/	VISIBLY EXISTING EXISTENT; VISIBLE (INWARDS; IN VIEW; WITHOUT FORCE) EXISTENT; NOTICEABLE EXISTENT; EVIDENT; MANIFEST.
2.	/i/	EXPOSING EXISTENT; OUTFLOW; EXECUTING; OUT EXPOSING.
3.	/e/	INDICATED/INDICATIVE/SPECIFIC EXISTENT; STRAIGHT; EXISTENCE OF VISIBLE EXISTENT; DISPLAY; SIGNIFICATIVE EXISTENT.
4.	/ɛ/	VISIBLY AVAILABLE EXISTENT; INDICATIVE EXISTENT.
5.	/æ/	VISIBILITY OF EXISTENT; OUTFLOW OF EXISTENT.
6.	/y/	VISIBLE ACCEPTANCE; AFFIRMATION.
7.	/a/	ENTITY (with a little impression of OUTFLOW); EXISTENCE WITH EXISTENT; EXECUTING EXISTENT; PLACEMENT; DOER.

Maduka-Durunze (1998) presents graphs or matrices of correlations between consonant versus vowel (C_i vs V_m); consonant versus consonant (C_i vs C_m), vowel versus consonant (V_m vs C_m); vowel versus vowel (V_m vs V_f) in a typical ideophonic structure for the form $C_iV_mC_mV_f$ (where $_i$ represents *initial*, $_m$ stands for *medial* and $_f$ refers to *final*) of Igbo ideophones like *sárásárá*, *mụ́rụ́mụ́rụ́*, and *nịgịnịgị́*. The author observes that in these examples the vowels determine the general range of connotative meanings of each ideophone, as shown in (1).

(1) i – DARKNESS
ị – SMALLNESS, SWEETNESS
e – SOFTNESS, SLOW
a – VIGOROUS ACTIVITY
ọ – DRYNESS, COMPACTNESS
o – HOLLOWNESS, MOTION THROUGH
ụ – SURFACE ACTION
u – PEJORATION, HEAVINESS

As shown in (1), /a/ is proposed to connote VIGOROUS ACTIVITY. The vowels that are produced with expanded pharynx suggest LARGENESS in general as well as EMPTINESS, LOOSENESS, and other

general concepts (Maduka-Durunze, 1998, p. 72). We may combine Maduka-Durunze's tabular representation of vowel values in the stative and active modes, and the Igbo vowel harmony (subsequently VH), and represent these as in Table 2, and Figure 1.

Table 2. Igbo Vowels in Stative and Active Modes (Maduka-Durunze, 1998, p. 327)

S/n	Vowel	Stative mode	Active mode
1.	i	DARK; HEAVY, PEJORATIVE	(hiding) MOTION IN
2.	ị	SWEET, SLIM, TIGHT (?)	QUICK, BRIEF, EJECTIVE MOTION
3.	e	SOFT, LIGHT (of weight)	SLOW, SWINGING MOTION (probably along horizontal)
4.	a	STRONG, BRIGHT, EXTENDED	FAST MOTION ACROSS
5.	ọ	DRY, HARD, SHRIVELLED	RETURNING MOTION WITHIN ENCLOSURE (probably along vertical)
6.	o	EMPTY	MOTION THROUGH
7.	ụ	SMOOTH, RELATIVELY SPHERICAL	SLIDING, SURFACE-AGAINST-SURFACE MOTION
8.	u	DARK, LARGE, VERY PEJORATIVE	MOTION WITHIN CIRCUMSCRIBED ENCLOSURE; NOT NECESSARILY SEARCHING

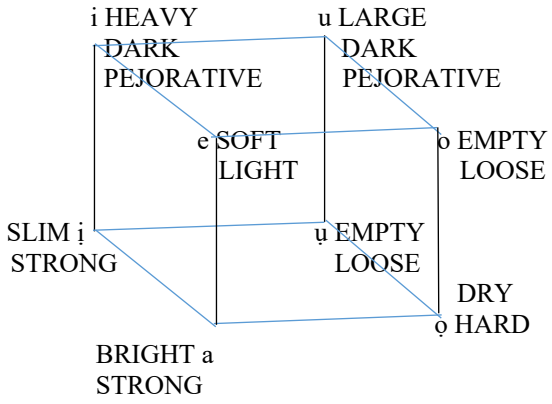


Figure 1. Maduka-Durunze's Igbo VH "phonoaesthetic cube" (adapted from Maduka-Durunze, 1998, p. 328)

One can conclude from the foregoing that the connotative meaning of /a/ in a typical ideophonic structure in (1), which is VIGOROUS ACTIVITY, correlates with STRONG, BRIGHT, and EXTENDED in the stative and active modes in Table 2, row (4) and Figure 1. Also, Agrawal's (2020) "psychological meanings" of /a/ in Table 1, row (7) align with Maduka-Durunze's (1998) attributes for the phoneme. The present investigation can be seen as a contribution to this field of research, focusing on the phonosemantics of the phoneme /a/ in Igbo, with additional attention to the influence of tone on the connotative meanings of the vowel. It is important, at this juncture, to also discuss tone since tone is associated with vowels in tone languages.

2.2. Explication of Tone in Igbo

Tone is a very important feature of the Igbo language, as it distinguishes meaning, both lexical and sentential.[4] Igbo is a *register tone* language (Anagbogu, Mbah & Eme, 2010, p. 136) or a *terraced level tone* language (Emenanjo, 2015, p. 107). Three tones exist in the language: the high tone represented with an acute accent / ˊ/, the low tone represented with a grave accent / ˋ/, and the down stepped tone represented with a macron / ¯/ orthographically or with a down pointing arrow placed before the syllable followed by an acute accent on the vowel of the syllable /↓ˊ/phonemically and phonetically.

Some scholars, including Igwe (1975), argue that Igbo has only the high tone and the low tone as the two basic tones. Their reason for not including the down-stepped tone as a basic tone in Igbo stems from the fact that its place of occurrence in the language is predictable, as it can only occur after a high tone. If their argument concerns what tones can begin a word as the base before the addition of other tones, this is reasonable. However, Uwaezuoke (2019a, p. 6) and Uwaezuoke and Onwudiwe (2022, p. 69-70) contend that any tone that performs the function of differentiating meaning is a basic tone; therefore, since down-stepped tone differentiates meaning in Igbo, it is also a basic tone, as exemplified in (2). It is shown in (2a i & ii) that the final tones of the final 'o' and 'e' vowels, which are down-stepped tone and low tone respectively, bring about meaning difference in the two pairs of lexical items. For (2b i & ii), the difference in the meaning of the two sentences is as a result of the alternation of the down stepped tone and the low tone on the final 'o' vowel of *elo* 'mushroom'/'ideas'.

(2) a (i) *élō* 'mushroom'
élò 'advice'

(ii) *ézē* 'teeth'
ézè 'king'

b. (i) *Ọ́* *kpà/rà* *élò* *ụ̀nyàáhụ̀*
3Sg make/rV Suff. PAST ideas yesterday
'he/she made some suggestions yesterday'

(ii) *Ọ́* *kpà/rà* *élō* *ụ̀nyàáhụ̀*
3Sg harvest/rV Suff. PAST mushroom yesterday
'he/she harvested some mushrooms yesterday'

Notwithstanding being a register tone language, tones sometimes glide in Igbo (see Emenanjo, 2015, p. 110-111, Igwe,1975, p. 97, Ogbonnaya, 1975, p. 109, Uwaezuoke, 2017, p. 73). This is exemplified by Uwaezuoke (2017 p. 73-74) using data from Umuolum Igbo variety, as represented in (3).

(3) a. *nọ́ọ̀ǹá* → [nɔ̂ŋǎ] 'now'
b. *dúùlù* → [dûlù] 'elder'
c. *kàánà* → [kănà̰] 'here'

[4] See Emenanjo (2015 p. 112-138) for details of the functions performed by tone in the Igbo language.

Uwaezuoke explains that the two adjacent identical vowels in (3a–c), which are not of the same pitch, are realized as one sound in speech (that is, phonetically) while maintaining their pitches. This results in gliding tone on the single sound.[5] He also accounts for gliding tone in Igbo using the *Autosegmental Phonology* model of Goldsmith (1976; 1979), as represented in (4), adapted from Uwaezuoke 2017, p. 73-74.

(4) a. Segmental tier: d u l u → d u l u

Tonal tier: H L L → H L L *[dû:lù]* 'elderly person'

b. Segmental tier: k a a n a → k a n a

Tonal tier: L H H → L H H *[kă: nà]* 'now'

In the first column of the illustration in (4a), the first high back vowel, which has a high tone is delinked and deleted without its tone being affected at the tonal tier. Its high tone is rather associated to the second high back vowel with a low tone, as the next tone-bearing unit, through a new association line. This is in line with the Obligatory Contour Principle (OCP) that forbids two identical V-elements from co-occurring at contiguous position. The gliding tone witnessed in the second column is a result of the deletion of the first vowel with its tone associated to the adjacent vowel. The same explanation goes for example (4b). This model is used in Section 4 to explain the implication of tone on the phonosemantic associations of /a/.

Consequently, the importance of tone in tone languages is quite overwhelming (see Emenanjo, 2015, p. 112-128). Tones are not placed indiscriminately as they can appear only on a vowel and a syllabic nasal. This is because vowels bear the peak of prominence, and the fact that syllabic nasals behave like vowels. Figure 2 shows the height for the production of the vowels /æ / and /ə / and their peak of prominence in the English word *parrot*.

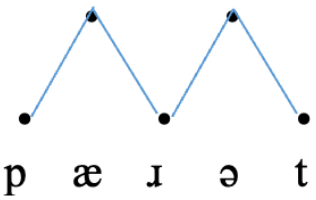


Figure 2. A demonstration of vowels bearing the peak of prominence, adapted from (Davenport & Hannahs, 2010, p. 76)

[5] Mbah and Mbah (2010, p. 119) describe the instances where a glide occurs in tone languages that are more discrete as being a result of orthographic convention that involves graphological elision.

Tones are placed on a vowel and syllabic nasal in a monosyllable involving only a vowel/syllabic nasal (*V/Ṅ)* or a consonant and a vowel (*CV*), as well as on a disyllabic or a multi-syllabic word, e.g. CVCV; VCVCV; ṄCV; ṄCVCV, as shown in (5).

(5) a. (i) *ó* as in *ó* *rì/rì* *ńrí*
3Sg eat/rVPst food
'she/he ate food'

(ii) *ḿ* as in ḿ *gà/rà* *áhị́á*
1Sg go/rVPst market
'I went to the market'

b. (i) *dí* 'husband'
(ii) *jí* 'yam'
(iii) *nwá* 'child' (Emenanjo, 2015, p. 114)

c. (i) *ísí* 'head'
(ii) *ọ̀sá* 'squirrel'
(iii) *àlà* 'land' (Emenanjo, 2015, p. 114)

d. (i) *ákwụ́kwọ́* 'book'
(ii) *ázị̀zá* 'answer'
(iii) *ḿmírī* 'water' (Mbah & Mbah, 2010, p. 120-121)

Examples (5a) and (5b) have monosyllables with only a vowel/syllabic nasal, and monosyllabic words with a consonant and a vowel respectively, while (5c) contains disyllabic words, and (5d) with multisyllabic words.

2.3. Vowel Harmony in Igbo

To analyse the phonosemantics of the vowel /a/ in Igbo, it is also imperative that the place of the vowel in the VH system of Igbo is discussed. The vowels are the second set of the orthographic representation and of the phonemic representation in language apart from the consonants. They are produced without any obstruction in the vocal tract, and described based on the three criteria involved in their production: (1) the height of the tongue (i.e. whether high or low), (2) part of the tongue that is highest in the mouth (i.e. whether front or back), and (3) the shape of the lips (in terms of whether rounded or unrounded) (Roach, 2009, p.15).

There are eight vowels in SI, and they are *a e i ị u ụ o ọ*. The vowel chart of SI is presented in Figure 3. In Igbo VH system, the vowels are neatly grouped into two sets in SI. The first set comprises of the [+ATR] vowels *e, i, u, o* /e i u o/, and the second set is made up of the [-ATR] vowels *a, ị, ụ, ọ* /a ɪ ʊ ɔ/.

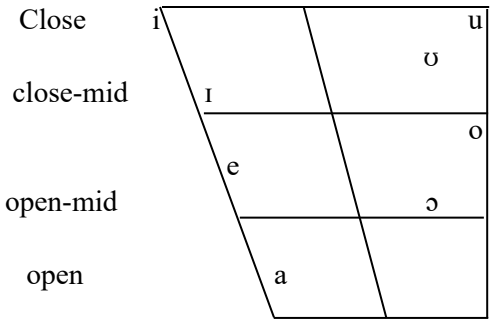


Figure 3. Vowel chart of SI, (Adapted from Nkamigbo and Eme, 2015)

The VH rule of Igbo requires that all the vowels for the formation of a simple word must come from the same group, either from the [+ATR] or the [-ATR], e.g. *ákpụ́* 'cassava', *ímē* 'pregnancy'. The vowel /a/ co-occurs with other vowels in the same group in forming simple words in the language, as illustrated in (6).

(6)	a	i.	*ányá*	*/ą́ná/* 'eyes'
		ii	*ánụ́*	/*ánó*/ 'meat'
		iii.	*àsị́*	/*àsí*/ 'lie'
		iv.	*àtọ́*	/*àtɔ́*/ 'three'
	b.	i.	*áká*	/*áká*/ 'hand'
		ii.	*ụ̀gá*	/*ɔ̀gá*/ 'cheese'
		iii.	*ị̀gbà*	/*ìgbà*/ 'drum'
		iv.	*ọ́kà*	/*ɔ́kà*/ 'maize/corn'

In (6a), /a/ occupies word initial position and co-occurs with each of the vowels of the [-ATR] vowel group, which are in the word final position. For (6b), /a/ is at word final position in simple words that have each of the other vowels of the [-ATR] vowel group at word initial position. The vowel /a/ is referred to as a neutral vowel because it can also co-occur with members of the [+ATR] vowel group (Emenanjo, 2015, p. 74), as seen in (7), (cf. Emenanjo, 2015, p. 74),

(7)	i.	*àdù*	*/àdù/* 'bitter kola'
	ii.	*àkpó*	*/àkpó/* 'roof of the mouth'
	iii.	*àfè*	*/àfè/* 'shirt, gown'
	iv.	*àshì*	*/àʃì/* 'lot, fate'
	v.	*áwélē*	*/áwé↓lé/* 'goodluck, fortune'

There is the ninth vowel *ẹ* /ɛ/ found in some Igbo varieties, which co-occurs with [-ATR] vowels, e.g. *ẹ́ká* 'hand' found in Nsukka Igbo variety. However, there are some exceptions to the rule of VH in Igbo as seen in (8).

(8) i. Expanded verb root: *me* + *tụ* = *mètụ́* 'touch'
du + *ga* → *dùgá* 'accompany'
ii. Compound words, names, foreign words and polysyllabic words:
Ụ̀wà + *ézù* + *òkè* (compound word)
Emeka (name of person)
iii. Borrowed words e.g. *àsháwó* 'prostitute'/'harlot', *àgìdí* 'corn (wrapped) meal'
iv. Metalanguage terms e.g. *ǹjìrìmárá* - features
ḿkpụ́rụ́ókwū - word
édītọ̀ - editor

To summarise, systematic tone and vowel harmony constitute an intrinsic part of the Igbo language. Consequently, it should be expected that these should play some roles in the phonosemantic aspects of the language as well.

3. Methodology

We adopted a qualitative research design for this study, based on the native-language intuitions of the two authors on SI and the First Author's native speaker knowledge of the Ogbunike variety. The questions guiding the research were:

- What is the connotative meaning of the phoneme /a/ in Standard Igbo and Ogbunike Igbo variety?
- What are the phonosemantic associations of /a/ in Standard Igbo and Ogbunike variety?
- What is the effect of tone on the phonosemantic associations of /a/ in Standard Igbo and Ogbunike Igbo variety?

The primary data were supplied by the two authors, while the secondary data were obtained from the Swadesh 100 Wordlist (Emenanjo (2015); Echeruo (2001), see Appendix A). In all, four sets of data were used for the analysis. The first set on the VH system of Igbo was obtained from Emenanjo (2015). The data on disyllabic words that have only the vowel /a/ were obtained from the Swadesh 100 Wordlist and Wordlist of 141 words, adapted by the authors (see Appendix B). These Wordlists are generally considered to be representative of "the basic vocabulary" of different languages, and thus we decided they would be so for a study of the phonosemantic associations of the vowel /a/. The multisyllabic ideophones that have the vowel /a/ in all the environments – initial, medial, and final, were obtained from Echeruo's (2001) Igbo-English Dictionary. The authors provided the fourth set of data, which presents /a/ as produced at different pitches.

As of 2021, the Igbo language had 27 million speakers (Sasu, 2022), and with different varieties (Ikekeọnwụ, 1987; Nwaozuzu, 2017). However, the focus of the study was on SI and OIV. In addition to our own intuitive knowledge of SI, three other native speakers were orally interviewed and their judgements used for the analysis. The intuitive knowledge of the first author as a native speaker of OIV also enhanced the analysis of the Ogbunike data. The data were analysed on this basis, also considering /a/ at different pitches, with the help of the Autosegmental Phonology model (Goldsmith 1976, 1979), briefly described in Section 2.2.

The orthographic tone-marking convention adopted involves explicit marking of all tones whereby the high tone is marked with an acute accent / ˊ/, the low tone with a grave accent / ˋ /, and the down stepped tone with a macron / ¯ /. However, the down-stepped tone is phonemically and phonetically marked with a down pointing arrow before the syllable that bears the tone, followed by an acute accent on the tone-bearing unit [↓′].

4. Results

The vowel /a/ was found to co-occur with the [+ATR] vowels and [-ATR] vowels as shown in (6), (7), and (8) in Section 2.3, and represented again in (9). For clarity, the [+ATR] vowels are *e, i, u, o* /e i u o/, while the [-ATR] vowels are *a, ị, ụ, ọ* /a ɪ ʊ ɔ/.

(9) *ánụ́* */ánʊ́/* 'meat'
àkpó */àkpó/* 'roof of the mouth'
dù + *gá* → *dùgá* 'accompany'

This co-occurrence of the vowel /a/ with the members of its group as well as members of the other group shows how strong it is among the Igbo vowels, spreading beyond the boundary of its own group. This attribute within the system of Igbo phonology harmonizes with both the active and the stative modes of the vowel as presented by Maduka-Durunze (1998): STRONG, BRIGHT, EXTENDED for *Stative*, and FAST MOTION ACROSS for *Active.* Hence, it may be concluded that /a/ connotes VERSATILITY, DOMINEERING. The examples in (10) show some disyllabic words in SI where these connotations of the vowel /a/ can be argued to contribute to their extended, figurative meanings (in small caps in the brackets):

(10) a. i. *ányá* */ạ́ɲá/* 'eyes' (BRIGHT, LIGHT, VISION, FOCUS)
ii. *áká* */áká/* 'hand' (ABILITY)
iii. *áfá* */áfá/* 'divination' (KNOWLEDGE, INSIGHT)
iv. *áhà* */áɦà/* 'name' (IDENTITY)
v. *átá* */átá/* 'a wild grass'/ 'Zanthoxylum gilletii (botanical)' (HARD, STURDY)
vi. *árá* */árá/* 'madness' (WILD, UNCONTROLLABLE, ABNORMAL)
vii. *àlà* */àlà/* 'land'/ 'ground' (CARRIER, PRODUCER)

b. i. *ákwá* */ákwá/* 'cry(ing)' (LOUD)
ii. *àkwá* */àkwá/* 'egg' (REPRODUCER, LIFE)
iii. *àkwà* */àkwà/* 'bed' (REST); 'bridge' (CONNECTOR, LINK)
iv. *ákwà* */ákwà/* 'clothe' (COVERAGE, BEAUTY)

We propose the following tentative generalization for these examples: their meanings are motivated by the connotative meanings of /a/: STRONG, BRIGHT, EXTENDED, VIGOROUS ACTIVITY, VERSATILE, DOMINEERING. The data examples in (10b i-iv) have different meanings as a result of the differences in their tones, in spite of the fact that they contain the same phonemes. Table 3 shows multisyllabic ideophones, whose concrete, ideophonic meanings are induced by the connotative meaning of /a/.

Table 3. The inherent meaning of /a/ and the meanings of some Igbo ideophones

Sound	Ideophone	Sense
/a/	*Àkàtákà*	vibrant; quality of being full of energy
	Ágádágá	huge/large; intimidating quality
	Ábádábá	broad; flat or wide

The VERSATILE and DOMINEERING of /a/ clearly contributes to the meanings of the Igbo ideophones in Table 3. The words all have VCVCVCV syllable structure with /a/ occupying the

initial, medial and final positions. The examples shown in (11) also exemplify the effect of tone on the uttering of /a/ sound on different pitches.

(11) a. *aaaa* /a:/ (lengthened without tones)

b. i. *áààà* /*áààà*/ SURPRISE/PAIN/ANGER
ii. *àáá* /*àáá*/ TRUE? } (Standard Igbo and Ogbunike Igbo)
iii. *áā* /*á*$^{\downarrow}$*á*/ WHY
iv. *àááà* /*àááà*/ SEEKING ATTENTION (Ogbunike Igbo)

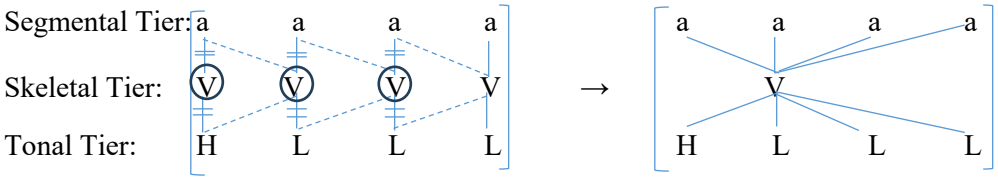
Example (11a) is a production of lengthened /a/, but not at different pitches. The examples in (11b) exhibit different connotative meanings, which are possible with the production of /a/ on different pitches. Thus, in SI as well as OIV, once /a/ is produced on different pitches, it could connote SURPRISE/PAIN/ANGER, TRUE?, WHY, or SEEKING ATTENTION. The idea of a string of /a/ expressing PAIN and ANGER is reported by Varenina (2018, p.510). The connotative meaning of /a/ in (11b i) of SURPRISE/PAIN/ANGER appears to change to ATTENTION SEEKING in OIV in (11b iv) because of the different pitches involved. At the expression of SURPRISE or ATTENTION through uttering the vowel /a/**,** the mouth is spread connoting SPREAD. [6]

Example (11b i) connotes SURPRISE which is an emotion expressed by all human beings when confronted with unexpected stimuli, like being dumbfounded, overwhelmed with fear, raising of eyebrows, eye widening, jaw dropping (Noordewier & van Dijk, 2019, pp. 915–916; Vanhamme, 2003, pp.5-6). ATTENTION SEEKING, on the other hand, is also expressed in many different ways by Igbo speakers through beating the *ògénè* 'gong' or *ékwé* 'wooden drum' (by the town crier early in the morning, late in the evening or at any other time, depending on the reason for seeking people's attention). The same can also be achieved semiotically by banging of one's legs on the ground/floor, clapping of hands, clearing of throat, scratching of the head, etcetera, or verbally by the use of words or the production of certain sounds.

The uttering of /a/ on different pitches seen in (11b i & iv) can be illustrated as in (12 a & b) using the Autosegmental Phonology model.

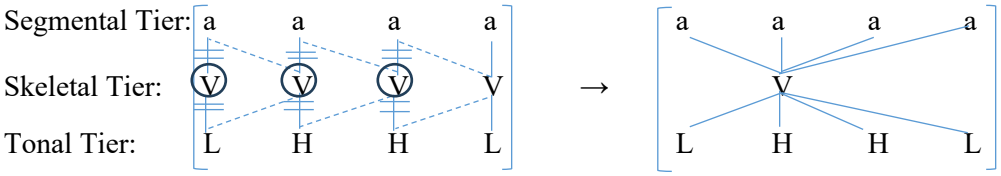
[6] Of course, this is not the only expression of seeking people's attention in the language under study. Others include the use of someone's name, e.g. *Emeka!; Nneka!,* words, like: *ńnē* 'lady/Ma', *ńnà* 'man/Sir', or by producing a long voiceless alveolar fricative sound /*s:/.* Generally, all these modes of seeking/calling attention apply in most Igbo cultural settings, though they vary from community to community.

(12) a. HLLL tone sequence of /a/ for expressing SURPRISE



áààà /áààà/ 'surprises'

b. LHHL tone sequence of /a/ for SEEKING ATTENTION



àááà /àááà/ 'seeking attention'

The analysis in (12a and b) shows that in line with the OCP, the identical vowels /a/ are associated with one V-slot at the skeletal tier as manifest in the second columns of (12a) and (12b). As a V-slot is delinked, its tone docks to the next tone-bearing V-slot. The tones continue to dock to the next tone-bearing unit until only one V-slot remains leading to gliding tone. The same vowel is produced in (12a) and (12b), but at different pitches. This is supported by Mbah and Mbah's (2010 p. 119) claim that gliding tone is a result of orthographic convention involving graphological elision of vowel(s), and Emenanjo's (2015 p.111) argument that it should be considered as two different pitch levels on two identical vowels. The analysis shows that the Autosegmental Phonology model accounts for the phonosemantic connotations of /a/ when produced at different pitches.

5. Summary and conclusions

In this article, we have investigated the phonosemantics of the open front unrounded vowel /a/ in the SI and Ogbunike varieties of the Igbo language. On the basis of a qualitative research design, using our own and other native speakers' intuitions, and a representative set of examples, we have argued that, apart from the phonotactic combination of /a/ with other phonemes to produce meaningful utterances, the phoneme has some connotative meanings in these varieties. In addition to the findings of Maduka-Durunze (1998), suggesting that /a/ has inherent connotative meanings of VIGOROUS ACTIVITY, STRONG, BRIGHT, and EXTENDED, we propose that it also connotes DOMINEERING and VERSATILITY, as well as SURPRISE/PAIN/ANGER in both varieties, and SEEKING ATTENTION in the Ogbunike variety. This was achieved through pitch variation requiring a HLLL tone sequence for SURPRISE and a LHHL tone sequence for SEEKING ATTENTION. We also suggest a connotation of SPREAD in the production of /a/ for SURPRISE or SEEKING ATTENTION.

The study focused on the phonosemantic associations of /a/ in Igbo as a tone language without extending it to any other tone language(s). Also, the size of the data samples used for our analysis may not have been enough for a study of this nature, coupled with the fact that the study was qualitative in nature without including a quantitative method. Future studies with larger samples and

application of quantitative methods, therefore, should be done to support or question the findings of this preliminary investigation.

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Appendix A

The Swadesh 100 Wordlist

S/n	Gloss	SI	S/n	Gloss	SI
1	i/me	*mụ́/m̀mụ́*	51	breast	*árá*
2	you	*gí/ŋ̀gí*	52	heart	*óbì*
3	we	*ànyị*	53	swallow	*ònínó*
4	three	*àtọ́*	54	drink	*ṅù ọ́*
5	four	*ànọ́*	55	eat	*rìé*
6	five	*ịsé*	56	bite	*tàá*
7	child	*nwá*	57	see	*lèé*
8	navel	*ótùbò*	58	know	*màrụ́*
9	roast	*rụ ọ́*	59	sleep	*làrụ́ ụ́rā*
10	one	*òfú*	60	die	*nwụ ọ́*
11	two	*àbụ́ọ̄*	61	kill	*gbùó*
12	big	*ḿnúkwū*	62	bathe	*wụ ọ́*
13	long	*ógólógó*	63	jump	*wụ lié*
14	small	*ọ́bérē*	64	walk/go	*jèwé/pụ ọ́*
15	woman	*nwáànyì*	65	come	*bị á*
16	man	*nwókē*	66	lie down	*dínē ēdínè*
17	person	*m̀madụ*	67	blow	*hụ ọ́*
18	fish	*ázụ*	68	give	*nyé yā/nyíē*
19	bird	*ḿnụ̀nụ*	69	say	*kwùó*
20	dog	*ḿkị́tā*	70	sun	*ánwū*
21	goat	*éwú*	71	moon	*ọ́nwá*
22	tree	*ósísí*	72	star	*m̀mụ ọ́nwá*
23	seed	*ḿkpụ́rụ̄*	73	water	*m̀milī*
24	leaf	*ákwụ́kwọ́*	74	steal	*óhī*
25	root	*m̀gbọ̀lọ̀gwụ*	75	stone	*òkwútē*
26	housefly	*íjījí*	76	sand	*ájā*
27	skin	*ákpụ́kpọ́*	77	ground	*ànà*
28	meat	*ánụ́*	78	rope	*érírí*
29	blood	*ọ̀bàlà/m̀méē*	79	smoke	*ánwụ́rụ*
30	bone	*ọ́kpụ́kpụ́*	80	fire	*ọ́kụ́*
31	fat	*àbụ̀bà*	81	ashes	*ńtụ́*
32	egg	*àkwá*	82	saliva	*ọ́nụ́ ḿmīrí*
33	horn	*ọ́dụ̄*	83	road	*ézí*
34	tail	*ọ́dụ̀dụ*	84	hill/ mountain	*úgwú*
35	feather	*ǹkù*	85	red	*ḿméé m̄méé*
36	hair	*ájị́*	86	give birth	*mụ ọ́ nwā*
37	head	*ísí*	87	bury	*lìé*
38	ear	*ńtị̀*	88	white	*ọ̀chá*
39	eye	*ányá*	89	black	*ọ̀jí*
40	nose	*Ímí*	90	night	*àbálị̀/áńàsị̀*
41	grave	*Ínì*	91	hot	*ọ́kụ́*

42	mouth	*ọ́nụ̄*	92	cold	*óyī*
43	tooth	*ézē*	93	full	*òjújú/ òújú*
44	tongue	*Íré*	94	new	*ọ́hṵ́ụ̄*
45	nail	*ḿvọ́*	95	good	*ḿmā*
46	leg	*ụ́kwụ́*	96	fowl	*ọ̀kṵ́kọ̀*
47	knee	*íkpèlè úkwū*	97	dry(clothe)	*íkpọ̄ ńkṵ́*
48	hand	*áká*	98	name	*áhà*
49	belly	*áfọ́*	99	market	*áhịá*
50	neck	*ónú*	100	plate	*Áféré*

Appendix B

The extended 141 Wordlist, adapted by the authors

S/n	Gloss	SI	S/n	Gloss	SI
1	small	*óbérē*	72	burying	òlìlì
2	to cry	*íkwā ākwá*	73	take/receive	wèré/nàrá
3	flog	*pịá*	74	carry	bùrú
4	come	*bịá*	75	pay	kwùó
5	chewed	*tàrụ̀*	76	sing	kwèé
6	fell	*dàlịù*	77	enter	bànyé
7	to chew	*ítā*	78	go in	bànyé
8	to warm (e.g. Food)	*ídākwá*	79	come in	bàtá
9	god	*chí*	80	wrapper	úkwù ákwà/ ákwā ọ̄mṵ́má
10	yam	*Jí*	81	to cut	́ichābì
11	to wait	*ích*ē	82	lie	àsị́
12	to go	*ígā*	83	wear (clothe/ dress)	yìrí
13	say	*kwùó*	84	life	ńdụ̀
14	dig	*gwùó*	85	leaves	ákwṵ́kwọ́
15	to say	*íkwū*	86	death	ọ́nwṵ́
16	to dig (hole)	*ígwū*	87	divination	áfá
17	bag	*àkpà*	88	development	ḿméghé
18	jaw	*àgbà*	89	joy	áṅ̀ụ̀rị́
19	dribble	*kpàá*	90	drinking	ọ̀ṅ̀ṵ́ṅ̀ṵ́
20	run (race)	*gbàá*	91	who	ònyé
21	know/slap	*màrá/màá*	92	scar	àpà
22	go	*gàwá/gàá*	93	bush	ọ́hị́á
23	to know	*ịmā*	94	cow	éhí
24	to return	*ịlātá*	95	tongue	íré
25	die	*nwụ̀ọ́*	96	dream	ńrọ́
26	defecate	*nyụ̀ọ́*	97	crayfish	ị̀shá
27	moon	*ọ́nwá*	98	sheep	átṵ́rṵ̄
28	wound	*ọ́nyá*	99	chewing stik	átṵ́
29	bee	*áṅ̀ụ̄*	100	comb	ǹhá
30	lion	*ágụ̄*	101	split	kèwáá

31	drink	*ǹùǫ́*	102	pleading	*árị̀rị́ǫ́*
32	read	*gùǫ́*	103	sieve	*ǹyǫ̀*
33	penny	*áfụ̀*	104	pig	*ézì*
34	armpit	*ávụ̀*	105	pursue	*ị́chụ̄ ǭsǫ́*
35	wash	*sàá/sàcháá/sụ̀ǫ́/sụ̀cháá*	106	again	*ǫ̀zǫ́*
36	sweep	*zàá/zàcháá*	107	patience	*ǹdìdì*
37	to draw	*ísè*	108	python	*éké ǫ́gbà*
38	to avoid	*ízè*	109	fly out	*fépụ̀*
39	weaver bird	*árà*	110	to worship	*ífè ǫ̀fùfè*
40	name	*áhà*	111	suffering	*áhụ́hụ́*
41	bury	*lìé*	112	yawning	*úghérē*
42	eat	*rìé*	113	a lie	*àsị́*
43	to look	*ílē ányá*	114	lizard	*ǹgwèrè*
44	to sell	*írē áhịá*	115	afternoon	*èhíhìè/ èíhìò*
45	fry	*ghèé*	116	authority symbol	*ǫ̀fǫ́*
46	avoid	*zèé*	117	raffia palm stalk	*ǫ́fǫ̀rǫ̀*
47	disperse (seeds)	*ígháā*	118	blindness	*ìsì*
48	to answer/swell	*ízā*	119	hat	*ǫ̀kpú*
49	skin peel	*àwǫ̀rǫ̀*	120	he goat	*ǹkpí*
50	form of money (old)	*àyǫ̀rǫ̀*	121	do	*mèé*
51	pluck/be cunny	*ghǫ̀ǫ́/ghǫ̀tá*	122	knife	*ḿmà ékwū*
52	plead	*vǫ̀ǫ́*	123	to suck/bear fruit	*mị̀á*
53	tie (with rope)	*kèé*	124	accept	*nàrá/ kwèré*
54	listen	*gèé*	125	joy	*áṅ̀ụ̀rị́*
55	be ripe	*chàá*	126	garden egg	*ị́kà*
56	to cultivate	*ị́kǫ̀*	127	monkey	*ènwè*
57	to become in-law	*ígǫ̀ ǫ́gǫ̀*	128	temptation	*ǫ̀nwụ̀nwà*
58	fall	*dàá*	129	pepper	*ósè*
59	give chance	*pụ̀wá/pụ̀ǫ́*	130	flute	*ǫ̀jà*
60	skin (of body)	*ákpúkpǫ́ āhụ́*	131	another	*ǹké ǫ̀zǫ́*
61	in-law	*ǫ́gǫ̀*	132	wilderness	*ǫ̀zàlà*
62	hole	*ǫ́ghēlé*	133	mushroom	*élō*
63	witch	*ámōōsú*	134	sponge	*ǫ̀gbó/ ásị́sá/ áị́sá*
64	friend	*ényì*	135	clay	*ụ́lǭ*
65	intimate girl friend	*ḿnúkwú ényì*	136	toad	*áwǫ̀*
66	shit	*ǹsị́*	137	leopard	*ǫ̀dụ̀m*
67	shirt	*àfè*	138	barren	*àgà*
68	cloth/clothe	*ákwà*	139	‘a wild grass’/ ‘Zanthoxylum gilletii (botanical)’	*átá*
69	to fry	*íghē*	140	madness	*árá*
70	war	*ághá*	141	cry(ing)	*ákwá*
71	fly	*fépụ̀/fèé*			

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