

PHONOLOGICAL FEATURES OF VERB COMPOUNDS IN IGBO

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This paper describes the phonological properties evident when two verbs combine to form a single verb in the Igbo language. The combined verbs do undergo inflection to produce some grammatical verb forms. The verb forms studied are the root, simple verb compound, infinitive, past tense, negative, perfective and compound verbs with clitics. The phonological features of tone, vowel harmony, and a combined effect of consonant deletion and vowel raising form the thrust of this paper. The deletion, vowel raising and harmony result in rapid speech that involves a combination of any verb root and /**ne**/ 'give'. The paper finds out that tone plays a significant role in different grammatical compound verb forms. Each grammatical compound verb form possesses its peculiar tone. To this end, different tone rules are proposed for different inflections of verb compounds. The paper further finds out that prefixes appear to copy the vowel harmony set of its immediate following vowel. On the other hand, the past tense marker seems to be the only suffix that copies the vowel harmony set of its preceding vowel. Another interesting finding is that phonological processes of deletion and raising may act on any verb root forming the first verb and /**ne**/ being the second verb in rapid speech. When such verb compounds are formed, in fast speech, /**n**/ is deleted and the non-high vowels are raised. The raising forces the emergent structure to strictly obey the rule of vowel harmony. The tone patterns of the slow and the fast forms do not change.

Cet article décrit les propriétés phonologiques en cours lorsque deux verbes se combinent pour former un seul verbe en igbo. Les verbes combinés subissent le phénomène d'inflexion pour produire certaines formes grammaticales. Les formes verbales étudiées sont : la racine, le verbe simple composé, l'infinitif, le passé, le négatif, le perfectif et les verbes composés avec une clitique. Les traits phonologiques du ton, l'harmonie vocalique et un effet combiné de l'élision consonantique et de l'élévation de la voyelle participent à l'idée maîtresse de cet article. L'élision, l'élévation de la voyelle et l'harmonie résultent en un discours rapide qui implique la combinaison du radical du verbe avec /**ne**/ 'donner'. Il ressort de l'analyse que le ton joue un rôle important dans différentes formes verbales composées. Chacune des formes verbales grammaticales composées possède un ton particulier. Pour cela, différentes règles tonales sont proposées pour les différentes inflexions des verbes composés. Il ressort également de l'analyse que les préfixes semblent copier les éléments de l'harmonie vocalique de la voyelle qui suit directement. D'autre part, le marqueur du passé semble être le seul suffixe qui copie les éléments de l'harmonie vocalique de la voyelle précédente. Un autre élément intéressant issu de l'analyse est que les processus phonologiques d'élision et de l'élévation peuvent agir sur n'importe quel racine du verbe en formant le premier verbe et /**ne**/, le deuxième verbe, en discours rapide. Lorsque de tels verbes composés se forment, en discours rapide, /**ne**/ s'efface et les voyelles qui ne sont pas du premier degré d'aperture sont élevées. L'élévation force la structure émergente pour obéir de manière stricte à la règle de l'harmonie vocalique. Les schèmes tonals dans les formes du discours lent et rapide ne changent pas.

0. INTRODUCTION

Compounding is the creation of a new lexeme by combining two or more already existing lexemes (Bauer L. 2003). It is therefore a linguistic process of forming new words. Generally, compounding involves a combination of two or more free words where one word is the head and the other modifies the head. The semantic transparency of the compound words helps one to know the relation between the two of them. Thus, in the form XY, Y has a relation with X; X may modify Y or Y may modify X as the case may be for particular languages. This implies that the languages

differ with regards to the position of the head in compound words. Germanic languages are characterized by right heads (Booij 2005) while Maori, a polynesian language is left-headed. Italian (Scalise 1992 a and b) and Tlachichilco Tepehua, a Totonacan language (Watters 1993 and 2007) seem to have both left and right head compounds.

Compounds are classified into various semantic types (Bloomfield 1933, Bally 1950, Spencer 1992, Fabb 1998, Olsen 2001, Haspelmath 2002, Bauer W.1993 and Bauer L. 2001, Booij 2005, Bisetto and Scalise 2005, Bauer L. 2007, etc). We exemplify with endocentric, exocentric, appositional and dvanda (copulative). A compound word is endocentric when the second component is the grammatical headword and the first word becomes the modifier, endocentric compounds are hyponyms E.g., **wristwatch**. In exocentric compounds, the hyponymy does not exist. For instance, **scapegoat** not referring to a kind of goat rather, a kind of person. In situations where the hyponymy is bidirectional, it is referred to as appositional compounds e.g., **learner-driver**. Dvanda or copulative compounds name separate components which one is neither a hyponym of the other nor being the grammatical headword. E.g., names like **Slater-Walker** etc (see Olsen 2001 for Pujabi, Bhatia 1993 for Sanskrit, and Booij 2005 for European Languages). Compound verbs can be used in various grammatical constructions. The outcome of verb compounds may result in verb-prepositional constructions (Keizer, 2009).

Phonologically, compounds can be distinguished from syntactic phrases in various languages. Some of the distinguishing features are distinctive tonal patterns (Bambara, Bauer L. 2009a; Hausa, Newman 2000); vowel harmony (Chuckchee, Bauer L. 2009a); stress patterns (English, Danish, Modern Greek, Polish, Hebrew, Bauer L. 2009b, Borer 2009, Szymanek 2009, Ralli 2009, and Lieber 2009); and segmental effects (Rice 2009 and Bauer L. 2009b).

No work to the best of our knowledge has been done on the phonological properties of verb compounds in Igbo. This lack has necessitated this study. This work is organized into four sections. After this Introduction, Section 1 presents the working data. Section 2 discusses the tonal patterns, vowel harmony and phonological processes of some verb compounds in the language. Section 3 forms the conclusion.

1. COMPOUND VERBS IN IGBO

Compounding has attracted a reasonable amount of literature in the Igbo language (see for example, Green and Igwe 1963, Welmers and Welmers 1968, Welmers W. 1973, Lord 1975, Oluikpe 1979, Ogwueleka 1987, Uwalaka 1988, Nwaozuzu 1991, Ihionu 1992, Anagbogu 1995, Oluikpe and Nwaozuzu 1995, Mbah B. 2004, and Uba-Mgbemena 2011. Anagbogu 1990 and 1995, Nwaozuzu 1991, Oluikpe and Nwaozuzu 1995, and Uba-Mgbemena 2011 observe that there exists nominal compounds in the language. However, Mbah B. (2004) argues that its existence is rare. He argues that what have been viewed as nominal compounds are mere lumping of lexical items together. He suggests formation of syntactic paradigms in considering compound words in the language.

Verb is the only grammatical category in the Igbo language that undergoes inflection. Through inflection, certain number of verb forms with particular grammatical functions can be produced. Verbs can be inflected for tense or aspect. This implies that compound verbs can also be inflected. Verb compounding is productive in the language. A compound verb contains at least two independent simple verbs. No author has argued against its existence in the language. Verb

compound in Igbo has received both morphological and syntactic analyses. Lord (1975) and Anagbogu (1990) claim that a compound verb is derived morphologically. Lord (1975) asserts that a compound verb is a lexical item. Lord (1975) postulates that compound verbs should not be explained syntactically because of their idiosyncratic properties. On the other hand, Carrell (1970), Uwalaka (1995) and Mbah, B (1999) aver that compound verbs are a by-product of transformational processes. They assert that before compound verbs result, the syntactic transformations which give rise to them have taken place. When the transformations are reversed, the simple predicates, which form the compounds are recovered. The argument structure of the compound verbs are not affected.

This study is limited to the phonological features in infinitive, past tense, negative, perfective, and verb compound plus enclitic constructions as represented in Table 1.

In Table 1, (pages 96-98) V_1 and V_2 are first and second verb roots respectively that may be combined to form compound verbs. Simple verb compound (SVC) formed from V_1 and V_2 . SVC+ consists of simple compound verbs and enclitics /tʃa/ ‘finish’ and /be/ ‘yet’ in addition to the negative marker /ɣɪ/.

2. PHONOLOGICAL FEATURES OF COMPOUND VERBS

In this section, the tone patterns of verb compounds in different constructions, the vowel harmony operational in compound verbs, as well as deletion and assimilation in specific verbal compounds will be discussed.

2.1 TONE OF IGBO VERB COMPOUNDS

Tone in the Igbo language performs both lexical and grammatical functions (Nwachukwu, 1995). Nwachukwu (1995) appears to be the only available material on tone in grammatical constructions but it says nothing about the tone of verb compounds. A look at the tone patterns in table 1 reveals that each construction has its unique tone pattern. The tone patterns and changes in the various constructions are regular and systematic. Hence, we can have different tone rules for the different grammatical constructions of verb compounds. We propose the following tone rules for the grammatical constructions as illustrated in Table 1.

2.1.1 Simple Verb Compound

The simple verb compounds have the same structure with the imperative forms. The difference lies in the fact that the imperatives end with an open vowel suffix that is obligatorily on a high tone. The following rules account for their tone patterns.

Rule 1. The second verb (V_2) maintains its tone pattern in simple verb compounds (SVC). E.g.

- (1) a. **nyà** /nà/ + **gò** /gò/ → **nyá**gò /náyá/gò/ ‘bend’
 b. **bù** /bù/ + **kó** /kó/ → **bù**kó /bùkó/ ‘carry and place on’
 c. **kwà** /kwà/ + **pù** /pù/ → **kwá**pù /kwápù/ ‘push out’
 d. **kó** /kó/ + **sà** /sà/ → **kósà** /kósà/ ‘spread widely’
 e. **zù** /zù/ + **gbù** /gbù/ → **zù**gbù /zùgbù/ ‘mal-train’

Rule 2. The first verb (V₁) changes its tone from high to low if the second verb ends in a high tone. E.g

- (2) a. **bú /bú/** + **kó /kó/** → **bùkó /bùkó/** ‘carry and place on’
 b. **bú /bú/** + **zí /zí/** → **bùzí /bùzí/** ‘carry well’
 c. **gbá /gbá/** + **gbú /gbú/** → **gbàgbú /gbàgbú/** ‘shoot to death’
 d. **tú /tú/** + **kó /kó/** → **tùkó /tùkó/** ‘throw onto’
 e. **tú /tú/** + **nyé /nyé/** → **tùnyé /tùnyé/** ‘throw into’

Rule 3. Where there are identical tones, (such as HH or LL), the tone of V₁ changes while V₂ retains its tone.

- (3) a. **bú /bú/** + **kó /kó/** → **bùkó /bùkó/** ‘carry and place on’
 b. **bú /bú/** + **zí /zí/** → **bùzí /bùzí/** ‘carry well’
 c. **gbá /gbá/** + **gbú /gbú/** → **gbàgbú /gbàgbú** ‘shoot to death’
 d. **dà /dà/** + **pù /pù/** → **dápù /dápù/** ‘fall out’
 e. **kwà /kwà/** + **pù /pù/** → **kwápù /kwápù/** ‘push out’
 f. **pì /pì/** + **ba /bà/** → **píbà /píbà/** ‘squeeze into’

Thus, in simple verb compounds, it is only the tone of V₁ that can undergo tonal changes. The tone of V₂ is always maintained.

2.1.2 Infinitive Verb Compound

Infinitives in Igbo are marked by prefixing **i/ɪ** to the verb compounds depending on the vowel set the first vowel belongs to.

Rule 4. The tone of the infinitive marker is obligatorily on a high tone.

Rule 5. High tone is prohibited in the verbs forming the compounds in infinitive constructions.

Rule 6. The high tone of V₁ in SVC is lowered to a downstep in its infinitive form.

Rule 7. The high tone of the SVC can either be lowered to a downstep tone or to a low tone.

Rule 7 a. It is lowered to a downstep if its V₂ is a low tone in its citation form, e.g.

- (4) a. **gbá /gbá/** + **bà /bà/** → **gbábà /gbábà/** → **ígābà /ígābà/** ‘to run in’
 b. **bú /bú/** + **dà /dà/** → **buda /búdà/** → **íbūdà /íbūdà/** ‘carry down’
 c. **ré /ré/** + **fù /fù/** → **réfù /réfù/** → **írēfù /írēfù/** ‘to sell at loss’
 d. **mé /mé/** + **fù /fù/** → **méfù /méfù/** → **ímēfù /ímēfù/** ‘to waste’
 e. **kó /kó/** + **sà /sà/** → **kósà /kósà/** → **íkōsà /íkōsà/** ‘to spread widely’

Rule 7 b. It is lowered to a low tone if in its citation form the V_1 is on the a low tone, e.g.

- (5) a. $pì /pì/ + gá /gá/ \rightarrow pìgá /pìgá/ \rightarrow \grave{p}ìgà /\grave{p}ìgà/$ ‘to squeeze to’
 b. $dà /dà/ + gbú /gbú/ \rightarrow dàgbú /dàgbú/ \rightarrow \grave{d}àgbù /\grave{d}àgbù/$ ‘to fall and kill’
 c. $dà /dà/ + nyé /nyé/ \rightarrow dányé /dányé/ \rightarrow \grave{d}ànyè /\grave{d}ànyè/$ ‘fall into’
 d. $zù /zù/ + gbú /gbú/ \rightarrow /zùgbú/ \rightarrow \grave{z}ùgbù /\grave{z}ùgbù/$ ‘to mal-train’
 e. $dà /dà/ + wá /wá/ \rightarrow dàwá /dàwá/ \rightarrow \grave{d}àwà /\grave{d}àwà/$ ‘to fall and break’

Hence, low tone at V_1 and V_2 triggers off a lowering of its neighbouring high tone. At V_1 , it is reduced to a low tone and at V_2 it is reduced to a downstep.

Rule 8. Where in their citation forms, the V_1 and V_2 are high tones, they are reduced to downstep tones respectively. Note that if it is only the high tone of V_2 in the simple compound is changed to a downstep, the emerging form will violate one of the general tone rules in the language that states that a low tone does not precede a downstep.

- (6) a. $gbá /gbá/ + gbú /gbú/ \rightarrow gbàgbú /gbàgbú/ \rightarrow \grave{g}bagbu /\grave{g}bāgbū/$ ‘to shoot to death’
 b. $tù /tù/ + gá /gá/ \rightarrow tùgá /tùgá/ \rightarrow \grave{t}ùgā /\grave{t}ùgā/$ ‘to throw to’
 c. $tù /tù/ + nyé /nyé/ \rightarrow tùnyé /tùnyé/ \rightarrow \grave{t}ùnyē /\grave{t}ùnyē/$ ‘to throw into’
 d. $tù /tù/ + kó /kó/ \rightarrow tùkó /tùkó/ \rightarrow \grave{t}ùkō /\grave{t}ùkō/$ ‘to throw and place on’
 e. $bú /bú/ + zì /zì/ \rightarrow bùzì /bùzì/ \rightarrow \grave{b}ūzī /\grave{b}ūzī/$ ‘to carry well’
 f. $bú /bú/ + kó /kó/ \rightarrow bùkó /bùkó/ \rightarrow \grave{b}ūkō /\grave{b}ūkō/$ ‘to carry and place on’

2.1.3 Past Tense

Past tense in Igbo is formed by adding /r/ and a vowel (known as –rv suffix) to the end of the verb compound.

Rule 9. The past tense marker and the V_2 preceding it are obligatorily on low tones. The tone of V_1 in its SVC form is retained. e.g

- (7) a. $gbábà /gbábà/ \rightarrow gbábàrà /gbábàrà/$ ‘ran into’
 b. $gbàgbú /gbàgbú/ \rightarrow gbàgbùrù /gbàgbùrù/$ ‘shot to death’
 c. $búdà /búdà/ \rightarrow búdàrà /búdàrà/$ ‘carried down’
 d. $dápù /dápù/ \rightarrow dápùrù /dápùrù/$ ‘fell down’
 e. $dàgbú /dàgbú/ \rightarrow dàgbùrù /dàgbùrù/$ ‘fell and killed’

2.1.4 Negative

Negatives are formed by having /**ɣɪ**/ as the suffix of the verb compound.

Rule 10. The tone of V₁ in its simple SVC is always retained.

Rule 11. The V₂ and its negative marker maintain identical tone patterns. The identical tone patterns are of two types: downstep tones and low tones. They maintain identical downstep tones if in their citation forms, the V₁ and V₂ are high tones as in 8a-e, otherwise, they bear low tones as in 8f-k.

- (8) a. **gbá/gbá/ + gbú/gbú/** → **ò gbágbūghī/ ò gbágbūɣī/** 'he did not run in'
- b. **tú /tú/ + gá /gá/** → **ò túgāghī / ò túgāɣī /** 'he did not throw to'
- c. **tú /tú/ + nyé /nyé/** → **ò túnyēghī / ò túnyēɣī /** 'he did not throw into'
- d. **bú /bú/ + zī /zī/** → **ò búzīghī / ò búzīɣī /** 'he did not carry well'
- e. **bú /bú/ + ko /kó/** → **ò búkōghī / ò búkōɣī /**
'he did not carry and place on'
- f. **bú /bú/ + dà /dà/** → **ò búdāghī / ò búdāɣī /** 'he did not carry down'
- g. **mé /mé/ + fù /fù/** → **ò méfūghī / ò méfūɣī /** 'he did not waste'
- h. **gbá /gbá/ + bà /bà/** → **ò gbábāghī / ò gbábāɣī /** 'he did not run into'
- i. **dà /dà/ + wá /wá/** → **ò dáwāghī / ò dáwāɣī /** 'he did not fall and break'
- j. **pì /pì/ + bà /bà/** → **ò pìbāghī / ò pìbāɣī /** 'he did not squeeze into'
- k. **nyà /nyà/ + gò /gò/** → **ò nyágòghī / ò nyágòɣī /** 'he did not bend'

2.1.5 Perfective Verb Compounds

Perfective verbs in Igbo are marked by a **-la** suffix. The subject assumed here is the third person singular **o/ó**. It has a similar form with **a/e**.

Rule 12. The perfective marker /**la**/ takes a high tone.

- (9) a. **gbá /gbá/ + gbú /gbú/** → **ó gbāgbúélá / ó gbāgbúélá /** 'he has shot to death'
- b. **tú /tú/ + nye /nyé/** → **ó tūnyélá / ó tūnyélá /** 'he has thrown into'
- c. **bú /bú/ + ko /kó/** → **ó būkóólá / ó būkóólá /** 'he has carried and placed on'
- d. **kó /kó/ + sà /sà/** → **ó kōsàálá / ó kōsàálá /** 'he has spread widely'
- e. **mé /mé/ + fù /fù/** → **ó mēfùélá / ó mēfùélá /** 'he has wasted'
- f. **pì /pì/ + gá /gá/** → **ó pìgáálá / ó pìgáálá /** 'he has squeezed to'
- g. **zù /zù/ + gbú /gbú/** → **ó zùgbúélá / ó zùgbùélá /** 'he has mal-trained'
- h. **kwà /kwà/ + pù /pù/** → **ó kwāpùlá / ó kwāpùlá /** 'he has pushed out'

i. **nyà /nà/ + gò /gò/ → ó nyāgòólá /s̄ nāgòólá/** ‘he has bent’

Rule 13. The first verb of the verb compound in the perfective form takes on a downstep tone if and only if the citation form of the verb (V_1) is a high tone. Eg

- (10) a. **gbá/gbá/ + gbú /gbú/ → ó gbāgbúélá /s̄ gbāgbúélá/** ‘he has shot to death’
 b. **tú /tú/ + nyé/né/ → ó tūnyélá /s̄ tūnéélá/** ‘he has thrown into’
 c. **bú /bú/ + kó /kó/ → ó būkóólá /ó būkóólá/** ‘he has carried and placed on’

Rule 14. The tone of V_1 is a downstep tone in the perfective form if in its citation form, the V_2 bears a low tone. e.g.

- (11) a. **kpó /kpó/ + sà /sà/ → ó kpōsàálá /ó kpōsàálá/** ‘has scattered’
 b. **ré /ré/ + fù /fù/ → ó rēfùélá /ó rēfùélá/** ‘has sold at loss’
 c. **kó /kó/ + sà /sà/ → ó kōsàálá /ó kōsàálá/** ‘has spread widely’
 d. **gbá /gbá/ + bà /bà/ → ó gbābálá /s̄ gbābálá/** ‘has ran in’
 e. **bú /bú/ + dà /dà/ → ó būdàlá /ó būdàlá/** ‘has carried down’
 f. **pì /pì/ + bà /bà/ → ó pībàlá /s̄ pībàlá/** ‘has squeezed into’
 g. **kwà /kwà/ + pù /pù/ → ó kwāpùla /s̄ kwāpùlá/** ‘has pushed out’

In these cases too, the tone of the V_2 in its citation form is retained. Where there is an open vowel suffix, the vowel is obligatorily on a high tone.

Rule 15. If in its citation form, the V_1 bears a low tone and V_2 a high tone, the tone is retained in the perfective form. e.g.

- (12) a. **dà /dà/ + gbú /gbú/ → ó dàgbúélá /s̄ dàgbúélá/** ‘has fallen and killed’
 b. **dà /dà/ + nyé /né/ → ó dānyélá /s̄ dānéélá/** ‘has fallen and broken’
 c. **dà /dà/ + wá /wá/ → ó dāwáálá /s̄ dāwáálá/** ‘has fallen and broken’
 d. **pì /pì/ + nyé /né/ → ó pīnyélá /s̄ pīnéélá/** ‘has squeezed into’
 e. **pì /pì/ + gá /gá/ → ó pīgáálá /s̄ pīgáálá/** ‘has squeezed to’
 f. **zù /zù/ + gbú /gbú/ → ó zùgbúélá /s̄ zùgbúélá/** ‘has mal-trained’

2.1.6 Simple Verb Compound plus Enclitics and Negation

This form takes the clitics of /tʃa/ ‘finish’ and /be/ ‘yet’ in addition to the negative marker /ɣɪ/.

Rule 16. The tone of its verb compounds are obligatorily on high (V_1) and low (V_2) tones.

Rule 17. The enclitics and the negative markers are obligatorily on low tones. The tone patterns of this form of verb compounds are revealed in (13).

- (13) a. **ò gbábàchàbèghì / ò gbábàt̩fàbèyì /** ‘has not yet finished running in’
 b. **ò gbágbùchàbèghì / ò gbágbùt̩fàbèyì /** ‘he has not yet finished shooting to death’
 c. **ò búdàchàbèghì / ò búdàt̩fàbèyì /** ‘he has not yet finished carrying down’
 d. **ò dápùchàbèghì / ò dápùt̩fàbèyì /** ‘he has not yet finished falling out’
 e. **ò nyágòchàbèghì / ò nyágòt̩fàbèyì /** ‘he has not yet finished bending’
 f. **ò kósàchàbèghì / ò kósàt̩fàbèyì /** ‘he has not yet finished spreading widely’
 g. **ò búzìchàbèghì / ò búzìt̩fàbèyì /** ‘he has not yet finished carrying well’

The tone of the Igbo verb compound is interesting and complex. A careful study of the tone patterns and changes reveal that there are regular tone rules that apply to arrive at any tonal changes.

2.2 VOWEL HARMONY

Vowel harmony (VH) is operational in the Igbo language. The vowel harmony rule requires that all the vowels in a word bear the same value of some vocalic feature (Backovic, 2000). There are few (if any) languages where the above definition is absolutely true. There are some conflicting conditions that get in the way and usually prevent a total realization of the rule.

In the standard Igbo language, the eight vowels are classified into two groups based on the pharyngeal cavity size. Thus, the Igbo vowels can be produced with expanded or with unexpanded pharynx. Expanded or unexpanded distinction also amounts to the ‘Advanced Tongue Root’ (ATR) because when the tongue root is fronted; it leads to the expansion of the pharynx (Ikekeonwu 1991). Thus, a vowel can either be Expanded/+ATR (advanced tongue root) or Unexpanded/-ATR (retracted tongue root). Using the above terms, the Igbo vowels are divided into two sets as in (14) below:

.(14) [+EXP] / [+ ATR]		[-EXP] / [- ART]	
i	u	ɪ	ʊ
e	o	a	ɔ

Vowels from the two sets do not usually co-occur in a word. That is, if during word formation, there is a selection of vowels from only one set. Such words are said to obey the rule of vowel harmony. There is vowel harmony in the following words:

- (15) a. **ógè / ógè /** ‘time’
 b. **íkó / íkó /** ‘cup’
 c. **ùbé / ùbé /** ‘pear’
 d. **úkà / úkà /** ‘church’
 e. **chì / óchì /** ‘laughter’
 f. **ákwúkwọ / ákwúkwó /** ‘book’

There are however some structures that violate this rule. (Emenanjo 1978, Mbah and Mbah 2010, and Iloene 2007). Such instances are borrowed words, compound words and the influence of language planners. In the Nsukka variety for example, a nine-vowel configuration is operational. /a/ is neutral to either of the sets. This leads to near if not perfect vowel harmony in the variety of Igbo.

In the Igbo verb compounds, if the different verbs are made up of different vowel sets, there will be disharmony. This is one of the exceptions to the rule of vowel harmony in the Igbo language. Compound words violate the rule of VH in the language. Violation of VH is also observable in the suffixes of the VCs. There are regular markers that may violate the VHR. For instance, in the negative form, /-ɣɪ/ is suffixed leading to the violation of VHR in words like /*réfùɣì*/, /*méfùɣì*/, and /*búkòɣì*/ whose simple verb compounds are strictly +ATR vowels. The same thing applies to the perfective forms which are marked by *-la* and sometimes preceded by an open vowel suffix *e/a* which copies the ATR of its preceding vowel. The perfective marker *-la* makes it impossible for +ATR simple VCs to obey the rule of VH. The enclitics *cha* and *be* in addition to the negative marker /-ɣɪ/ on their own, violate the VHR. Thus, in our examples, none of the forms with VC+ enclitic obeys the VHR.

There are however instances where there is copying of the vowel set of the immediate neighbouring vowel, past tense marker *-rv* marker copies the vowel that immediately precedes it. Eg, /*dányèrè*/, /*kwápùrù*/, /*kósàrà*/, and /*bùzìrì*/.

On the other hand, the infinitive marker *i/I* copies the vowel set that its immediate following vowel belongs to. Eg /*ídāpù*/, /*írèfù*/, /*itūpè*/, /*ibūdà*/, and /*ídàgbù*/.

Similarly, for the VC in the past tense, negative, perfective and VC + enclitic forms, if a third person singular pronoun *ó/ó'* or an impersonal pronoun *é/a'* precedes any of the forms, the ATR type of the immediate following vowel is used. eg

- | | | | | |
|------|----|--|-----------------------|---|
| (16) | a. | <i>á/ó gbàgbùrù</i> | <i>/á/ó gbàgbùrù/</i> | 'he killed...' |
| | b. | <i>á/ó kósàálá</i> | <i>/é/ó' kósàálá/</i> | 'he has widely spread...' |
| | c. | <i>à/ò dányèghì</i> | <i>/à/ò dányèɣì/</i> | 'he did not fall into...' |
| | d. | <i>è/ò búdàchàbèghì/è/ò búdàchàbèɣì/</i> | | 'he has not yet finished carrying down' |

2.3 CV VERB ROOT AND NYE COMPOUNDS

When there is a combination any CV verb root and the verb *nye* 'give', the following compounds may be formed:

- | | | | | |
|------|-------------|--------------|---------------|---------------------|
| (17) | Verb | Nyé | Compound | Gloss |
| a. | <i>mà</i> + | <i>nyé</i> → | <i>mànyé</i> | 'give a measure to' |
| | <i>/mà/</i> | <i>/né/</i> | <i>/tàné/</i> | |
| b. | <i>tá</i> + | <i>nyé</i> → | <i>tànyé</i> | 'pour into' |
| | <i>/tá/</i> | <i>/né/</i> | <i>/tàné/</i> | |
| c. | <i>bé</i> + | <i>nyé</i> → | <i>bènyé</i> | 'cut for' |
| | <i>/bé/</i> | <i>/né/</i> | <i>/bèné/</i> | |

d.	pí	+	nyé	→	pìnyé	‘squeeze into’
	/pí/		/né/		/pìné/	
e.	sí	+	nyé	→	sìnyé	‘cook on’
	/sí/		/né/		/sìné/	
f.	gó	+	nyé	→	gònyé	‘buy for’
	/gó/		/né/		/gòné/	
g.	kpó	+	nyé	→	kpònyé	‘call into’
	/kpó/		/né/		/kpòné/	
h.	dé	+	nyé	→	dènyé	‘write into’
	/dé/		/né/		/dèné/	
i.	mí	+	nyé	→	mìnyé	‘dry on’
	/mí/		/né/		/mìné/	
j.	dú	+	nyé	→	dùnyé	‘send to’
	/dú/		/né/		/dùné/	
k.	tú	+	nyé	→	tùnyé	‘throw into’
	/tú/		/né/		/tùné/	
l.	nyò	+	nyé	→	nyònyé	‘peep into’
	/nyò/		/né/		/nyòné/	
m.	nyà	+	nyé	→	nyànyé	‘place/wear on the neck’
	/nyà/		/né/		/nyàné/	

The compounds in I can in fast speech have some phonological changes. The first phonological change that occurs is the deletion of a segment. The voiced palatal nasal is deleted (see Emekekwe 2000 and Mbah E. 2002). The structures in (19) emerge after the elision.

- (18). ***màé**, ***tàé**, ***bèé**, ***dèé**, ***píé**, ***gòé**, ***kpòé**, ***dòé**, ***sìé**, ***mìé**,
***dùé**, ***tùé**, ***nyòé**, ***nyàé**

The forms in (19) are unacceptable in relation to the semantic aspect of the compounds. The vowel of V₂ undergoes raising. The mid-vowel is raised to a high front vowel /i/ or /ɪ/. the choice of the high front vowel is determined by the vowel of V₁. A +ATR V₁ will take a +ATR high front vowel /i/. Likewise, a -ATR V₁ will take on a -ATR high front vowel. Therefore, the process of raising is very important because it forces the compound verbs which were in slow speech, disobedient to the rule of vowel harmony to be obedient to it. This is exemplified in 20.

- (19) a. **mǎí** /mǎí/ ‘give a measure to’
b. **tǎí** /tǎí/ ‘pour into’
c. **běí** /běí/ ‘cut for’

- d. **dèí** /dèí/ 'write into'
 e. **tùí** /tùí/ 'put into'
 f. **pìí** /pìí/ 'squeeze into'
 g. **gòí** /gòí/ 'buy for'
 h. **kpòí** /kpòí/ 'call into'
 i. **dùí** /dùí/ 'send to'
 j. **nyòí** /nyòí/ 'peep into'
 k. **nyàí** /nyàí/ 'place/wear on the neck'

In the Oba variety of Igbo, the rapid speech does not stop at the elision of /ɲ/ and raising the vowel /e/ to i/ɪ. Some vowels of V₁ are also affected. The affected vowels are the low and mid vowels in the CV verb root. The low vowels of the CV verb root are raised to their high counterparts. The raising converts the grammatical forms of (20) to (21).

- (20) a. **màí** /màí/ → **mìí** /mìí/ 'give a measure to'
 b. **tàí** /tàí/ → **tùí** /tùí/ 'pour into'
 c. **bèí** /bèí/ → **bìí** /bìí/ 'cut for'
 d. **dèí** /dèí/ → **dìí** /dìí/ 'write into'
 e. **tùí** /tùí/ → **tùí** /tùí/ 'put into'
 f. **pìí** /pìí/ → **pìí** /pìí/ 'squeeze into'
 g. **gòí** /gòí/ → **gùí** /gùí/ 'buy for'
 h. **kpòí** /kpòí/ → **kpùí** /kpùí/ 'call into'
 i. **dùí** /dùí/ → **dùí** /dùí/ 'send to'
 j. **nyòí** /nyòí/ → **nyùí** /nyùí/ 'peep into'
 k. **nyàí** /nyàí/ → **nyìí** /nyìí/ 'place/wear on the neck'

Observe that the non-high vowels (both mid and low vowels) are raised to high vowels. Unlike in the raising of the mid vowel of /ɲé/ to high front vowels, the raising of the low vowel CV verb root is unrestricted. The raising can be to front or back high vowels depending on the vowel set. Example (22) shows the vowels that underwent raising in (21)

- (21) a. **e** → **i**
 b. **o** → **u**
 c. **a** → **ɪ**
 d. **ɔ** → **ʊ**

(21) above shows that there is also harmony in roundness. Mid/low rounded vowels change to high rounded vowels while mid/low unrounded vowels change to high unrounded vowels. High rounded and unrounded vowels remain unchanged.

Observe that the tone patterns of this structure are identical with the tone of the simple verb compounds. Even if they are used in other grammatical verb forms, their tone patterns do not change. This goes a long way to show that consonant deletion and vowel raising do not alter the tone pattern. Thus, tone patterns in slow and fast speech remain the same in the language.

3. CONCLUSION

This paper has examined the phonological properties of compound verbs in the Igbo language. Tone is used in different regular patterns to produce grammatical forms in the compounds. This buttresses the fact that Igbo is one of the tone languages that exhibits complexity of tone patterns in different grammatical forms.

Compound verbs in Igbo generally violate the rule of vowel harmony. However, prefixes of verb compounds copy the vowel set of its following vowel. Past tense marker suffix (-*rv*) on the other hand, copies the vowel set that its preceding vowel belongs to. The other grammatical forms do not obey the rule of vowel harmony in one way or the other.

Certain structures of verb compounds display significant phonological processes. In the event of a combination of any verb root as V_1 and the verb root /*je*/ forming the V_2 , phonological processes of consonant elision, vowel raising and vowel harmony are employed to arrive at the acceptable forms in rapid speech.

Thus, tone, vowel harmony, consonant elision, and vowel raising combine to make the Igbo verb compounds phonologically unique. These phonological features of compound verbs make it imperative that the learners of the language must learn these forms for effective performance.

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