Sapientia Global Journal of Arts, Humanities and Development Studies (SGOJAHDS), Vol.3 No.4 December, 2020; p.g. 141 – 155; ISSN: 2695-2319 (Print); ISSN: 2695-2327 (Online)

SYLLABLE CONSTRAINTS, REPAIR STRATEGIES AND SEGMENTAL PROCESSES IN ÈWÙLÙ

UTULU, DON C. (PhD)
Department of Languages and Linguistics,
Faculty of Arts,
Delta State University, Abraka, Delta State
PHONE NO: +2348063570641
EMAIL: donutulu@gmail.com

Abstract

Cross-linguistically, languages deploy some specific segmental processes, or rules as repair strategies to align violating, marked syllable structures with the unmarked, optimal Consonant-Vowel /CV/ syllable. For instance, marked input structures like /CVV…/and /CCVC…/may be converted to unmarked output structures with maximal C followed by a V, yielding a [CV] shape in morphologically simple or complex words. The adjustment may be done by deleting or inserting V elements. Èwùlù (Igboid: West Benue-Congo) has the optimal CV syllable structure. Consequently, non-conforming syllable structures are typically modified in order to make them align with the optimal syllable shape. Unfortunately, however, studies that examined phonological strategies Ewulu motivates to repair marked syllable structures are non-existent. Against this background, the objective of this study which uses existing data is to examine the syllable structures of Èwùlù and show where and how constraints on optimal syllable structure of the lect trigger repair strategies to suppress violations of it. The study employs the CV-phonology theory (Clements and Keyser, 1983) for analysis. Findings of the study showed that segmental processes such as vowel epenthesis, vowel deletion, glide formation, haplology and nasality effacement are triggered in output forms to override input structures that would otherwise create outright violations of its preferred syllable structure.

Keywords: Èwùlù, Igboid, syllable constraints, repair strategies, segmental processes.

Introduction

One of the 'bewildering array of disparate' types of phonological processes, alluding to Schane's (1973:49) remark, is segmental processes which operate in languages with predominant simple syllable structure(s), in which its optimal syllable structure is that which syllables are maximally parsable into one consonant (C) followed by a vowel (V). As a rule, such syllables are only divisible into a single onset C followed by a single V void of coda C. This syllable type has been labelled 'open syllable' in the literature (Kahn, 1976; Crystal, 2008).In effect, languages of Nigeria(Igbo, Yoruba, Bini, Nupe, Igala, Gwari, Emai, Etsako, Urhobo, Isoko etc.), Australian language (Hua: Papua New Guinea), among others,fall into this group.

Categorised alongside phonological processes such as *assimilation*, *weakening and strengthening* and *neutralization*, Syllable-based phonological/segmental processes typically affect the

relative distribution of Cs and Vs, and often lead to phonological patterns Schane calls 'syllable structure processes'. Languages that take the shape of CV as their optimal syllable may deploy certain segmental processes, or rules to prevent *marked* syllable structures that violate the optimal CV syllable. The emergence of the marked structures in phonological strings may be due to the operations of certain grammatical constructions, as the illustration of the French case in (1) show. Thus in the deployment of the phonological rules, the phonology of the affected language may trigger repair strategies on the marked forms to ensure their *faithfulness* to the preferred syllable structure.

For example, Schane (p.53) shows how French which prefers open syllables over closed syllables disallows coda (i.e. syllable final C) by modifying underlying structures in order to ensure that the CV shape is maintained in the output, a process that shows the dominance, or preference of the CV over other syllable types in world languages. The French case is shown in (1) as follows:

(1) French syllable structure process: C-deletion process (Schane, 1973)

	Input		Output
a.	pəti**t**ami 'little friend'	→	pə**tig**arsɔ̃ 'little boy'
b.	gro**z**ami 'big friend'	→	gr**og**arsɔ̃ 'big boy'

As the French data show, it will be observed that /t/- and /z/-deletion rule applied. According to Schane, both instances of 'C-deletion' process operate in the output (compare the input-output structures in the left and right columns respectively) to avoid output [*t.p] and [*z.g] clusters, i.e. /CC…/sequence which otherwise violate preferred French [CV…] syllable structure. Essentially, a process such as French consonant deletion turns out to be an example of the basic conflict between *faithfulness* and *markedness* constraints.

Moreover, Schane further reinforces the conflict between faithfulness and markedness constraints by illustrating how French elide vowel if it is followed by another vowel in avoidance of CVV sequence (*ləa*; *laa*) which violates output CV structure. The examples in (2) illustrate the pattern:
]

(2) French syllable structure process: V-deletion process (Schane, 1973)

a.	l**ə**garsɔ̃ 'the boy'	→	l **a**mi 'the friend (masculine)'
b.	l**u**fiyə 'the girl'	→	l **a**mi 'the friend (feminine)'

On careful observation of the existing data in Èwùlù (Igboid: West Benue Congo), it was found that similar constraint on preferred structure governing the relative distribution of Cs and Vs, as in French applied to satisfy its optimal CV structure within the phonological word and phrase. Phonologists have long agreed that constraints on preferred syllable structure which motivate the strategies deployed in French in (1) and (2) are quite common in languages. The Èwùlù case,as will be shown in the current work, undoubtedly justifies this observation. Thus the objective of this work is to show where and how constraints on syllable structure(s) impact upon Èwùlù phonological strings, employing CV-phonology theory proposed by Clements and Keyser (1983).The approach of the theory is suitable for analysing generalisations which depict the relative distribution/quantity of consonants and vowels within phonological representation.

Background

Èwùlù people are domiciled in the northern part of Delta State, Nigeria. They are among the people of the north of Delta State called Ànị̀ọ́chá-Énúànị̀ people, who, socio-linguistically, are Igbo people residing at the west axis of the Niger River (Utulu, 2015). The Èwùlù people speak a dialect known by the same name. As a variety of the Igbo language, Èwùlù is sufficiently classified under Nigerian languages Blench (1989) labelled West Benue Congo. 'Èwùlù is a small town with a population of approximately 15,000 native speakers (Ezimechine, 2014). Its closest neighbouring towns are Íshèágwū, Ólóòdù, Ọ̀gwa̰shị̀-Úkú and Ǹsúḳwà.Other linguistic groups with which Énúànị̀ forms a cluster are Ị̀káand Ụ̀kwụ̀anị̀. The three cluster groups are formally referred to as "Western Igbo" (Emenanjo, 1978), and currently as "Delta Igbo" owing to the linguistic affinity existing between them and the Eastern Igbo varieties spoken in the easternaxis of the River Niger.

The Syllable

Phonological theory recognises the syllable as a phonological constituent larger than the segment, smaller than the word, and contains a sonority peak. It also recognises the important role the syllable plays in generalisations that take the syllable as their domain of operation, as shown in the introductory Section and subsequently in Section 5. According to Blevins (1995:206-7), the syllable is a phonological unit which organises segmental melodies in strings (words). The melodic organisation is based for the most part on the inherent sonority of the phonological segments of these organised units. The implication of Blevin's phonological conception of the syllable is shown in (3), taking a language such as English reported to have no fewer than 18 possible syllable structures:

(3) The syllable

	Word	Broad Transcription	Syllable Structure	No. of Syllable/ sonority peak
a.	internal	/ɪn.tɜ:.nl/	/**v**c.c**v**.c**c**/	3
b.	structure	/strʌk.tʃə/	/ccc**v**c.cc**v**/	2
c.	fiction	/fɪk.ʃn/	/c**v**c.c**c**/	2
d.	music	/mju:.zɪk/	/cc**v**.c**v**c/	2
e.	apply	/ə.plaɪ/	/**v**.cc**vv**/	2

NB: (i) C = consonants, V = vowel. (ii) Dots separating the units in the second and third columns signify syllable boundaries. (iii) The final C in (4a &c) is syllabic and therefore, in principle, constitutes the sonority peak.

In (3) the organisation of the syllable into sonority peaks can be interpreted by simply counting the number of V elements, or syllabic consonants as depicted in the last column.

The ÈwùlùSyllable

Èwùlùhas three basic syllable structures: V, CV and N̩, with the CV shape as the optimal structure. The structures are schematised in (4) as follows:

(4) The core syllable structures of Èwùlù

V-only Syllable	C plus V Syllable	Syllabic Consonant
V	CV	N̩

Any of these shapes can be arranged in some systematic way, subject to the phonotactic rule of the lect, as in (8) to generate meaningful words/morphemes. A description of these core syllables in Èwùlù is carried out below.

The V Syllable Structure

The V syllable type represents third person pronoun marker, 'he', 'she', 'it' and second person subject/object pronoun marker 'you' in the lect. The constructions in (5) demonstrate this fact:

(5)

a. **Ọ́**nụà nì tẹ́tà.
'He/She arrived today'

b. **Ó** jè nì áfiá.
'He/She went to the market'

c. **Ọ́** noo̩ nà ímé ńkàlà.
'It is in the cage'

d. **Í**rì nì ázù̩.
'You ate fish'

e. **Ì**gbà nì ọ́sọ́?
'Did you run?'

f. N̄gwà nì **ī̩**
'I informed you'

The pronominal morphemes, ọ́ (/ɔ́/) and ó (/ó/) in (5a-c) represent third person, while the pronominal morphemes í (/í/)and ì (/ì/) in (5d - f) represent second person subject and object respectively based on the rule of Advanced Tongue Root harmony.

The CV Syllable Structure

Like in all languages of the world, the CV syllable structure is the optimal shape in Èwùlù. In the lect, CV is associated with simple verb roots/stems, as the forms in (6) show:

(6)a.	tá	'chew'	f.	ʧɔ́	'find'
b.	ɓú	'kill'	g.	βʊ́	'mould'
c.	mɛ̃́	'make'	h.	wá	'split'
d.	sí	'cook	i.	gó	'buy'
e.	lʊ́	'work'	j.	fí	'twist'

The N̩ Syllable Structure

The Èwùlù N̩ syllable structure is a tone-bearing syllabic consonant, akin to the English syllabic nasal 'n' in words like *butto<u>n</u>, cotto<u>n</u>, kitte<u>n</u>, writte<u>n</u>* etc. Functionally, it constitutes the peak of sonority like vowels. In the lect, it may occupy syllable initial position, as in (7i) or syllable final position, as in (7ii) taut syllabically. In the former position, it is normally homorganic with the consonant of the affiliated CV syllable structure, giving rise to different phonetic forms such as [m, ɱ, n, ɲ, ŋ] in (7i), while in the latter positionmay function as possessive/genitive marker *'m̩'*, derived from a full morpheme, *m̩̀mú́* 'me/mine/my' (Utulu, and Ajede, 2019. Examples are illustrated in (7i & ii) as follows:

(7i)	N̩ syllable in initial position (NC-cluster)		(7ii)	N̩ syllable in final position (possessive/genitive marker)	
a.	mɱ́.bà	'no'	a.	chúkwúḿ̩	'my God'
b.	mɱ̀.gbà.dà	'antelope'	b.	n̩kèḿ̩	'mine'
c.	ɱɟ́.fé	'Should I fly?'	c.	o̩lụ́ḿ̩	'my work'
d.	nɲ̀.dó	'sorry'	d.	núm̩̀	'push me'
e.	nɲ̀.tú	'nail'	e.	égóḿ̩	'my money'
f.	ɲɲ́.chà	'soap'	f.	dúm̩̀	'help me'
g.	ɲɲ̀.chì	'grass cutter'	g.	è̩kpàḿ̩	'my bag'
h.	ŋŋ̀.gà.jì	'spoon'	h.	ǹǹéḿ̩	'my mother'
i.	ŋŋ̀.kù	'feather'	i.	è̩shụ́ḿ̩	'my body'

Typologies of the Èwùlù Syllable Structure

The purpose of this section is to show the extent to which Èwùlù may derive a wide range of syllable types such as V.CV, V.CV.CV, CV.V, V.CV.V and N.CV.CV from the core syllable types illustrated in (4). They are presented in (8) as follows:

(8)	VCV	VCVCV	CVV	VCVV	NCVCV
	óbì	ɔ́ɸʊ́ɸʊ́	bɪ̀á	ɔ́rɪ̀à	m̀bòlò
	‘heart’	‘bone’	‘come, AI’	‘sickness’	‘stone’
	ɛ́lʊ́	ákɪ̀tɪ̀	núé	ábɪ̀à	ǹgàjì
	‘bite’	‘cheek’	‘swallow	‘drum’	‘spoon’
	ógú	ónʊ̃nʊ̃	rɪ́ɔ́	ɔ́fɪ́á	nt̀ùnɛ̃
	‘thorn’	‘lake’	‘beg’	‘bush’	‘buttocks’
	ánʊ̃	ɔ́kʊlʊ̀	rɪ̀á	ìsɪ̂ì	nd̀ùkú
	‘meat’	‘okro’	‘sick, AI’	‘six’	‘potato’
	álʊ́	áɸʊ́ɸɔ́	fɪ́ɔ́	ɛ̀sáà	nt̀ʊ́tʊ́
	‘abomination’	‘leather’	‘wash’	‘seven’	‘needle’
	úté	àpàlɪ̀	zàá	ɛ̀shíá	m̀ɸʊ!ɸá
	‘mat’	‘rope’	‘sweep, AI’	‘shrimp’	‘butterfly’

NB: Affirmative Imperative (AI) forms; all nominals in columns underived words, their initial V-element are part of the entire word. The V-elements are not prefixes as may be assumed.

In summary, the Èwùlù syllable internal structure is captured in the constraints presented in (9) as they serve as pointers to the explanation of the syllable-based segmental processes examined in this study.

(9) Constraints on Èwùlù optimal syllable structures

a.	V	open syllable	Yes
b.	CV	open syllable	Yes
c.	*CVC	closed syllable	*No
d.	CV.V	ambisyllabic	Yes
e.	*CVV	tautosyllabic	*No
f.	*CC^{ONSET}	onset clusters	*No
g.	*CC^{CODA}	coda clusters	*No
h.	N̩.CV	ambisyllabic	Yes
i.	*N̩CV	tautosyllabic	*No

As the schema in (9) shows, only the syllables in the shaded rows a, b, d and h indicated ‘yes’ are allowed in Èwùlù. The constraint depicts that Èwùlù permits maximally a C and a V.It also predicts a preference for heterosyllabic/ambisyllabic V.V as opposed to taut syllabic VV underlyingly. Lastly, it sanctions tautosyllabic N.C sequence (see h) and prohibits ambisyllabic NC (see i).

Èwùlù Consonant and Vowel Inventories

Issues relating to syllable-based segmental processes, the focal point of the current study cannot be considered in complete isolation from the consonants and vowels on which they are realised. For this reason, a discussion of both phonological units is crucially relevant.

Èwùlù Consonant Inventory

Èwùlù has twenty-five (25) consonant phonemes (Utulu, 2015). They are presented in (10) as follows:

(10) Èwùlù consonantphonemes

Labials		**Coronals**		**Dorsals**	
p	b	t	d	k	g
ɸ	ɓ	tʃ	dʒ		
	m	n	ɲ		ŋw
		s	z		h
f			ʃ		
	w		l		
kw	gw		ɾ		
			j		

Source: Utulu (2015)

Each of the consonants is characteristically attached to one vowel lexically. The constrained is governed by the phonotactic rule of the lect to form meaningful words, e.g. /ɲé/ 'give', /gú/ 'dig', /ɓú/ 'kill', etc.

Èwùlù Vowel Inventory

Èwùlù has 9 phonological vowels: 7 vowels /i, e, ɛ, a, u, o, ɔ/ plus 2 low-high vowels /ɪ/ and /ʊ/. The low-high vowels are quite rare in documented Nigerian languages but may be found in languages like Izon, Ikwerre/Igbo and Hausa (Clements and Osu, 2000; Newman, 1996). Èwùlù vowels can be classified into the [±high] and [±low] vowel category, following the principle of Interactive Vowel Height posited in Pulley blank and Allen (2013:4), as (11) shows:

(11) Interactive Vowel Height (Pulleyblank and Allen, (2013:4)

	i	u	+ATR	
+high	ɪ	ʊ	-ATR	-low
	e	o	+ATR	
-high	ɛ	ɔ	-ATR	
	a		-ATR	-low

From the schema in (11), it is evident that Èwùlù belongs to the group of languages classified as '2*IU*as opposed to 1*IU* languages', a grouping based on tongue root contrast in high vowels (Casali, 2017:79).

Theoretical Orientation

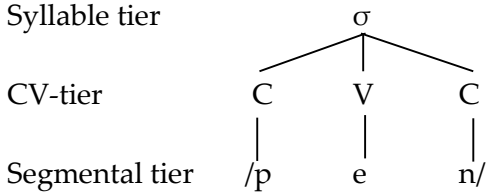
CV-Phonology Model

CV-phonology is one of the models of non-linear phonology proposed to state the canonical forms of syllable structures in languages. It is an offshoot of Goldsmith's (1976) multi-tiered (Autosegmental) Theory which started off as a theory for the explanation of tonal phenomena. The model considers phonological representations (tonal and segmental features) as linguistic properties composed of 'independent, autonomous levels' (tiers) linked to each other. Working with this theoretical assumption, Clements and Keyser (1983) employed CV-phonology to explain the prosodic status of C and V nodes as the sub-constituents of the syllable connected to consonants and vowels by association lines. The model essentially performs three tasks (see also Katamba, 1989):

(a) it states universal principles governing syllable structure, distribution of consonants and vowels that make up the syllable.
(b) it states typology of syllable structure among languages and,
(c) it defines language-specific rules underlying syllable structure.

Given the principles (a-c) above, CV-phonology model assumes the syllable to have a 'three tiered structure' comprising (i) a syllable node/tier 'σ'; (ii) a CV-tier, and (iii) a segmental tier. The three tiered structures are illustrated in the schema in (12), adapting the schema presented in Katamba (p.157):

(12)



The model shows that the English word 'pen' is composed of three tiers: the syllable tier, the CV tier and the segmental tier all linked together with association lines to form a whole (= the syllable 'σ'). Moreover, it explicitly shows that /p/ and /n/ in 'pen' are C elements = consonants, and /e/ a V elements = vowels which constitute the nucleus or sonority peak of the syllable. In the current work in which Èwùlù syllable structure processes are examined, the theory will be employed to explain the role which the core syllable structures of Èwùlù represented in (4) see also (9) play in determining the prosodic organisation of output forms that would be examined in Section 5.

Analysis

Syllable Constraints, Repair Strategies and Segmental Processes in Èwùlù

This Section undertakes an analysis of repair strategies deployed in Èwùlù to ensure output forms stay faithful to the core syllable structure of Èwùlùin the following Sub-sections.

Vowel Epenthesis in Loan Adaptation

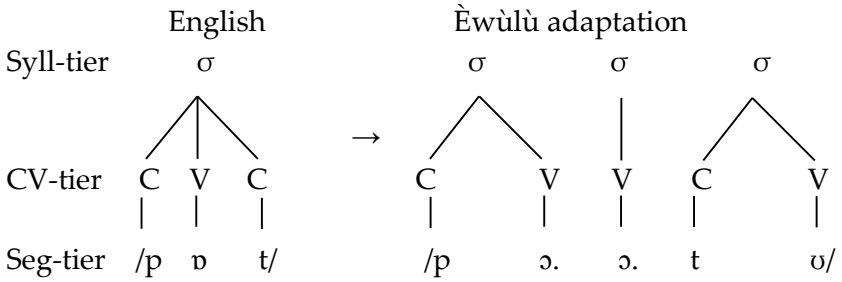
English words used in Èwùlù are intuitively modified to make English syllable structures conform to Èwùlù preferred syllable structures listed in (4) and (9). The examples in (13), taken from Utulu (2009) and (2019) illustrate this fact.

(13) Source/input vocabulary Èwùlù variant (Output)

	English	English syllable structure		Adaptation process	Adapted syllable structure	Gloss
a.	/pɒt/	CVC	→	[pɔ.ɔ.tʊ]	CV.V.CV	'pot'
b.	/fɔ:m/	CVC	→	[fɔ.ɔ.mʊ̀]	CV.V.CV	'form'
c.	/ʃɜ:t/	CVVC	→	[ʃɛ.ɛ.tɪ]	CV.V.CV	'shirt'
d.	/kəʊm/	CVVC	→	[ko.o.m.bu]	CV.V.N.CV	'comb'
e.	/glæs/	CCVC	→	[gɪ.la.asɪ]	CV.CV.V.CV	'glass'
f.	/skɜ:t/	CCVC	→	[sɪ.kɛ.ɛtɪ]	CV.CV.V.CV	'sket'
g.	/glæd/	CCVC	→	[ga.la.adɪ]	CV.CV.V.CV	'glad'

As (13) shows, it will be observed that syllable structures of English vocabulary are modified: CVC, CVVC, and CCVC are turned to CV.V.CV and CV.CV.V.CV respectively by insertion of vowels in syllable internal and final positions. The motivation for the insertion of epenthetic vowels is to make the loans stay faithful to the constraints in (9). The CV-phonology theory discussed in (12) transparently demonstrates this fact in (14), taking the form in (13a):

(14) CV-phonology approach to syllable constraint-induced loan adaptation in Èwùlù



As shown in (14), there is insertion of vowels where appropriate in order to repair *CVC (see (9c)) not allowed in Èwùlù. The adjustment process is consisted with the wide held view among loan phonologists that borrowed items commonly conform to constraints on prosodic organisation (Broselow, 1992).

Vowel Deletionin Èwùlù

When words/morphemes are juxtaposed to form phrases, the Èwùlù prosodic rule which sanctions CV but prohibits phonetic CVV triggers deletion rule as repair strategy to rid the structure of one of the VV sequence, simplifying it to a V, as the forms in (15) show:

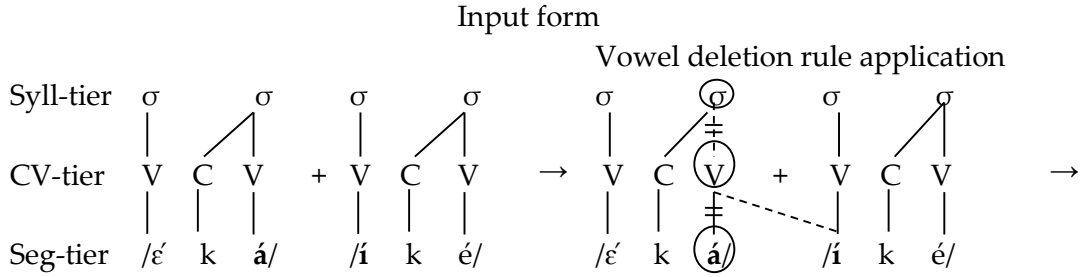
(15) Syllable constraint-induced vowel deletion

	Input					Output
a.	/ɛ́.ká/ 'arm'	+	/**í.**ké/ 'strength'	→	/ɛ́.kə.í.ké/ →	[ɛ́.kí.!ké] 'stinginess'
b.	/ɔ́.ŋá/ 'sore'	+	/**í.**mí/ 'nose'	→	/ɔ́.ŋə.í.sí/ →	[ɔ́.ŋĩ̋.mĩ̀] 'nose sore'

c.	/í.ɓ**é**/ 'dispute'	+	/**à.**nì/ 'land'	→	/í.ɓø.á.nì/	→	[í.ɓa̋.nĩ̀] 'land dispute'
d.	/ì.t**è**/ 'pot'	+	/**ɔ́.**má/ 'beauty'	→	/ì.tø.ɔ́.má/	→	[ì.tɔ̌.ma̋] 'beautiful pot'
e.	/t**è**/ 'cooked'	+	/**ó.**fé/ 'soup'	→	/tø.ó.fé/	→	[tô.fé] 'cooked soup
f.	/t**á**/ 'chew'	+	/**à.**dù/ 'bitter kola'	→	/tø.a.du/	→	[ta̋.dù] 'chew bitter kola'

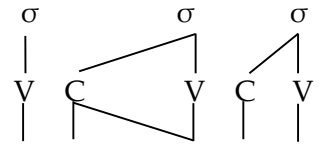
From CV-phonology point of view, the simplicity of syllable structure in (15) can be insightfully and transparently expressed in (16a & b), citing the form in (15a) as a case study:

(16a.) CV-phonology approach to syllable constraint-induced vowel deletion/syllable reduction process



The application of vowel deletion rule (see the derivation right of the arrow), targets the ringed (deleted) vowel /á/ of the /á.í/ sequence conventionally tagged V_1-V_2 sequence in the phonological literature. After the application of /a/-deletion rule is established, a structure in (16b) surfaces:

(16b.)



/ɛ́. k /**í.** k é/ → [ɛ́.kí.!k é] 'stinginess'

Importantly, the CV model enables us see very clearly the preference of Èwùlù for VCVCV structure over VCVVCV shape, the latter which has VV sequence that violates the core syllable structure of the lect.

Glide Formation

Glide formation is a process which turns high vowels: /i, ɪ/ and round vowels /u, ʊ, o, ɔ/ to glides [j] and [w] respectively. The obvious change of vowel feature to consonant feature

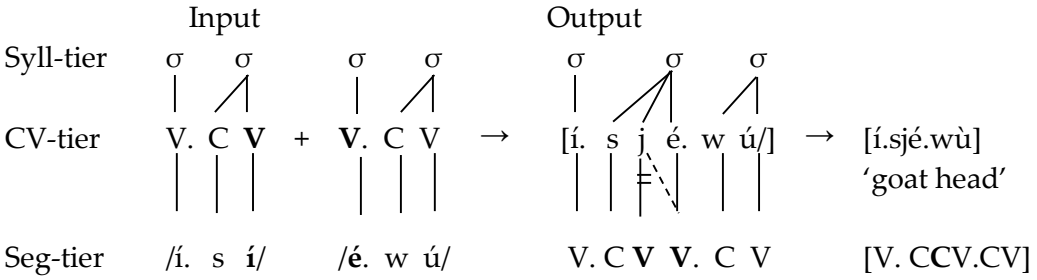
applies for similar reason attributed to V-deletion rule analysed in (16a & b). For instance, to ensure that occurrence of CVV is avoided in the output string, constraint on Èwùlù core syllable holds that, if /i, ɪ, [+high]/ or /u, ʊ, o, ɔ, [+round]/ precedes another vowel, it should be converted to [j] and [w] respectively, otherwise it should be preserved. The two patterns are shown in (17) as follows:

(17) Syllable constraint-motivated glide formation

	Input				Output
a.	/í.s**í**/ 'head'	+	/**é**.wú/ 'goat'	→	[í.s**j**é.wù] 'goat head'
b.	/á.r**ɾ́**/ 'worm'	+	**ɛ́**.fɔ́/ 'stomach'	→	[á.r**j**ɛ́.!f ɔ́] 'ascaris/intestinal worm'
c.	/é.n**ú**/ 'up'	+	/**à**.nì/ 'land'	→	[é.n**w**â.nĩ̀] 'upland'
d.	/ɔ́.l**ʊ́**/ 'work, Nn'	+	/**ɔ́**.má/ 'beauty'	→	[ɔ́.lwɔ́.mâ] 'good work'
e.	/m̀.ɓ**ɔ́**/ 'metallic container'	+	/**à**.nì/ 'ground'	→	[m̀.ɓ**w**â.nĩ̀] 'cannon'

A CV-phonology approach lays bare this structural fact similar to the French case illustrated in (2) as follows, citing the form in (17a):

(18) CV-phonology treatment of glide formation



In sum, the phonology, influenced by the constraints illustrated in (9), would rather allow a phonetic [CCV] structure coterminous with the /N̩.CV/ shape than the impermissible /*CV.V/.

Haplology

The Èwùlù syllabic consonant, 'N̩', if prefixed to a CV syllable *-mú*, as in <N̩ + mú>to derive [m̩.mʊ́]'I,/me (first person singular subject/object pronoun) and /mine/my' (genitive/possessive marker) typically results in 'haplology'. Haplology is the omission of some sounds in the word if they are similar in articulation with some adjacent sound (Crystal, 2008). In the application of the process, the CV portion, *–mú*of the two-syllable word, m̩.*mú* is completely omitted, leaving the tone-bearing *m̩*̀- stranded as the forms in (19) show:

(19) Syllable constraint-based haplology process

	Basic form		Derived form (haplology)	Gloss
a.	**/m̩.mʊ́** bíà ká/ 'I' 'coming'	→	[**ḿ̩**-bíà ká]	'I am coming'
b.	**/m̩.mʊ́** jè ko̩ áfiá/ 'I' 'go-ING 'market'	→	[**ń̩**-jè ko̩ áfiá]	'I am going to the market
c.	chúkwú-m̩.mʊ́/ 'God' 'me'	→	[chúkwú-**ḿ̩**]	'my God'
c.	/nk̩è **m̩.mʊ́**/ 'the one of' 'me'	→	[nk̩è-**ḿ̩**]	'mine'
c.	/nú **m̩.mʊ́**/ 'push' 'me'	→	[nú-**m̩̀**]	'push me'
d.	/égó **m̩.mʊ́**/ 'money' 'me'	→	[égó-**ḿ̩**]	'my money'
e.	/dú **m̩.mʊ́**/ 'help' 'me'	→	[dú-**m̩̀**]	'help me'

As (19) shows, it is presumed in the current study that the need to sustain 'economy of structure', on the one hand, and the need to conform to the core syllable structure posited in (4) and (9), on the other hand, motivate the rule of haplology, converting genitive, *m̩̀.mʊ́*with N.CV structure to *ḿ̩* with a singleton tone-bearing C, which, in principle, is functional as sonority/syllable peak just like the vowel.

Nasality Effacement

Nasality effacement is a process/rule which deletes nasality on vowels occurring at morpheme boundary in compound or complex words (Egbokhare, 1990:274). Egbokhare in his analysis of phrasal vowel nasalisation in Emai demonstrates cases in which vowels not original

marked for nasalisation acquire the nasality feature of adjacent nasal consonant under the operation of vowel deletion of the type espoused in (15) and (16).

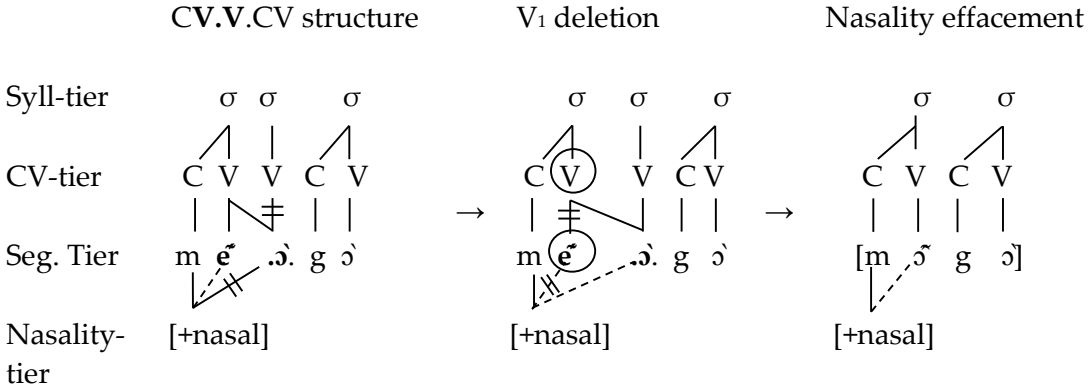
Like Emai, Èwùlù nasality effacement occur, in which boundary vowels not originally specified for the feature [+nasal] in a verb phrase may acquire the nasal feature of a deleted vowel. The pattern is shown in (20) as follows:

(20) Syllable structure-induced nasality effacement

	Input				Output				
.	/mé/ ‘make’	+	/ɔ̀.gɔ̀/ ‘kindness’	→	[m**ɛ̃.ɔ̀**.gɔ̀]	→	[mɔ́.ɔ̃gɔ̀]	→	[mɔ̃.gɔ̀] ‘help, vb’
b.	/ná/ ‘go’	+	/à.zʊ́/ ‘back’	→	[n**ã.à**.zʊ́]	→	[nɔ́.ãzʊ́]	→	[nãzʊ̀]‘shift back’
c.	/ɲá/ ‘roast’		/ɔ́.kà/ ‘corn’	→	[ɲ**ã.ɔ́**.kà]	→	[ɲɔ́.ɔ̃.kà]	→	[ɲɔ̃.kà]‘roast corn’
d.	/má/ ‘throw’	+	/ʊ̀.lá/ ‘slap’	→	[m**ã.ʊ̀**.lá]	→	[mɔ́.ʊ̃.lá]	→	[mʊ̃.lā] ‘slap, Vb’
e.	/ɲé/ ‘give’		/ʊ́.mʊ̀/ ‘children’	→	[ɲ**ɛ̃.ʊ́**.mʊ̃]	→	[ɲɔ́.ʊ̃.mʊ̃]	→	[ɲʊ̃.mʊ̃] ‘give children’

As the examples in (20) show, it will be observed that the nasality acquired by $V_1$from preceding nasal consonants are ‘ceded’ to V_2 originally lacking nasality. The process is insightfully demonstrated in CV-phonology approach in (21), citing the form in (20a):

(21) CV-phonology treatment of nasality effacement



The delinking notation (=) captures the deletion of [ɛ̃] which subsequently transfers its nasality to [ɔ̃]. It should be recalled that the V_1-deletion process, as have been shown so far, is required

to turn deviant input CVV sequence to CV in satisfaction of the constraint on the Èwùlù optimal syllable structure.

Conclusion

This study has employed the CV-phonology theory proposed by Clements and Keyser (1983)to explain the relative distribution of consonants and vowels in phonological representations composed of the σ (syllable), CV and segmental tiers. It has demonstrated how and why vowel epenthesis (insertion), vowel deletion, glide formation, haplology and vowel effacement apply in Èwùlù. In the analysis, the study revealed that the aforementioned syllable structure processes were triggered as repair strategies to adjust violable input structures to faithful output structures in obedience to constraints on core/optimal syllable structures of Èwùlù. In contribution to knowledge, the study has shed some light, from a dialectal perspective, on the general held view among phonologists (e.g. Khan, 1976; McCarthy and Prince, 1995) that the syllable as a prosodic constituent plays important role, first, in prosodic organisation, and second, in shaping segmental processes (like the ones examined above) which take the syllable as their domain of application.

References

Blench, R.M. (1989). A proposed new classification of Benue-Congo languages. *Afrikanische Arbeitspapiere, Köln*, 17:115-147.

Blevins, J. (1995). The syllable in phonological theory. In Goldsmith, J.A. (Ed.). *The handbook of phonological theory*, 206-44.

Broselow, Ellen. (1992). Loanword phonology. *International Encyclopaedia of Linguistics*, Vol. 1, William Bright (Ed.), 200-1.

Casali, R. F. (2017). High-vowel patterning as an early diagnostic of vowel-inventory type. *Journal of West African Languages,*44 (1),79-112.

Clements, G. N. and Keyser, J. (1983). *CV phonology: a generative theory of the syllable.* Cambridge, MA: MIT Press.

Clements, G.N and Osu, S. (2000). Explosives, implosives, and non-explosives: the linguistic function of air pressure in stops. In Gussenhoven, C. and Warner, N (Eds.), *Laboratory Phonology* 7, 299-350.

Crystal, D. (2008). A *dictionary of linguistics and phonetics*. (Sixth edn.), London: Blackwell.

Egbokhare, F. O. (1990). A phonology of Emai. An unpublished PhD thesis, University of Ibadan.

Emenanjo, E.N. (1978). *Elements of modern Igbo grammar*. Ibadan: Oxford University Press.

Goldsmith, J. A. (1976). Autosegmental phonology. PhD dissertation, MIT. [Published 1979, New York: Garland.]

Kahn, D. (1976). Syllable-based generalisations in English. PhD, MIT. Distributed by Indiana University Linguistics Club.

Katamba, F. 1989. An introduction to phonology. London: Longman Group Ltd.

McCarthy, J. and Prince, A. (1995). Prosodic morphology. In Goldsmith, J. (Ed.). *The handbook of phonological theory*, 318-66.

Newman, P. (1996). Hausa phonology. In Kaye, A.S and Daniels P.T. *Phonologies of Asia and Africa*, 537-52.

Pulleyblank, D. and B. Allen, (2013). Issues in the phonology-phonetics interface in African languages. In O. Orie and Karen W. Sanders (Eds.). *Selected proceedings of the 43rd*

annual conference on African linguistics, Somerville, MA: Cascadilla Proceedings Project, 1-15.

Schane, S.A. (1973). Generative phonology. New Jersey: Prentice-Hall, Englewood Cliffs.

Utulu, D.C. (2009). Syllable weight and vowel lengthening in Èwùlù loanword phonology. *Papers in English and Linguistics (PEL)*, vol. 10, 70-81.

Utulu, D.C.(2015). Verbal reduplication in Èwùlù. In *ANSU Journal of Arts and Social Sciences*, Vol. 1 (4).The Faculty of Arts and Social Sciences, Anambra: Anambra State University.

Utulu, D.C.(2019). Vowel doubling in Urhobo: The case of loanword. Journal of West African Languages, 46(1), 32-46.

Utulu, D.C and Ajede, C.K.(2019). The internal structure of Ewulu words. *Abraka Humanities Review*, *Journal of the Faculty of Arts*, 9 (1), 20-41, Delta State University, Abraka, Delta State.