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ADJECTIVES IN ESAHIE: A MORPHOSYNTACTIC STUDY

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Abstract:

Adjectives have been studied in many languages (Adjei 2012; Akrofi-Ansah 2013; Caesar 2019; Danti 2007; Dorvlo 2008; Naden 2007; Osam 2003; Pokua et al. 2007). This affirms Dixon's (2004,2010) assertion that all languages should have a distinguishable class of adjectives if they have a distinguishable class of nouns and verbs. This study describes the nature of adjectives in Esahie, a Kwa language spoken by the people of Sehwi in the Western North region of Ghana. Using data collected from 20 participants --10 males and 10 females between the ages of ten and sixty-five, the paper shows that, like other Kwa languages, Esahie has a class of words called adjectives, which may be underived or derived. In the derived form, the words used as adjectives undergo morphological changes such as reduplication as they alter to function in the adjectival category. It further shows that syntactically, adjectives in Esahie function in a relative construction using a relative marker **bɔ**, while they predicatively occur with a copular verb **te** or **yɛ**. The adjectives also display degrees of comparison using the exceed markers **tra** or **paa**. This study enhances the knowledge and understanding of adjectives in Esahie, and on the typology of adjectives in general, especially, in Kwa languages.

Keywords: Adjective, Morpho-syntax, Esahie, Predicative, Attributive

1. Introduction

The discussion over the universality of the adjective category have established that every language has adjectives, although with varied types (Abubakari 2021; Ameka 2001; Atipoka & Nsoh 2018; Bisilki & Yakpo 2020; Dixon 2010; England et al. 2004). The study of adjectives as an independent class of words has further gone through a checkered process. Dixon (2010), for instance, made a change in an earlier stance (Dixon 1977) when he alters his previous conviction that adjectives did not form an independent lexical class. However, following successive works in favour of the recognition of the adjective class, he develops a comprehensive framework for the analysis of adjectives (Dixon 2010). Dixon (2004) opined that all languages in the world have a distinguishable class of words called adjectives. These vary in sizes, with some languages having an open class of adjectives, and others a closed or limited number of adjectives. Also, whereas some languages make a clear distinction between adjectives and other word classes such as nouns or verbs, other languages encode adjectival concepts using nouns or verbs (Liu 2016; Zhang 2020).

Studies reveal that the adjective class in many African languages has fewer members as compared to nouns and verbs. Dimmendaal (2000: 171) observes that "many African languages have only few adjectives which are formally distinct from nouns or verbs". In Ewe, for instance, Ameka (2001) observes that there are only five core adjectives used to describe nouns. Following Dixon's (1992; 2004, 2010) exposition on adjectives, the study of adjectives has received ample attention in some Kwa languages (Adjei 2005; Adjei 2012; Danti 2007; Dorvlo 2008; Naden 2007; Osam 2003, 2004, 2008; Pokua et al. 2007; Saah 2007). Nevertheless, there are some languages whose adjectives still remain unstudied. One of such languages is Esahie, a Kwa language spoken by the people of Sehwi in the Western North region of Ghana. Accordingly, this paper discusses the nature of adjectives and their syntactic functions in Esahie.

Cross-linguistically, there are variations in adjectives (Van den Berg et al. 2017). One area of cross-linguistic variation in adjectives relates to the grammatical properties that distinguish adjectives from nouns and verbal categories. In most cases, one must resort to semantic and morpho-syntactic analyses to describe these properties. According to Dixon (2010), the distributional potential and morphological possibilities of adjectives within the verb or noun phrase, the potential for adverbialisation, and use in comparative constructions are relevant issues to consider in distinguishing adjectives from verbs on the one hand, and from nouns on the other. Hyman and Olawsky (2004) also observe that

adjectives are uniquely distinct from nouns. In Logba and Sɛlɛɛ, both NA-Togo Ghana Togo Mountains (GTM) languages, Dorvlo (2008) and (Agbetsoamedo, 2014a; 2014b) observe that a basic distinction between nouns and adjectives is that nouns precede adjectives in phrase structure; also nouns have inherent class markers, while adjectives do not. Some languages of the Kwa group also recognize adjectives as distinct part of speech, but also employ other word classes such as nouns and verbs to express adjectival concepts (Adjei 2012; Akrofi-Ansah 2013; Caesar 2019; Danti 2007; Dorvlo 2008; Naden 2007; Osam 2003; Pokua et al. 2007). In Mandarin Chinese, Paul (2010) shows that adjectives are a distinct part of speech and there are as many as two morphologically different classes of adjectives; namely, simple and derived adjectives, each with its own set of predictable semantic and syntactic properties.

Usually, linguists use the presence or absence of copulas in predications to determine the existence of an adjective class (Bisilki & Yakpo 2020; Dixon 2010; Pustet 2003). Pustet (2003), for instance, draws on the four semantic parameters: dynamicity, transience, transitivity, and dependency to identify the universal principles that govern the distribution of copulas in nominal, adjectival, and verbal predications through the inherent meaning of the lexical items with which they can combine. Copulas would foremost distinguish nouns from verbs, and the adjectives could then perhaps line up with either side.

Another area languages differ in relation to adjectives relates to the size of their adjective classes. While some languages have large and open adjective classes, other languages have closed adjective classes with very few members. In his theory, Dixon (2010) explains that a language with a large adjective class will usually have hundreds of members, as is the case in many European languages. On the contrary, a language with a small adjective class may have below five members, as in the case of Yimas (Lower Sepik family, New Guinea cf. (Foley 1991) and Kham (Tibeto-Burman, Nepal (Watters 2009). Segerer (2008) observes that most African languages with closed adjective classes have numbers ranging from 2 to more than 100, as in Dagbani (Gur Language), which has 101 adjectives and Kele (Niger-Congo, Bantu, DR Congo) which has just 2 adjectives.

Typologically, linguists identify two main categories of adjectives — derived and underived (Adams & Tracey 2004; Agbetsoamedo 2014; Bisilki & Yakpo 2020; Caesar & Ollennu 2018; Dakubu 1987; Dorvlo 2008; Manu-Barfo 2020; Mpofu 2009; Nsoh et al. 2007; Segerer 2008).The underived adjectives are also called primary, deep or prototypical

adjectives (Dixon, 2004), whereas the derived adjectives are usually gleaned from other lexical classes such as nouns or verbs through diverse morphological processes such as reduplication or affixation. A language with derived adjectives is described as having an open adjective class system (Lin & Peck, 2016). Closed adjectives predominate in African languages (Bisilki & Yakpo 2020; Dorvlo 2008; Segerer 2008). Ga and Dangme, for instance, have both deep and derived adjectives. Deep level adjectives are monomorphemic, and cannot be partitioned into meaningful morphemes (Caesar 2019; Caesar & Ollennu 2018). Examples of deep adjectives are found in (1).

(1)	**Ga:**	**Dangme:**
	agbo 'big'	**yumu** 'black'
	kpitioo 'short'	**kpiti** 'short'
	kpakpa 'good'	**kpakpa** 'good' (Caesar & Ollennu 2018)

According to Blench and Dendo (2006), and Dixon (2004), adjectives are grouped into categories based on size and form - derived and underived. Dixon (2004: 146), for instance, groups adjectives into ten universal semantic categories. This categorisation is based on the morphosyntactic properties of the members of each type (Dixon, 2004). The semantic categorisation includes (in no order) dimension, colour, age, human propensity, physical propensity, speed, difficulty, similarity, qualification, quantification, position, value, and cardinal numbers.

Conceptually, this study adopts Dixon's (2004) description of adjectives, which identifies a set of semantic categorisations which are encoded by the adjective class in languages that have them. These types are:

- **dimension,** e.g., big, small, long, deep, etc.
- **physical property**, e.g., hard, strong, sweet, cheap, etc.
- **speed**, e.g., fast, quick, rapid, etc.
- **age,** e.g., new, old young, modern, etc.
- **colour**, e.g., black, white, golden, etc.
- **value,** e.g., good, bad, lovely, pretty, etc.
- **difficulty,** e.g., easy, tough, hard, simple, etc.
- **volition,** e.g., accidental, purposeful, deliberate, etc.
- **qualification,** e.g., true, obvious, normal, right, etc.

- **human propensity,** e.g., angry, jealous, clever, sad, etc.
- **similarity**, e.g., different, equal (to) analogous (to), etc.

Dixon further subcategorizes these adjectives into two: type A and type B. The type A focuses on dimension, age, value, and colour concepts, and Type B, on physical property, human propensity, and speed adjectives. Type A adjectives are usually core adjectives (Segerer, 2008; Dixon, 2010).

2. Methodology

Data for the study came from primary sources. The data were collected from native Wiawso speakers of Esahie with the help of a native speaker mediator. 20 participants --10 males and 10 females between the ages of ten and sixty-five were consulted during the data collection. Two separate focus group discussions were organized for the respondents each with mixed gender and age. The rationale behind the age and gender variation was to know if terminologies would vary with gender and generations. Using these focus group discussions, the participants were made to speak about pictures and describe objects. The objects and pictures used for data collection varied in shapes, sizes, height and colours. The discussions were recorded and later transcribed with the aid of a native speaker consultant and triangulated for native speaker acceptability. According to Berg (2007), researchers owe professional and ethical obligations to the human subject and the real world they collect data from in order to honour and ensure confidentiality made to them. Accordingly, the study adheres to situational ethics embedded in the qualitative research tradition. Thus, we sought the consent of respondents to participate in the study and future related work.

This paper is organised into five sections. This section has introduced the paper by providing some information on the typology of adjectives, and establishing the focus of the study well as the sources of data used in the study. Section two focuses on describing adjectives in Esahie. In this section we show the classification of adjectives in Esahie. We exemplify primary and derived adjectives. The syntactic functions of the adjectives are discussed in section three and four, where we demonstrate how adjectives in Esahie behave predicatively, attributively, and in comparison, respectively. Section five concludes the discussion.

3. Classification of Adjectives in Esahie

Esahie has adjectives of different classification based on the varied semantic types proposed by Dixon (2004). Following Dixon (2004), we identify these semantic types of adjectives in the language:

(2)

Dimension:	**pírí**	'big;
	kààmbá	'small/young/little'
	tìndín	'tall/long';
	tìká/ síín	'short'
Age:	**dáá**	'old'
	fófórɛ́	'new'
Value:	**páá**	'good'
	tɛ/tɛɛ	'bad/ugly'
Colour:	**bré**	'black'
	fùfúé	'white'
	kɔ̀kórɛ́	'red'

Peripheral semantic types include:

sé	'hard/ difficult/ mean /strong / tough'
mèrɛ	'soft'
nó	'heavy'
té	'clean'
wèzráwèzrá	'rough'
hyè	'hot'
frɔlɔɔ	'cold'
kèká	'sour'
fɛ	'tired'
Speed: **ndɛ̀ndɛ**	'fast /quick'
nyàà	'slow'

Position:	**dédé**	'far'
	pìngyé	'near/close'
	àsé	'low'
	anwóró	'high'
	fàmáá	'right'
	bɛn	'left'

The examples illustrate the various semantic classification of adjectives in Esahie. We notice that the adjectives are based on eight semantic categories. These include dimension, age, value, colour, speed, and position. While some of the categories have a relatively high number of adjectives, others are relatively few. For instance, the membership of age and speed are very limited in number. The adjectives listed above are all not prototypical or primary adjectives. Some of them are derived while others are underived. The derived ones are from other word groups, and may express adjectival concepts. In the next section, we throw more light on the derived and underived adjectives in Esahie.

3.1 Underived Adjectives in Esahie

The underived adjectives are prototypical or basic adjectives, which implies they do not come from any word class (Osam 2003). They are what Dixon (2004) calls 'deep level adjectives'. These prototypical adjectives describe the nouns they occur with. The underived adjectives in Esahie include: ***pírí*** *'big;* ***kààmbá*** *'small/young/little';* ***tìndín*** *'tall/long';* ***tìká/ síín*** *'short;* ***fófórɛ'*** *'new';* ***bré*** *'black';* ***fùfúé*** *'white';* ***kɔkórɛ*** *'red';* ***dédé*** *'far';* ***pìngyé*** *'near';* ***àsé*** *'low';* ***ɛ̀nwóró*** *'high';* ***fàmáá*** *'right';* ***bɛn*** *'left.* Some of them are used in the following sentences.

(3)

a. **mboma** **ne** **tè** **tìká** **pĩ**
window DEF COP short EMPHT
'The window is short.'

b. **edwein** **ne** **tè** **foforɛ**
song DEF COP new
'The song is new.'

We observe the use of some core or basic adjectives in example (3) where they modify nouns. For instance, in example (3a), ***tika*** 'short is used to modify the noun ***mboma*** 'window', while in (3b) ***foforɛ*** 'new' modifies ***edwein*** 'song'. These underived adjectives can also be reduplicated in sentences as shown in (4).

(4)

a. **ɛpoen** **ne** **tè** **tikatika** **pi**
door DEF COP short.RED EMPHT
'The door is very short'

b. **edwein** **ne** **tè** **foforɛfoforɛ**
song DEF COP new.RED
'the song is very new'

The examples in (4) show some examples of basic adjectives used in a reduplicated form. Unlike example (3) where the adjectives are merely used as modifiers, in example (4), the reduplicated adjectives go beyond mere descriptive elements to also show the intensity of the objects modified in relation to their description.

3.2 Derived Adjectives

According to Dixon (2004) some languages make a clear distinction between adjectives and other word classes such as nouns or verbs, while other languages encode adjectival concepts using nouns or verbs. Adjectival concepts are lexical items, especially verbs and nouns, in a language that play adjectival role (Ollennu 2016).The derived adjectives are what Bhat (1994) terms as lexical categories which have been decategorised because they function in a word class other than their canonical category. The notion of derived adjectives is not new to Kwa languages of which Esahie belongs. Writing on Akan adjectives, Osam (2003) identified some adjectives derived from either nouns or verbs as shown in (5).

(5)

	Nouns		**Adjectives**	
a)	**abo** 'rocks'	—	**aboabo**	'rocky

b) **apɔw** 'knot' — **apɔwapɔw** ' knotty'
c) **nkyen** 'salt' — **nkenkyen** 'salty' (Osam 2003: 193)

Aside from Akan, Ameka (2001) also identifies some adjectives derived from nouns and verbs in Ewe. Dorvlo (2008) and Ollennu (2016) refer to these as property concepts. Our Esahie data show evidence for nouns that express adjectival concepts. In what follows, we discuss adjectives derived from nouns.

3.2.1 Adjectives derived from nouns

In Esahie, adjectives are derived from nouns via the process of reduplication as shown in (6).

(6)	**Noun**			**Adjective**	
	a. **bòwué**	'thorns'	→	**mmòwuémmòwué (àseɛ́)**	'thorny land'
	b. **nyɔ̀bóéɛ̀**	'rock'	→	**nyɔ̀bóéɛ̀nyɔ̀bɔ̀óéɛ̀ (àseɛ́)**	'rocky land'
	c. **nzue**	'water'	→	**nzuenzue (àlíɛ́)**	'watery food'

We notice from the data that the nouns are pluralized in their reduplicated form. This is different from what is observed in Akan (Osam 2003) where nouns can be reduplicated in their singular form. The nouns in their basic forms do not encode adjectival concepts. For this, their reduplicated form is required, as shown in the examples. In (6a), the reduplicated form of ***bòwué*** 'thorns', becomes an adjective, **mm̀*òwúémm̀òwúé*** and the reduplicated form modifies **àse*ɛ́*** 'land'. In much the same way, the noun ***nyɔ̀bóéɛ̀*** 'rock' in (6b) becomes the adjective ***nyɔ̀bóéɛ̀nyɔ̀bɔ̀oéɛ̀*** 'rocky'. Reduplicating them in their singular form as in * ***bòwúébòwúé*** **àsɛ́*ɛ́***, is unacceptable to informants. Further, when adjectives are derived through total reduplication in Esahie, the reduplicant copies the stem both segmentally and suprasegmentally. We further observed some phonological changes in the initial consonants, where the bilabial stops change to become a nasal. The issue is the plural marker in Esahie is a homorganic /N/, which assimilates the place of articulation of the initial consonant. So, in (6a,) the noun ***bòwué*** 'thorn' with the initial consonant /b/ mutates to the bilabial nasal /m/ to become ***mmòwuémmòwué*** after prefixation of the plural marker /n/.

3.2.2 Reduplicated adjectives

While nouns can be reduplicated to perform adjectival functions, Owusu Ansah (2021) observes that primary or prototypical adjectives can also be reduplicated in Esahie, either fully or partially. When an adjective is reduplicated, it usually shows intensity as illustrated in example (7).

(7)

a.	**bɾ̩́**	black	**bɾ̩́bré**	very black
b.	**kɜ̀ɜ̀bá**	small	**kɜ̀ɜ̀bákɜ̀ɜ̀bá**	very small
c.	**dínn**	quiet	**dínndínn**	very quiet
d.	**tìká**	short	**tìkátìká**	very short
e.	**pírí**	big	**pípírí**	very big

The adjectives in the data are non-derived, and they exemplify adjectives that can be fully reduplicated as in example (7a-d), and one that can be partially reduplicated in (7e). In the full reduplicated form, there is a numerical limit as the form can only be reduplicated once. The reduplicated adjectives are morphologically used to denote degree or intensity of the object they modify (Owusu Ansah forthcoming) as illustrated in example (8).

(8)a. **Brá né tè bré**
man DEF copula dark
'The man is dark.'

b. **Brá né tè brébré**
man DEF copula dark.RED
'The man is very dark.'

While adjectives in Esahie are reduplicated in their base form, for some other Kwa languages such as Ga and Dangme, Caesar and Ollennu (2018) report that reduplicated adjectives are pluralised in both their base and the reduplicant parts as exemplified in (9):

(9)

Ga:			
wulu	'big'	***wuji~wuji***	'big'
kpitioo	'short'	***kpitibii~kpitibii***	'short'

bibioo	'small'	***bibii~bibii***	'small'
wamaa	'large'	***wamaa~wamaa***	'large'

(Caesar & Ollennu 2018:164)

Dangme:

agbo	'big'	***agbo~agbo***	'big'
nyafi	'small'	***nyafi~nyafi***	'small'
yumu	'black'	***yumu~yumu***	'blackened'
tsutsu	'red'	***tsutsu~utsu***	'reddish'

(Caesar & Ollennu 2018: 164)

Indeed, regardless of their form, i.e., derived or non-derived, adjectives perform some syntactic functions either attributively, or predicatively and these syntactic functions are the focus of the next section.

4. Syntactic functions of Esahie adjectives

Aikhenvald (2018) shows that adjectives perform two major syntactic functions — to modify the head noun in a noun phrase predicatively or attributively. Distributionally, adjective modifiers can occur postnominal or prenominal. They occur post-nominal when the adjective is after the head noun in noun phrases, and prenominal when the adjective is place before the noun or noun phrase. Hurford (1994) also speaks of some English adjectives that are a type of adnominal and occur in the post-head position. They explain that when adjectives occur in the pre-nominal position as modifiers, they are understood as characteristic, timeless or defining property of the noun, while they signal a temporary quality or property in the post-nominal position. They further observe that adjectival modifiers that occur after the noun are essentially predicative and are considered reduced relative clauses. Non-predicative adjectives cannot occur in the post-nominal position and this supports the idea that adjectival modifiers that occur in the post-nominal position are essentially predicative. The non-predicative adjectives cannot be used predicatively, but can only occur in the attributive position (Hurford, 1994)

Adjectives can be used predicatively. In their predicative use, adjectives occur after a copular verb (to be) as can be seen in the examples below:

(10)

a. The cat is big.
b. The boy is small.
c. The boy is handsome.
d. The door is black.

In Esahie, adjectives modify nouns just as they do in other languages. They occur either attributively or predicatively. Aboh (2010) notes that attributive adjectives in Kwa languages are a few and most often denote shape, size or colour. The adjectives occur after the noun and before the determiner or the demonstrative as exemplified in these Akan examples below:

(11)

a.	**papa**	**tuntum**	**no**	**b. maame**	**keseɛ**	**no**
	man	dark	DET	maame	fat	DET
	'the dark man'			'the fat woman'		(Aboh 2010: 12)

Syntactically, adjectives can be categorized using their grammatical properties. This categorisation distinguishes between adjectives that can fill an intransitive predicate slot and those that can fill the copula complement slot. The former type is "verb-like adjective" and the latter "non-verb-like adjectives". A further distinction is made between 'noun-like adjectives' which copy some or all morphological processes that apply to nouns and 'non-noun-like adjectives', which do not undergo noun-like morphological processes (Dixon 2004: 14, 16). Esahie adjectives can function attributively (noun-like adjectives) and predicatively (verb-like adjectives). The next section discusses these functional uses.

4.1 Adjectives in Attributive use

In Esahie, adjectives may occur immediately after the noun, or after the noun in a relative construction. Where it occurs in a relative construction, it uses the relative marker '***bɔ'.*** Predominantly, attributive adjectives in Esahie occur after nouns a relative construction marked by the relative marker as in the following examples[1].

[1] Adjectives in Esahie can also occur attributively without a relative construction as in:

biãã **nyemenenyemene**
man nice. RED
'a nice/handsome man'

However, such attributive use is not predominant as in a relative construction.

(12) a. **biãã bɔ awõ nyemene**
man REL self nice
lit; 'a man who is nice/ handsome '
'a nice/handsome man'

b. **nyɔboe bɔ yɛ se-ɔ**
stone REL be hard - final clause determiner
lit: 'a stone that is hard'
'a hard stone'

c. **ataadie bɔ w'aloa-ɔ**
dress REL wet – clause final determiner
lit: 'a dress that is wet'
'a wet dress'

In these examples, the relative marker appears immediately after the noun being modified, i.e. it appears in-between the noun and the adjective. In the examples in (12a) and (12b), for instance, the adjectives, ***nyemene*** and ***se***, occur after the relative marker immediately after the noun.

4.2 Adjectives in Predicative use

Dixon (2004: 106) asserts that adjectives can function predicatively as copula complement to modify the subject of the sentence. Predicative adjectives occur in the 'complement slot' in clauses, where they occur after copular verbs (Dixon 2004). Predicative adjectives in Esahie are preceded by the copula verbs **tè** and ***yɛ́*** in a construction[2]. Like the attributive adjectives, the predicative adjectives do not undergo morphological changes. Examples are given below in (13):

(13)

a. **bakaa ne tè piri**
tree DEF COP big
'the tree is big'

[2] The use of ***té*** and ***yɛ́*** is not context-specific. They can be used interchangeably.

b. **brenzua ne yɛ́ bre**
man DEF COP black
'the man is dark (complexion)'

c. **ɛwoo ne tè kããmba**
snake DEF COP small
'the snake is small'

In these examples, the adjectives ***piri, bre, kããmba*** are preceded by the copular verbs ***te/yɛ*.** These copular verbs link the subject to the predicative adjectives. Since words that follow copular verbs are complements, and not objects, the adjectives therefore serve to complement the copular verbs they occur with. In example (13a), for instance, the adjective ***piri*** occurring after the copula verb ***te*** is not an object to the verb, rather it predicatively functions as a complement.

5. Comparison of adjectives

Objects described by adjectives may vary in degree and sizes. These levels of degree and size are expressed in a comparative sense. In English, for example, the degrees are expressed with a suffix *–er* and *-est* attached to adjectives to express comparative and superlative degrees, respectively. Saah and Osam (2003) observed that languages in the Volta Basin also have ways of indicating comparison and degree of intensity in adjectives. They mostly do so by using the 'exceed / surpass marker' (Amfo et al. 2010). Dorvlo (2009), for instance, identifies the use of ***fiɛ̀*** as an exceed marker in Logba, whiles Amfo et al. (2010) report that Ewe uses the exceed marker ***tɔ*** to indicate comparison as shown in example (14):

(14) **zikpui sue- tɔ**
stool small –tɔ
'the smaller/smallest stool' (Amfo et.al. 2010)

Esahie also compares objects described by adjectives and these comparisons are expressed periphrastically using the exceed marker ***tra*** for comparative, and ***paa*** for intensity as exemplified in (15).

(15)

a. **biã ne tè tika tra ɛhe ne**
man DEF COP short COMPR this one
lit: the man is very very short than this one
'the man is shorter than the this one'

b. **bakaa ne tè kããba tra ɛhe ne**
tree DEF COP small COMPR this one
'the tree is smaller than the this one'

In these examples, *tra* is used to compare the objects involved. Also, *paa 'very'* as an exceed marker is used with an adjective to express intensity.

(16) a. **kyia ne tè piri paa**
dog DEF COP big INTENS
'the dog is very very big'

b. **bokaa ne tè enworo paa**
mountain DEF COP high INTENS
'the mountain is very high'

c. **Kofi té tika pi tra Kwame**
Kofi COP short INTENS COMPR Kwame
'Kofi is shorter than Kwame'

6. Conclusion

This paper has offered some insight into the morpho-syntactic behaviour of adjectives in Esahie. The discussion has established that Esahie has a class of words called adjectives which may be underived or derived from nouns. In the derived form, the study has shown that the nouns undergo morphological changes like reduplication as they move to perform their adjectival roles. We have also shown that syntactically, the adjectives can function attributively as an apposition or in a relative construction using a relative marker ***bɔ***, while predicatively, they occur with a copular verb ***tè*** or ***yɛ***. The adjectives also show degrees of comparison and intensity using the exceed marker ***tra*** or ***paa*** respectively. The study has

increased our understanding of how adjectives behave in Esahie, and has thus added to the typological understanding of Adjectives in general. While some discoveries have been made in this study, there remain other issues not discussed in this paper. Some of these issues include pluralization of adjectives, modification of adjectives and the order of occurrence for multiple adjectives. These will be given attention to in future study.

Abbreviations

EMPH	Emphatic
DEF	Definite Article
DET	Determiner
COP	Copular
INTENS	Intensifier
COMPR	Comparative
REL	Relative
PST	Past
3SG	Third Person Singular
RED	Reduplicated
PERF	Perfective

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PHONOLOGICAL OUTCOMES OF YORUBA AND ENGLISH CONTACT ON URHOBO LOAN WORDS

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Abstract:

The multi-lingual nature of Nigeria has made it typical that speakers of two or more languages have to interact with each other, and this natural phenomenon results in various degrees of linguistic, cultural, and social influences which are dependent on the dominance of the languages in contact. This study looks at one of the linguistic outcomes that result in such contact situations amongst Yoruba, English, and Urhobo in the Urhobo speech communities of Delta State. It also examines the possible implications of these adaptations for language change. Since phonological change is a universal characteristic of languages that may have far-reaching influences, when words are borrowed in the morphology as well as the syntax of languages, this study delimits its scope to examining specifically the phonological outcomes of English and Yoruba on Urhobo using some selected loan words. Data is elicited from interviewing six language consultants, who were also made to produce established loan words to evaluate how they are adapted into the structure of Urhobo. Findings show that phonological features like insertion (prosthesis and paragoge), syllable structure change, phonological substitution, free variation, and deletion are observed as these English loan words are adapted to suit the phonological structure of Urhobo. In contrast, the loan words from Yoruba are assimilated with little change into Urhobo.

Keywords: Contact Linguistics, Phonological change, Loan words, Language change, Urhobo (Nigeria)

1. Introduction

This study examines some phonological outcomes observed when Yoruba and English source words are borrowed in Urhobo. People from different ethnolinguistic backgrounds converge at a particular place to interact for one reason or another, which leads to various levels of contact between languages spoken by these people. Put simply, when speakers of different languages interact closely, it is only natural for their languages to influence each other. Language contact can occur at borders of different linguistic or dialectal area as a result of migration or cultural contact. Socially- and historically-based works done by sociolinguists have given strong theoretical base to some studies that we refer to presently as 'contact linguistics'. In fact, the sociolinguistic perspectives on language contact situation give emphasis on the investigation of the types of socio-historical situations that have given rise to different linguistic outcomes (Winford 2007:10). The goal of contact linguistics is to "uncover the various situations of contact between languages that contribute to the varied phenomena that result, as well as the linguistic and external ecological factors that help to shape them." (Winford 2003:5, 11). This means that contact linguistics focuses on the different structures or nature of influences that emerges from the different relationships that languages in contact share; such structures may be phonological, grammatical or even have sociocultural implications. In Nigeria, as in many countries of Africa, the major languages have always constituted a threat to the minority languages. It is no news that dominant languages often 'threaten' the non-dominant ones to the verge of extinction because of their unequal status of dominance in terms of frequency of use, degree of proficiency, prestige and descriptions/domains of functions (Wolff 2000:330). With this, many minority languages in Nigeria are incessantly under undue pressure (Igboanusi and Peter 2004). The National Language Policy on Education (see, the Constitution of the Federal Republic of Nigeria 1999; 2004 and among others) has not been so helpful as much attention is given to majority languages and the few times attention has been given to minority language use in Nigeria, practical ways and support for implementation is usually lacking.

Hausa, Igbo and Yoruba have been referred to as major Nigerian languages, because they are essentially multimillion-speaker languages and they function as local lingua francas, language of education as well as regional or state languages in areas where they are spoken; Hausa in Northern Nigeria, Igbo in South Eastern Nigeria and Yoruba in South Western Nigeria. It is estimated that a larger percentage of Nigerians speak these three languages than those referred to as 'minority' languages based on demography (Adegbite

2008: 2-3; Omotoyinbo 2016: 82-83). On the other hand, there are numerous other languages referred to as 'minority languages' which are used in some communities (or states) as mother tongues but hardly as languages of education. Some of these languages have been said to be on the verge of extinction. For emphasis, Urhobo happens to be one of these numerous languages referred to as 'minority languages'and as such, has been under the threat of being dominated by not just these indigenous 'majority languages' but also English (Ugwuoke, 1999). In fact, Roelle (2013:282) considers the Urhobo language as 'highly endangered'. In the south-south, Nigeria; with particular reference to Delta state, (although Edo and Rivers are inclusive) English and Naija (Nigerian Pidgin English), are mostly used as the medium of instruction in most schools and in informal situations in Urhobo speech communities. Many people are often regarded as up-to-date, fashionable or educated when heard communicating mostly in English. This lays the foundation for Sankoff's (2001) argument that, when a common second language is learned and used by a group of people, they often find themselves introducing second-language lexical items into conversations with fellow bilinguals in their original first language, which leads to the adoption of loan words. loan words are one of the most "easily observable results of intercultural contact" Hoffer (2005: 1). Also loan words are words which entered into the lexicon of a language as a result of borrowing, transfer or copying, at some point in the history of a language (Haspelmath, 2009: 36). The adoption of loan words come with levels of changes, alterations or adjustments in the phonology (and other linguistic levels) of the recipient language. Such alterations may include processes that apply not only to foreign-origin vocabulary, but may also spread to native vocabulary; which prompts the objectives of this study.

There have been a lot of sociolinguistic-based studies on the linguistic processes involved in the phenomenon of language contact which includes explaining how linguistic items are loaned or how borrowed words that arise as a result of different contact situations are evaluated (c.f. Emowverha 2005, Aziza and Utulu 2006, Ugorgi 2013, Utulu 2019). Some other scholars have probed into the problems and threats of endangerment of ethnic minority languages having deep linguistic and cultural root as a result of the strong influence of a majority national language especially in colonial context (Igboanusi and Peter 2004). Also, studies on language contact (especially bilingual situations) in Nigeria have concentrated on either the contrastive analyses of English and Nigerian languages in the areas of phonology, syntax and usage, or the interference features of the indigenous languages found in the varieties of English used by Nigerians. Largely, the major point of interest have always been the English language, and the methodological orientation has

always been influenced by pedagogical implications (c.f. Dawulung 1999; Kuju 1999; Schaefer & Egbokhare 1999; Haruna 2003, Nwaozuzu, Agbedo and Ugwuona 2013; Obiegbu 2016).

There have also been a number of related studies carried out on Nigerian endangered languages with reference made to Urhobo like: Aziza and Utulu (2006), Onose (2009), Rolle (2013), Ugorji (2013), Tonukari, Ejobee, Aleh and Orjinta (2014), Mowarin (2014) and Oduaran (2017), Utulu (2019) and Ajiboye (2020) among others. Other studies on Urhobo border on the area of curriculum development for Primary 1 to JSS 3 by the Urhobo Studies Association and Delta State Univeristy in collaboration with Nigerian Education Research and Development Council (NERDC). Looking through previous studies, this study affirms that the outcomes of language or dialect contact depends on both the linguistic relationship between the languages/varieties and the social conditions underlying the contact. Therefore, this study builds on previous studies on Urhobo loan words to investigate the adaptation of loan words from Yoruba and English into Urhobo and the possible implication for language change. Again, the study delimits its scope specifically, to the phonological outcomes of the contact between a foreign language; (English) which is also used as a lingua franca and an indigenous language and (Yoruba) which shares close geographical ties with Urhobo (the language being assessed in this study). This study contributes to on-going discussions on different perspectives/investigations into contact languages and areas of Urhobo language studies.

2. A brief on Urhobo language studies

Urhobo is a South Western Edoid language of the Niger-Congo family, spoken in Delta State, Nigeria. Roelle (2013) claims that there is no exact figure published regarding the population of Urhobo native speakers owing to a number of problems: one, distinguishing Urhobo speakers from the number of other ethnic group speakers living in urban centers of Urhobo native land, two, the fact that many young speakers speak Naija (Nigerian Pidgin English) and then the fact that they have a significant number of speakers who live abroad. However, from what have been reported so far, the population of Urhobo native speakers is estimated to be between 500,000 and 1.5 million (Mowarin 2004; Lewis 2009; Ugorji 2013). Their neighbours are the Isoko to the East, the Itsekiri and Ijaw to the West, Edo people to the North and the Ukwuani people to the North-east. The Urhobo people are predominantly known for farming and fishing (Ekeh 2007). Urhobo speaking communities comprises twenty-two clans, each with its own linguistic

peculiarities, some include- Agbarha-amẹ, Agbarha-otor, Agbarho, Agbor, Arhavanen, Avwraka, Eghwu, Evwereni, Ephro-oto, Idjeihe, Oghara, Ogor, Okere, Okparabe, Okpe, Olomu, Orogun, Udu, among others. Aziza (2007: 273) reports that "Urhobo has fifteen mutually intelligible dialects."

A number of investigations have been made into Urhobo language generally. Some include: Ladefoged (1968), Welmers (1969), Aziza (1997, 2002, 2003, 2006, 2008), Aziza & Utulu (2006), Ugorji (2013), Roelle (2013), Utulu (2019) Ajiboye (2020), among others. Research on the phonology of Urhobo reports that Urhobo vowel system came previously from a 10 vowel system which maintained tongue root distinctions but may have collapsed to 7 over time, that is why the -ATR vowels like /ɛ/ and /ɔ/ appear to co-occur freely with /e/ and /o/ +ATR vowels (Elugbe 1989; Roelle 2013:284). Urhobo sound system comprises 28 consonants /p, b, t, d, c, ɟ, k, g, k͡p, g͡b, ɸ, f, v, s, z, ʃ, ʒ, ɣ, h/x, m, n, ɲ, ŋm, r, ɾ, ʋ, j, w/ (Aziza 2003; 2007; Roelle 2013; Ugorji 2013). Urhobo also attest 7 oral contrastive vowels /i, e, ɛ, a, o, ɔ, u/ with each having their nasal complements /ĩ, ẽ, ɛ̃, ã, õ, ɔ̃, ũ/ which have been argued to occur in variations (Welmers 1969:85; Aziza 2008). These vowels occur in the initial, medial and final environments of words. Diphthongs do not occur in Urhobo but what is rather seen is a sequence of vowels which rarely occur (Roelle 2012:286). Though Ajiboye (2020:50) refutes Roelle's claim, arguing that vowels in Urhobo do not occur in sequences and when they do, they are elided during native speakers' natural conversations.

Urhobo distinguishes between two distinctive tonemes: High and Low, alongside a Mid or Downstepped High (Aziza 2003, Roelle 2013, Ugorji 2013). In Urhobo, only vowels bear tones. The tonal pattern in Urhobo shows that the downstep(ed high) tone restrictedly occurs after a high or two successive high tones. Urhobo also attests consonant clusters and permits only /j/, /w/, and /r/ to occur as the second consonant in a [CCV] sequence: (Roelle 2013:311). But these clusters occupy only the onset slot and occur more in nouns. Also, the Urhobo language has a constraint on coda elements (Ugorji 2013). The syllable structure is important to note here because it best explains why loan words must follow the "possible well-formed syllable constituents since all substantive segments and prosodic resources" must follow these requirements in a language loaned or not (p. 183). This is why Ugorji (2013) argues that loanwords are 're-syllabified' to agree with Urhobo syllable structure in their segmental and tonal features and when it does not, it maintains the syllable specifications as in its source language.

3. Method

This study adopted a qualitative descriptive approach. 80 loan words constituted data for this study. Out of this 80, 10 were elicited from primary sources whereas 70 were from secondary sources (35 loan words from Emowverha 2005, 11 from Aziza 2007 and 24 from Onose 2009). The primary source involved interview with six language consultants who were purposively selected; two monolinguals (who only speak Urhobo), two bilinguals (one speaks Urhobo and English, one speaks Yoruba and Urhobo) and two multilinguals (who speak Urhobo, Yoruba and English) without bias to the dialect of respondents. This enabled us get a distribution of native speakers who have and have not had contact with Yoruba and/or English. The Urhobo native speakers (who speak Urhobo and English) were also presented with the list of loan words; which constituted the secondary source of data, in order to verify pronunciations and confirm the data collected, as the researchers believe that bilingual speakers' confirmation can increase reliability of data previously elicited. During the interraction with the monolingual language consultants, they were asked in Urhobo to list some English names given to people and other items too (as one of the authors is a native speaker of Urhobo). This was to help us evaluate how they are pronounced and for comparison purposes with those of the bilinguals and multilinguals. While the bilingual who speaks Urhobo and Yoruba gave us the loan words from Yoruba. The objective is to find out how these loan words are adapted at the phonological level to the structure of Urhobo based on the natural pronunciations of these native speakers with varying levels of contact with Yoruba and English. As a qualitative study, the elicited data are descriptively analysed in the following section.

4. Data Analysis

The study adopts the Tone Marking Convention (TMC) of Williamson (1984) and Emenanjo (2015); where high tones are unmarked, while the downstep, mid and low tones are marked. It is also worthy to note here that some of these loan words have been given indigenous equivalents (native words) developed by some Urhobo scholars through loan translation; referred to as calquing in morphology (c.f. Onose, 2009: 12). Words like *ìtrọ́sà - itawore 'trousers'; ìbeelitì - ikpacha 'belt'; ìshetì – enwù 'shirt'; ìmotò- ọkọ́rótọ 'motor/car', ìtenivishọ̀nì - ekpètìrùghe 'television'; ìrediò - agbòrọ̀ 'radio'; ìtishà – òyònò/òyònìkwo 'teacher'; ìshọ́ọ́shì - ùwèvwìrega 'church'; - ìjọjì - òbrorhìe 'judge' - ọkọ̀renu 'airplane', and so on.* Nevertheless, many Urhobo native speakers (both old and

young) still use these adapted forms rather than the metalanguage developed for them. In fact, many Urhobo speakers today do not know that there exists indigenous terminologies to express these words in Urhobo. Some phonological features and patterns which are observed from the data are discussed below.

4.1. Insertion

Observing the set of English loan words below, we can see that there is a prothetic high, front, unrounded low-toned vowel /ì/, all through the data in example (1) below:

1.	English	Urhobo
a.	*Powder /paʊdəʳ/*	*ìpọdà /ìpɔdà/*
b.	*Photo /fəʊtəʊ/*	*ìfòto /ìfòto/*
c.	*Radio /reɪdiəʊ/*	*ìrediò /ìɾedjò/*
d.	*Teacher /tiʧəʳ/*	*ìtishà /ìtiʃà/*
e.	*Lawyer /lɔjəʳ/*	*ìlọyà /ìlɔjà/*
f.	*Butter /bʌtəʳ/*	*ìbọtà /ìbɔtà/*
g.	*Knicker /nikəʳ/*	*ìnikà /ìnikà/*
h.	*Coat /kəʊt/*	*ìkootù /ìko:tù/*
i.	*Sandal /sændal/*	*ìsadàsì /ìsadàsì/*
j.	*Fridge /friʤ/*	*ìfrijì /ìfɾiʤì/*
k.	*Motor /məʊtəʳ/* (Emowverha 2005)	*ìmotò /ìmotò/*
l.	*Bread /brɛd/* (Emowverha 2005)	*ìbrẹdì /ìbɾɛdì/*
m.	*Table /teɪbl/* (Aziza 2007)	*ìtebùrù /ìtebùɾù/ ìtebùlù/*
n.	*Clerk /klɜk/* (Aziza 2007)	*ìkrakì /ìkɾakì/ ìklakì/*
o.	*Brother /brʌðəʳ/* (Aziza 2007)	*ìbrọ̀da /ìbɾɔ̀da/*
p.	*Bucket /bʌkɪt/* (Aziza 2007)	*ìbọ́kẹ̀tì /ìbɔ́kɛ̀tì/*
q.	*Earring /ɪəriŋ/* (Aziza 2007)	*ìyẹrìnì /ìjɛɾìnì/*
r.	*Cake /keɪk/* (Aziza 2007)	*ìkekì /ìkekì/*
s.	*Church /ʧɜʧ/* (Onose 2009)	*ìshọọshì /ìʃɔ:ʃì/*
t.	*Bible /b*aɪbᵊl/ (Onose 2009)	*ìbaìbùlù /ìbaibùlù/*
u.	*Father (Priest) /fæðəʳ/* (Onose 2009)	*ìfààda /ìfà:da/*
v.	*Choir /k*waɪəʳ/ (Onose 2009)	*ìkwayà /ìkwajà/*
w.	*Television /tɛlɪvɪʒᵊn/* (Onose 2009)	*ìtẹnìvishọ̀nì /ìtɛnìviʃɔ̀nì/*
x.	*Bicycle /b*aɪsɪkl/ (Onose 2009)	*ìbasikòrò /ìbasikòrò/*
y.	*Telephone /tɛlɪfəʊn/* (Onose 2009)	*ìtẹ̀nifònù /ìtɛ̀nifònù/*

z.	*Register /rɛʤɪstəʳ/* (Onose 2009)	*ìrhẹjistà /ìɻɛʤistà/*
aa.	*Class /klas/* (Onose 2009)	*ìklasì /ìkla:sì/*
bb.	*Trouser /traʊzəʳ/* (Onose 2009)	*ìtrọsà/ìtrọzà /ìtrɔsà/ìtrɔzà/*
cc.	*Belt /bɛlt/* (Onose 2009)	*ìbẹ̀ẹ̀litì /ìbɛ:litì/*
dd.	*Kerosene /kɛrəsin/* (Onose 2009)	*ìkrààsi /ìkrà:si/*
ee.	*Pineapple /paɪnæpl/* (Onose 2009)	*ìpànapòrò /ìpànapòrò/*
ff.	*Pawpaw /pɔpɔ/* (Onose 2009)	*ìpọ̀pọ /ìpɔ̀pɔ/*
gg.	*Mortuary /mɔʧʊˀtri/* (Onose 2009)	*ìmọshùarhì /ìmɔʃùaɻì/*
hh.	*Nurse /nɜs/* (Onose 2009)	*ìnọsì /ìnɔsì/*
ii.	*Court /kɔt/* (Onose 2009)	*ìkọ̀ọtù /ìkɔ:tù/*
jj.	*Tomato /təmatəʊ/* (Onose 2009)	*ìtòmatòsì /ìtòmatòsì/*
kk.	*Tea /ti/* (Onose 2009)	*ìtii /ìti:/*
ll.	*Pastor /pastəʳ/* (Onose 2009)	*ìpasitọ̀ọ /ìpasitɔ̀ɔ̀/*
mm.	*Motorcycle /məʊtəʳsaɪkl/* (Onose 2009)	*ìmàshinì /ìmàʃìnì/*
nn.	*Maggi (seasoning) /mægɪ/* (Onose 2009)	*ìmààgí /ìmà:gi/*
oo.	*Catechist /kætkɪst/(*Emowverha 2005)	*ìkatìsì /ìkatìsì/*

It seems obvious that /ì/ is the default epenthetic vowel which is typical of all the examples. Since nouns in Urhobo usually do not have onsets, **prothesis** (insertion at word initial position) occurs for loan words to meet the syllabification requirements. In this cases, a high front unrounded vowel is inserted at word initial position. Stork and Widdowson (1974:137) assert that the reason could be that /i/ is one of the primary vowels aside /a/ and /u/ which are among the first vowels acquired during the language acquisition process. But, this study argues that this may be because Urhobo generally forbids nouns with word-initial consonants in its phonological grammar; which agrees with previous studies (c.f. Ugorji 2013 and Roelle 2013). Secondly, to maintain euphony, Urhobo may choose to commence the pronunciation of nouns with a vowel rather than a consonant (just as in many other languages). However, a contrast can be seen in the Yoruba loanwords culled from Aziza (2007) in example (2) below:

2.	Yoruba	Urhobo	English
a.	*ẹ̀wà /èwà/*	*ẹ̀wà /èwà/*	*Beans*
b.	*àkpẹ̀rẹ̀ /àkpèrè/*	*àkpẹ̀rẹ̀ /àkpèrè/*	*Basket*
c.	*àkàrà /àkàrà/*	*àkàrà /àkàrà/*	*Bean cake*
d.	*ìyàwó /ìjàwo/*	*ìyàwo /ìjàwo/*	*Wife*
e.	*ọ̄lọpàa /ɔ̄lɔkpàa/*	*ọ̄lọpàa /ɔ̄lɔkpàa/*	*Police*

Here, we see that the loan words from Yoruba are assimlated into Urhobo with no changes except in (e) where we see a change in the tone of the final syllable from mid to high. This may not only be because Yoruba shares some linguistic and cultural affinities with Urhobo. Observing 2(a)-(e), all the words are nouns and nouns in Yoruba are constrained from having initial consonants, likewise Urhobo. This affirms the assertion in Ugorji (2013:187) that states that, when loan words do no go through resyllabification, (an adjustment of syllable constituents to conform to the syllable formalisations or conditions of the recipient language" or the outcome of adapting a loan word enabled by phonological processes), "the loan word may remain as a loaned unit retaining the syllable properties of its own language source rather than being indigenised or adapted." That is why even loan words (nouns) from English that begin with a vowel, need no prothetic vowel, as in the following words:

3.a.	*/amì/*	*'army'*
b.	*/ovuùnù/*	*'oven'*
c.	*/ɔfisì/*	*'office'*
d.	*/èròplenì/*	*'aeroplane'*
e.	*/ìjɛrìnì/*	*'earring'*
f.	*/īki/*	*'ink'*

The above examples confirm the fact that loan words are actually resyllabified only when necessary to agree with the target or host's language syllable requirements. Again, another insertion occurs where **epenthetic** vowels; vowels inserted in word medial position. See a few examples below from Emowverha (2005):

4. *a.*	*ìdɔkitɔ̀*	*'doctor'*
b.	*ìwisikì*	*'whiskey'*
c.	*ìkandòrò*	*'candle'*
d.	*ìketòrò*	*'kettle'*
e.	*ìtebòrò*	*'table'*
f.	*ìbankì*	*'bank'*

On a cursory note, the data in (4) above could be misconstrued as not following the earlier statement of loan words conforming to the syllable conditions of the host langauge. But leaning deeper to look at examples 4 (a-f), we can see that the language epenthesizes the vowels to break up consonant clusters, whenever it is perceived or to

ensure that the no coda constraint remains unviolated. For (a) and (b), what happens is the latter. The English loan words /dɒk.təʳ/ 'doctor' and /hwɪs.ki/ 'whiskey' are di-syllablc words with the first syllable having a coda. They are therefore, re-syllabified to meet up with the syllable requirements of Urhobo, hence the epenthetic vowel /i/ is inserted to make them open syllables. For (c) – (e), since Urhobo does not permit consonant cluster in the coda slot, the epenthetic /o/ is inserted to break up the clusters and also at the end to make it an open syllable. Finally, for (f), the 'nk' in */ìbankì/ 'bank' is not a cluster.* Phonetically it is pronounced as [*ì.bã.kì*] which gives us three open syllables, with the second syllable having a nasal vowel, since Urhobo attests contrastive nasal vowels.

Furthermore, we see another kind of insertion; where the **paragogic** vowels /i/, /o/ and /u/ are inserted at the word final positions. The following examples in 5 show the insertion of paragogic /i/:

	Paragogic /i/ vowels		
5a.	*/brɛd/*	*/ìbrɛ́dì/*	*'bread'*
	b. /klɜk/	*/ìkɾakì/*	*'clerk'*
	c. /bʌkɪt/	*/ìbɔ́kɛ̀tì/*	*'bucket'*
	d. /ʧɜʧ/	*/ìʃɔːʃi/*	*'church'*
	e. /keɪk/	*/ìkekì/*	*'cake'*
	f. /tɛlɪvɪʒᵊn/	*/ìtɛ̀nìviʃɔ̀nì/*	*'television'*
	g. /bɛlt/	*/ìbɛːlitì/*	*'belt'*
	h. /nɜs/	*/ìnɔsì/*	*'nurse'*
	i. /dʌzᵊn/	*/ìdɔzìnì/*	*'dozen'*
	j. /kɒfi/	*/ìkɔ̀fi/*	*'cofee*
	k. /kɪʧɪn/	*/ìkiʃìnì/*	*'kitchen'*
	l. /geɪt/	*/ìgetì/*	*'gate'*

In example (5) above, there is a consistent insertion of /i/ at word final positions because in the source language there is a coda. /i/ seems to be more productive than other paragogic vowels. The same process applies to following data in (6) below, where the mid, back, rounded vowel /o/ is inserted at word final positions:

Paragogic /o/ vowels

6a.	*/kɛtl/*	*/ìkɛtòrò/*	*'kettle'*
b.	*/kændᵊl/*	*/ìkandòrò/*	*'candle'*
c.	*/teɪbl/*	*/ìtebòrò/*	*'table'*
d.	*/baɪsɪkl/*	*/ìbasikòrò/*	*'bicycle'*
e.	*/paɪnæpl/*	*/ìpànapòrò/*	*'pineapple'*

For /u/ insertions, we can see them in example 7 below:

Paragogic /u/ vowels

7 a.	*/kəʊt/*	*/ìko:tù/*	*'coat'*
b.	*/baɪbᵊl/*	*/ìbaibùlù/*	*'bible'*
c.	*/tɛlɪfəʊn/*	*/ìtɛ̀nifònù/*	*'telephone'*
d.	*/kɔt/*	*/ìkɔ:tù/*	*'court'*
e.	*/bɔl/*	*/ìbɔ:lù/*	*'ball'*

What we observe here is that since consonant clusters are only allowed in Urhobo onset slots, invariably, loan words into Urhobo would not permit codas or what Ugorji (2013:189) calls 'checked syllables', as such, it either inserts paragogic vowels (or deletes the final consonant). For the choice of vowel /i/ insertion, the reason is not farfetched. It is due to what we call phonological markedness. Cross-linguistically, the vowels that are more prone to insertion are high vowels, particularly /i/ and /u/. For consonants, they are usually the glottals, that is, the glottal fricative /h/ and the glottal stop /?/. There is enough evidence in many languages to empiricize this claim (c.f. Akinlabi, 2004; Egbokhare, 1998). In a nutshell, languages generally prefer to use vowels /i/ and /u/ as prosthetic (word-initial), epenthetic (word-medial) or paragogic (word-final) vowels than any other kind of vowels. This also affirms Aziza and Utulu (2006), that /i/ and /u/ align with the permissible morpho-syllabic structure of Urhobo. However, the choice of /o/ as a Paragogic vowel in some loan words, whereas /u/ occurs in others, may be based on how each loan word is perceived and interpreted in the Urhobo native speaker's intuition; which may not be far-fetched from its pronunciation in English. This is what Ugorji (2013:189) refers to as a "kind of perceptual illusion, tending to copy the place features" of the conterminous consonant (specifically, the first or preceding consonant).

4.2. Tone feature

Another phonological outcome observed in the Urhobo loan words from English is that stress changed to tone since, which is totally in order because Urhobo is a tonal language (c.f. Ufomata, 2004; Oyebade 2006). Urhobo and English both exploits pitch but while English uses pitch as stress, Urhobo marks its pitch as tone. This is one of the phonological changes observed in the adaptation of loan words from English to Urhobo. It can be observed that in the data below:

8 a.	*/ˈbʌkɪt/*	*/ìbɔ́kɛ̀tì/*	*'bucket'*
	b. /ˈteɪbl/	*/ìtebùrù/*	*'table'*
	c. /ˈtraʊzəʳ/	*/ìtrọ̀sà/*	*'trouser'*
	d. /ˈmɔʧʊᵊtri/	*/ìmɔ̀ʃùaṛì/*	*'mortuary'*
	e. /təˈmatəʊ/	*/ìtòmatòsì/*	*'tomato'*
	f. /ˈtɛlɪˌvɪʒᵊn/	*/ìtɛnìviʃɔ̀nì/*	*'television'*

The above English loan words confirms that high tones in Urhobo are used for stressed syllables while low tones for unstressed syllables. This is hinged primarily on the observation of the data elicited and confirmed from the Urhobo native speakers. We can also see that the 'default' tonal melody of Urhobo loan words is L(L)HL. Examples (e) and (f) butteresses this point that loan words chooses to retain the 'high' pitch in stressed syllable(s) and the low pitch in the syllable(s) that is not stressed. For the loan words from Yoruba, the pitch of the souce language is retained; save for (e). See the examples in 9 below:

	Yoruba	Urhobo	English
9 a.	*/ɛ̀wà/*	*/ɛ̀wà/*	*Beans*
	b. /àkpɛ̀rɛ̀/	*/àkpɛ̀rɛ̀/*	*Basket*
	c. /àkàrà/	*/àkàrà/*	*Bean cake*
	d. /ìjàwó/	*/ìjàwó/*	*Wife*
	e. /ɔ̄lɔkpàa/	*/ɔ̄lɔkpàa/*	*Police*

In the data in (9) above, we can see that because Yoruba and Urhobo exploits tone as pitch, the pitch of the source language (Yoruba) was retained in the target language (Urhobo), except for 9(e), where we see a tonal change from mid to high tone. Note here, that we had earlier pointed out that data is presented following the TMC of Williamson

(1984) and Emenanjo (2015); where high tones are unmarked, while the downstep and low tones are marked. Also, the perception of tone in all the data is based on the confirmations elicited from the Urhobo native speakers used as language consultants in the study.

4.3. Syllable structure

We have earlier said that Urhobo permits consonant clusters only in the onset slot and has a constraint that does not permit codas; which means Urhobo operates an open syllable structure and that is the reason responsible for the prothetic /i/ and the epenthetic and paragogic /o/ and /u/ insertions to break up clusters and at word final positions where the loan word, is a closed syllable. This is why we can have the following examples in (10) below:

10	a. */fridʒ/*	*/ìfridʒì/*	*'fridge'*
	b. /klɜk/	*/ìkrakì/ìklakì/*	*'clerk'*
	c. /brɔðəʳ/	*/ìbrɔ̀da/*	*'brother'*
	d. /traʊzəʳ/	*/ìtrɔsà/*	*'trouser'*
	e. /brɛd/	/ìbrɛdì/	'bread'
	f. /drivəʳ/	/ìdravà/	'driver'
	g. */kɛrəsin/*	*/ìkrà:si/*	*'kerosene'*
	h. */skul/*	*/ìsìkuru/*	*'school'*

Urhobo's phonotactics permit consonant clusters in its onset (CCV; where a consonant is followed by /j,/ /w or /r/) and obviously these examples buttress that. This is uncommon in some other Nigerian languages where borrowing occurs. This also disagrees with Aziza and Utulu (2006). In the above examples in Urhobo, we observe that the loan words from English having consonant clusters, align with the phonotactics of Urhobo. Although, we also observe instances where other kinds of clusters occur like /sk/, /st/ and /kl/ clusters. Look at the examples below culled from Emowverha (2005):

11a.	*ìklasì*	*/ìkla:sì/*	*'class'*
b.	*ìglasì*	*/ìgla:sì/*	*'glass'*
c.	ìwisikì	/ìwisikì/	'whiskey'
d.	*ìsìtovù*	*/ìsìtovù/*	*'stove'*
e.	**ìbàskɛtì*	*/ìbàskɛtì/*	*'basket'*

f.	**ìstriitì*	*/ìstriitì/*		*'street'*
g.	**ìstrɔgì*	*/ìstrɔngì/*	*[ìstrɔ̃gì]*	*'strong'*

The Universal syllable constraint of sonority (Universal sonority sequencing principle) explains that in a cluster string of C_1 C_2, C_2 will be added to the onset, if only it is more sonorous than C_1 (Roca 1994). We see that in 11(c) and (d), the clusters 'sk' and 'st' were broken up and the epenthetic /i/ vowel is inserted. However, in 11(a) and (b), we see that the clusters 'kl' and 'gl' were retained. This can be explained both on the basis that the obstruent-liquid cluster can be permissible in onset positions in the Urhobo language (though not previously reported in native words in Urhobo but since /l and /r/ occur in free variation, the study believes that it is permissible). And that /l/ is more sonorous than /k/ and /g/, so such cluster is permissible. On the contrary, for (e), (f) and (g), to retain the clusters 'sk' and 'str'in the Urhobo loan word, voilates the sonority priniple and the no coda phonotactics. For example 11(e), /s/ and /k/ cannot be the onset of the third syllable nor can /s/ be the coda of the second syllable; going by the established principles. The same goes for 11(f) and (g), /s/ and /t/ onset cluster; though the /r/ segment included in the cluster can be accounted for. So, it becomes unclear why such pronunciation is represented in Emowverha (2005) and why the native speakers confirmed such output.

4.4. Phonological substitution

This is a very common phonological outcome of language contact situation. Substitution is a phonological phenomenon whereby a sound replaces another one when two or more languages come in contact. This implies that bilinguals and multilinguals usually employ this phonological feature when they pronounce sound(s) that they are not familiar with or sounds that are absent in their phoneme inventory. We identify and analyze few patterns of substitution found in the English loan words presented here:

12.

	English		Urhobo	
a.	*Motor*	*/məʊtəʳ/*	*ìmotò*	*/ìmotò/*
b.	*Powder*	*/paʊdəʳ/*	*ìpọdà*	*/ìpɔdà/*
c.	*Photo*	*/fəʊtəʊ/*	*ìfòto*	*/ìfòto/*
d.	*Radio*	*/reɪdiəʊ/*	*ìrediò*	*/ìɾedjò/*
e.	*Teacher*	*/tiʧəʳ/*	*ìtishà*	*/ìtiʃà/*
f.	*Lawyer*	*/lɔjəʳ/*	*ìlọyà*	*/ìlɔjà/*
g.	*Butter*	*/bʌtəʳ/*	*ìbọtà*	*/ìbɔtà/*
h.	*Knickers*	*/nikəʳ/*	*ìnikà*	*/ìnikà/*

i. *Coat* */kəʊt/* *ìkootù* */ìko:tù/*
j. *Sandal* */sændal/* *ìsadàsì* */ìsáadàsì/*
k. *Table* */teɪbl/* *ìtebòrò* */ ìtebòrò/*
l. *Clerk* */klɜk/* *ìkrákì* */ìkɾakì/ ìklakì/*
m. *Cake* */keɪk/* *ìkekì* */ìkekì/*
n. *Church* */ʧɜʧ/* *ìshọ́ọshì* */ìʃɔ:ʃì/*
o. *Bible* /baɪbᵊl/ *ìbaìbùlù* */ìbaìbùlù/*
p. *(Reverend) Father /fæðəʳ/* *ìfààda* */ìfà:da/*
q. *Choir* /kwaɪəʳ/ *ìkwayà* */ìkwayà/*
r. *Television* */tɛlɪvɪʒᵊn/* *ìténivishọ̀nì* */ìtɛnìviʃɔ̀nì/*
s. *Bicycle* /baɪsɪkl/ *ìbáasikòrò* */ìbasikòrò/*
t. *Register* */rɛʤɪstəʳ/* *ìrhẹ́jistà* */ìɾɛʤistà/*
u. *Trouser* /traʊzəʳ/ *ìtrọ́sà* */ìtrɔsà/ìtrɔzà/*
v. *Hospital /hɔspitᵊl/* *ọ́sìpitọ́* */ɔsìpitɔ̀/*
w. *Kerosene /kɛrəsin/* *ìkrààsi* */ìkrà:si/*
x. *Pineapple /paɪnæpl/* *ìpànapòrò /ìpànapòrò/*
y. *Mortuary /mɔtjʊtrɪ/* *ìmọ́shùarhì* */ìmɔʃùaɾì/*
z. *Nurse /nɜs/* *ìnọ́sì* */ìnɔsì/*
aa. *Maggi (seasoning) /mægɪ/* *ìmaagí* */ìma:gí/*
bb. *Tomatoe /təmatəʊ/* *ìtòmatòsì* */ìtòmatòsì/*
cc. *Pastor* */pastəʳ/* *ìpasitọ́ọ́* */ìpasitɔ̀ɔ̀/*
dd. *Catechist /kætkɪst/* *ìkatìsì* */ìkatìsì/*
ee. *Brother* */brɔðəʳ/* *ìbrọ́dá* */ìbɾɔ̀da/*

The data above shows clearly instances where the segments of English are substituted wherever a native speaker of Urhobo is posed with the challenge of producing segments in English that are not in his/her sound inventory. Therefore, there is a replacement of English sounds with Urhobo sounds that share similar features with the segments from the source language. Below are the various patterns of substitution of the loan words presented in example (12) above.

English sounds substituted with Urhobo sounds

13. Vowels

a. */əʊ/ ~ /o/*
b. */aʊ/ ~ /ɔ/*

c. */eɪ/* ~ */e/*
d. */ə/* ~ */a/*
e. */ʌ/* ~ */ɔ/*
f. */ə/* ~ */o/*
g. */œ/* ~ */a/*
h. */ɜ/* ~ */a/*
i. */ɜ/* ~ */ɔ/*
j. */ə/* ~ */u/*
k. */aɪə/* ~ */a/*
l. */ə/* ~ */ɔ/*
m. */ə/* ~ */o/*

Some diphthongs (and triphthongs) are monophthongized; which are obvious cases of them being simplified. This agrees with Utulu (2019). These kinds of substitutions are mostly observed in vowels with only a few instances in consonants:

14. Consonants
a. */t/j/* ~ */ʃ/*
b. */l/* ~ */n/*
c. */z/* ~ */s/*
d. */ʧ/* ~ */ʃ/*
e. */ð/* ~ */d/*

From the above examples, we can see that the English segments at the leftmost side are substituted with the Urhobo sounds at the rightmost side for ease of pronunciation. A native speaker of Urhobo can naturally produce loan words which have similar sounds in his/her phoneme inventory, like the examples of Yoruba loan words. But may find it difficult (at varying degrees) to produce loan words with sounds that are different from those in their sound inventory. Therefore, what typically happens is that these segments are substituted based on euphony or preference for some phonetic plausibility for vowels (sharing particular features) and place features for consonants. This agrees with Aziza and Utulu (2006). Although generally, a low vowel like /a/ is "phonologically placeless, is the most sonorous vowel and is phonetically and perceptually more salient" in comparison to other vowels (Rose and Demuth 2006:1134). So it does not rely on any place features to epenthesize itself in loan words.

4.5. Free variation

In Urhobo segments like /l/ or /r/ can be interchanged with no significant bearing on the mening of those lexical items. This exemplifies free variation process. For example:

15 a.	*/teɪbl/ -*	*/îteb*òɾò*/ or /îteb*òlò/	*'table'*
b.	*/klɜk/ -*	*/îkɾakì/ or /îklakì/*	*'clerk'*
c.	*/skul/-*	*/îsìkuru/ or /îsìkulu/*	*'school*
d.	*/kændl/ -*	/îkandòɾò/ or /ìkandò*l*ò/	'candle'
e.	/kɛtl/ -	/ìkɛtòrò/ or /ìkɛtòlò/	'kettle'

4.6. Deletion

This is a situation whereby loan words from English lose a segment as it is adapted into Urhobo. This is like another repair strategy that languages employ while resyllabifying loan words to meet the syllable structure requirements of the host language. Examples include:

16 a. /kætkɪst/ - /îkátìsì/ 'catechist', /k/ and final */t/* is deleted.
b. /skul/- /îskuu/ 'school', the final /l/ is deleted.
c. /hɔspitᵊl/ - /ɔsìpitò/ 'hospital', the final /l/ and initial /h/ is deleted
d. /mɔtjʊtrɪ/ - /îmɔ́ʃùáṛì/ 'mortuary', /t/and /j/ are deleted and replaced with */ʃ/.*
e. /ɪŋk/ - /îki/ 'ink' /ŋ/ is deleted.
f. /kɛrəsin/ - /îkrà:sí/ 'kerosene' /ɛ/ and final /n/ are deleted.
g. /mɪnᵊrᵊl/ /îminirà/ 'mineral' (used to refer to soda or fizzy drinks). Here, the final /l/ is deleted.
h. /kɛmɪst/ - /îkɛmísì/ 'chemist' the final /t/ is deleted.

Where this loss takes place at word final position it is referred to as apocope, if in other contexts, it is called syncope.

4.7. Possible implications of these adaptations for language change

In retrospect, this study assumes that Urhobo is and will always be in constant contact with Yoruba (because of shared geographical location and cultural values) and English (because it is the lingua franca in the environment). As a result of globalisation and technological advancement, language change becomes inevitable. We saw in the foregone discussions (example 11), that Urhobo permits consonant clusters which are not consistent with its phonotactics and some other Nigerian languages within the Niger-Congo language family. It brings up the question: is there any possibility that these 'deviant' clusters came about as a result of contact with other languages? We also noted earlier that some of these loan words have their indigenous equivalents which native speakers have abandoned in favour of their loan counterparts such that presently, an average Urhobo native speaker finds it difficult to give or use the native words for these loan words. As long as Urhobo native speakers (especially, the younger generation) continue to be less motivated to preserve the intergrity of their mother tongue and use English and Yoruba over Urhobo, Urhobo will be prone to influences from these languages and eventually a major language convergence or change may occur. In other words, when Urhobo speakers replace their native lexicon and structure through extensive borrowing from the dominant language (to which they are shifting); or abandon native lexicon and structure without any replacements, language shift and attrition is bound to happen which gives credence to Roelle's (2013:282) assertion that Urhobo is 'highly endangered'.

5. Conclusion

No language can be said to have fully developed to the extent that new words are no longer needed. Social interaction within and across speech communities lead to diffusion of linguistic and other cultural practices. Hence, in order to understand the outcomes of language contact, we have to look at all that pertains to the speech of the communities in contact, and the dynamics of their patterns of interaction. Borrowing or loaning is one of the many ways in which the lexicon or vocabulary of a language can grow and develop. The resulting outcomes discussed in this paper are not exhaustive but are a few instances of phonological influences on Urhobo language as a result of its contact with Yoruba and particularly English language; the language of cross-cultural communication in Nigeria and many other countries of the world. This impact is made possible because of other underlying social and cultural development in the lives of the Urhobo people. We also

see in many of the instances in the paper that the English loan words are adapted to fit into the phonotactics of Urhobo, which have prompted some phonological changes in Urhobo (as we see in examples 11e, f and g). But in contrast, almost all the phonological features of the Yoruba loan words are maintained. It is not news that some triggers of linguistic borrowing (despite its ability to enrich vocabulary) have some underlying demerits. Sometimes, it is emphasized by the need to adapt foreign cultures and technologies, the need for speakers to align themselves with a more dominant language either for political or social reasons or because of the fact that they share close boundaries (as we see with Yoruba), which may ultimatelty lead to language change, shift, attrition or even death. Notwithstanding, borrowing, adaptation of loan words and development of meta language for loan words should be encouraged in the Urhobo language. Therefore, we commend the efforts of the Urhobo Studies Association (USA) and Delta State University in collaboration with Nigerian Education Research and Development Council (NERDC) who have picked up the pace in ensuring a uniform curriculum development of the Urhobo language for teaching primary 1 to JSS 3. We recommend that more native and non-native Urhobo linguists, language stakeholders and government put hands together to take the bull by the horn as we develop better metalanguage for expressing loan words and make more efficient strides to document Urhobo and other indigenous Nigerian languages.

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MULTILINGUALISM AND LANGUAGE BARRIERS IN HEALTH DELIVERY SYSTEM IN GHANA

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Abstract:

In this paper, we explore language differences among health givers and seekers as a potential barrier to quality healthcare delivery among the urban ethnolinguistically diverse population in Accra, Ghana. 134 patients and 42 health workers from five health facilities were selected as respondents to fill questionnaires and be engaged in semi-structured interviews which aimed at investigating the general language situation in healthcare delivery and determine whether language differences cause barriers to quality healthcare delivery. Using descriptive statistics and the thematic analysis of findings, the data revealed that both patient and health worker participants have varying ethnolinguistic backgrounds (speaking many different L1s). In addition, 65% of the patient population and 70% of health worker population in urban Ghana access and provide healthcare respectively in a second language, mainly English and Akan. For a highly linguistically diverse population, these findings have a potential to cause language barrier and raise miscommunication in the healthcare delivery process in urban Ghana - 64% and 81% of patient and health worker populations respectively admitted to experiencing communication barrier (occasioned by language differences) in the health care system. The findings of this paper corroborate earlier findings in the literature, e.g., Adams and Fleck (2015), Belaskri (2012), Chachu 2022 and Schyve (2007). The paper, therefore, concludes that health authorities in highly multilingual contexts need to pay (more) attention to the language needs of ethnolinguistically diverse populations to ensure quality and safe healthcare delivery.

Key words: Language barrier, Healthcare delivery, Ghana, Multilingual, English Language

1. Introduction and Background

This paper discusses language differences among health givers and health seekers as a potential barrier to quality and safe healthcare delivery among urban populations in Ghana. There is a growing concern among researchers in the health sciences, e.g., medicine, nursing, and health care policy, regarding the need to pay more attention to the role of language in healthcare and healthcare delivery around the world. For instance, Schyve (2007) has identified language differences between health workers and patients as a barrier to quality and safety in healthcare in the US. If we described healthcare as information management, where the collection of accurate and comprehensive patient-specific data is the basis for proper diagnosis and prognosis, then effective communication between healthcare practitioners and patients could be argued to be a core component of healthcare (Schyve 2007). Thus, language differences among healthcare givers and seekers can impede effective communication and adversely affect quality healthcare delivery. It has been argued that language barrier can lead to, and often leads to miscommunication in healthcare delivery, and that such miscommunications can be life threatening (Meuter et al. 2015). For instance, Adams and Fleck (2015) report that in public health, the linguistic disconnect between those providing health information and those who need that information affects not only clinicians and patients but also public health managers and policymakers.

Linguistic diversity, particularly in migratory situations, has been identified in the literature as one of the main causes of language barrier in the healthcare delivery process. With the ever-increasing spate of migration/immigration around the world, language barrier in healthcare has become a global problem. It is very common, globally, to find increasing number of patients who do not share a common language with their health workers/providers. Many countries around the world have clearly identified this situation as potentially problematic and are trying to address this growing concern through policy, practice, or both.

For instance, in the US, section 1557 of the Affordable Care Act (2010) requires hospitals to provide qualified interpreters (in person, by phone or video) to help facilitate communication between clinicians and patients. A typical example is *CyraCom,* a language services company (that is recognized by the American Hospital Association and American Dental

Association) that provides a 24/7 interpreter services to the healthcare system to bridge communication gaps in the healthcare delivery process. The Affordable Act (2010) also requires hospitals not only to post notices of language services availability but to also have such notices translated into the top 15 languages that are spoken in the area where the hospitals are located. In fact, before this act, there were several laws and policies on language access in healthcare.

In Australia, the health system of the Western Australian State has instated a language services policy since 2017, which is committed to providing high quality, safe and accessible health care to all Western Australians who may need language assistance in health communication, including those who cannot effectively communicate in English, like the Aboriginal people, people from culturally and linguistically diverse backgrounds, and people who are deaf or hard of hearing who communicate in Auslan (WA, Department of Health, 3). Similarly, the Victoria State Government in Australia has instituted language services policy and guidelines in health which are meant to provide language (translation and interpretation) services to support the health and wellbeing of Victorians from culturally diverse background.

Even though Africa is one of the world's most linguistically diverse continents in the world, very often, a colonial language (for example, English, French, Spanish and Portuguese) is used as official language and is used in formal education. For instance, despite the over 80 languages in Ghana, English is the de facto official language, and the language of formal education by policy. Per Ghana's language-in-education policy, English is the sole medium of instruction for upper primary to the tertiary level (Owu-Ewie, 2006; Ansah 2014). This means that healthcare practitioners e.g., nurses, doctors, etc. are trained in English.

For example, the University of Ghana Medical School syllabus (that holds true for the other health training institutions) ostensibly has no place for language and communication as an integral part of the training of health workers in Ghana. According to the University of Ghana Medical School course structure, whereas year one of medical school is spent in the faculty of science to "upgrade the level of science of the SSCE candidates to levels currently prevailing at the GCE Advanced level in the sciences", years 2 and 3 courses are limited to the following courses: *Medical sociology, History of western medicine, Psychology, Anatomy,Medical biochemistry, Physiology, Chemical pathology, Hematology, Microbiology, Pathology, Pharmacology.*

Given that the trainee health workers, after their training, will professionally interact with linguistically diverse populations many of whom either do not speak English at all or speak it as a second language (with varying levels of competences), this situation creates a very serious linguistic gap in the training of health workers in the country. In addition, even though the Patients' Charter of the Ghana Health Service suggests the need for (health) caregivers to reach care seekers in a language that is accessible to the patient, there is no clear language policy in the country's health care system (Amfo et al. 2018). The lack of language policy in the health system together with a high doctor-patient ratio in Ghana (in 2016, this was 1: 6,355, though the World Health Organization's standard is 1:1000)[1] increases the chances miscommunication in the healthcare system occasioned by language differences among healthcare practitioners and their patients.

While language and health communication has been researched and discussed extensively in the literature in Europe (Semino et al. 2015, 2016), US. (Meuter et al. 2015; Flores et al. 2008; Youdelman 2008) and Canada (Bourhis and Montreuil, 2017), very little research (e.g. Amfo et al. 2018; Belaskri 2012; Chachu 2022) has focused on language and health communication, particularly, language barrier in healthcare delivery in sub-Saharan Africa even though it is one of the most linguistically diverse parts of the world. Thus, there is the need for research in the language and health nexus not only to fill the gap in the literature but also to raise awareness about the important role language plays in the health care system, particularly, in ethnolinguistically diverse contexts. The objectives of this paper, therefore, are:

i. To explore the language situation in healthcare delivery in Accra, the most ethnolinguistically diverse city in Ghana.
ii. To determine if language differences create a barrier in healthcare delivery in this context.

2. Language and health communication research

Language barrier in health care can have significant impact on the success of the health care encounter (Jacobs et al. 2006). It has also been established that in health care services, the success of the health care encounter is particularly important as it may have an impact

[1] Ghana Records Improvement in Doctor-to-population ratio - DailyGuide Network

on patient's survival and health in the long run. Language barrier can lead to a doctor misunderstanding the full nature of a patient's problems (Sarver and Baker 2000). Findings from research in health communication in the US, for example, suggest that, many U.S. patients with limited skills in English, popularly known as 'Limited English Patients (LEP)', are less likely to receive the care they would need (Jacobs et al. 2006), more likely to be admitted to the hospital, are at a greater risk of suffering medical errors than fluent English speakers (Flores et al. 2003), and often have longer hospital stays for medical and surgical conditions than patients who speak English as their native language (John-Baptiste et al. 2004). It has also been suggested that language barrier between a patient and a doctor may cause excessive ordering of additional medical tests and unnecessary diagnostic testing, as the doctor tries to establish a proper diagnosis in the absence of sufficient patient history (Morales et al. 1999).

Language issues in health care have traditionally been of special interest in the North American contexts due to large amounts of ethnic minorities and immigrants who do not speak English. Consequently, the literature on language barrier in health care is heavily tilted towards limited English proficiency (LEP) patients whose native language is not English (Carrasquillo et al. 1999; Fagan et al. 2003; Jacobs et al. 2006; Karliner et al. 2007). However, language barrier in health communication goes beyond lack of English proficiency, and research in other jurisdictions are coming up. Meuter et al (2015) conducted a hospital-based study that examined interactions between healthcare practitioners and their patients to understand language barriers and miscommunication in healthcare delivery systems in situations where at least one speaker in the health care system uses a second language. Among other things, the study sought to understand how language barriers affect health care encounters, how health care companies overcome language barriers in medical encounters and the role and importance of native language in health care services. The findings of this study which used empirical data drawn from semi-structured interviews indicate that language barriers are in many ways problematic in health care services, with various potential negative impacts on patients. However, various interventions, e.g., using professional and non-professional interpreters, could be helpful in overcoming these barriers and potential negative implications for patients. The study therefore concluded that patient's native language has an important role in health care services.

Previous studies that have reported potential negative implications of language barrier in health communication include Holmqvist (2011), Carrasquillo et al. (1999), Morales et al. (1999), Sarver and Baker (2000), Fernandez et al. (2004), Jacobs et al. (2006) and Bitner

et al. (1997). For instance, Jacobs et al. (2006, p. 111) have argued that an efficient dialogue between a doctor and a patient is "of a diagnostic import and therapeutic benefit". Similarly, Bitner et al. (1997) have argued that patients are part of the health service production process as they contribute to the process by providing information about their ailment and symptoms, and that if patients provide precise medical information about themselves in a timely manner, their doctors are able to do more accurate diagnoses. On the one hand, the quality of information that the patient provides can ultimately affect the quality of the treatment outcome. On the other hand, patients also need to follow their doctors' advice to receive the desired outcome, so the patient also needs to participate and engage during the treatment process. Again, Morales et al. (1999, p. 414) have opined that optimal treatment outcomes depend strongly on "satisfactory communication between patients and physicians on medical test results, medications and treatment options". Rivadeneyra et al. (2000) also contend that the quality of the doctor-patient relationship influences the diagnosis, treatment and even the recovery of the patient while Jacobs et al. (2006, p.111) emphasize the role language and communication play in health care, arguing that miscommunication in medical encounters can lead to lost work time due to delayed diagnoses, unnecessary visits to clinic or hospital and even preventable medical errors.

The importance of good communication between health providers and patients has long been recognized. Indeed, Jackson (1998) has described language as medicine's most essential technology - the principal instrument for conducting its work. In Clark's opinion, without language, the work of a physician (or other health provider) and that of a veterinarian would be nearly identical (Clark 1983). The U.S. Joint Commission states that communication is a core component, not simply an adjunct or facilitator of health care (Schyve, 2007). Some literature on patient-provider communication (e.g., Kaplan et al.1989; Stewart 1995; Stewart et al. 1999; Stewart et al. 2000; Teutch, 2003) indicate that in addition to effects on patient satisfaction, there is a relationship between the quality of communication and specific patient health outcomes such as pain, recovery from symptoms, anxiety, and physiological measure of blood pressure and blood glucose. Three basic communication processes have been identified as associated with improved health outcomes, namely, the amount of information exchanged, patient's control of the dialogue, and rapport established (Kaplan et al. 1989). It is obvious that all these processes will be jeopardized in health care encounters where there is a language barrier.

Another dimension of the language in health communication is concerned with the role of native languages in the health care process. In this regard, there is empirical evidence, e.g.,

Fernandez et al. (2004) and Morales et al. (1999) to suggest that patients prefer to communicate in their native language in health care encounters although they may also have a second language they are fluent in. Indeed, both Fernandez et al. (2004) and Morales et al. (1999) report that Hispanic LEP patients in the US perceived higher quality for their medical treatment when they could speak their native language with their doctors. Native language has an important role in trust building between the patient and medical personnel which is a crucial factor in the health care system. For instance, the level of competence in a patient's native language (by medical personnel) is vital in creating trustful relationship between patients and medical personnel, as native language use positively affects patient's identity and well-being. In a study that examined language barrier in health care and social services system among non-French speaking minority population in Quebec, Canada, Ouimet et al. (2013) found that patients who received healthcare services in a language other than their mother tongue were more prone to receiving inappropriate medication, tended to be prescribed medication more often, tended to be less satisfied with the care they received, spent more time on average in the emergency room, and were more likely to be exposed to undesirable events than majority language patients.

For instance, Samuels-Kalow et al. (2013) found that Spanish-speaking patients in the US were more likely to demonstrate a dosing error than English-speaking patients. In another study, 27% of patients who felt they needed an interpreter but didn't get one did not understand the instruction for taking their medication, compared to 2% of those who got an interpreter or didn't need one (Andrulis et al. 2002). Indeed, patients with language barriers have been reported in several studies as having more difficulty in understanding labels on medications (Masland et al. 2011; Wilson et al. 2005), less likely to adhere to prescribed medication (David and Rhee, 1998; Ens et al. 2014; Karliner et al. 2007; Krueger et al. 2005; Traylor et al. 2010) and are more likely to report complications (see also Yeo 2004). These studies notwithstanding, other researchers in health care communication have focused on how to find solutions to language barrier in health communication. In this regard, there are studies whose findings suggest that implementing certain language adaptation measures in services for minority language patients can lead to better care quality (Karliner et al. 2007; Snowden et al. 2010), lower costs associated with their treatment (Hampers and McNulty, 2002), engender a better understanding in discussions with health professionals (Han et al. 2009) and help health professionals adopt less discriminatory care practices (Bishop 2008). See Bowen (2001) for a critical review of the literature on the impact of language barriers on patient safety within the context of quality of care.

In Africa, Belaskri (2012) has used ethnography and mixed methods, i.e., questionnaires, participant and non-participant observation, discussion forums, online social networking services and emails to examine language use in the Algerian healthcare sector. The findings of the study revealed that majority of doctors in Algeria mixed Arabic and French but used more French to interact with their patients. French was found to be used even in situations where patients did not understand it. Finally, patients with low proficiency in French were found to have difficulties expressing their concerns verbally and were medically less literate/informed.

In Ghana, Chachu (2022) reports that Francophone West Africans in the capital city, Accra, experience language barrier in accessing health care, a finding which Amoah (2022) corroborates during a presentation she gave during a seminar at the University of Ghana, Legon. Blankson et al. (2019) report that language differences (even dialect differences sometimes) among health givers and health seekers was a strong barrier to quality healthcare delivery. They further report that the use of unskilled interpreters (an attempted solution) was not very effective because most of these interpreters have limited understanding in the appropriate medical terminology. Again, patients expressed concern about the possible breach of confidentiality in the use of these unskilled interpreters. Korsah (2011) also found miscommunication (occasioned by language differences) as one of the factors that impede positive nurse-client interactions in Techiman, a major market town in Ghana.

The current study investigates language differences among health givers and health seekers as a potential cause of miscommunication (with potential negative/dire implications for patients) in the health care system in Accra, the most populous and ethnolinguistically diverse city in Ghana.

3. Methods

The study was conducted using the mixed method. Data was collected using questionnaires and semi structured interviews with participants. The questionnaire for patient participants and health worker participants contained questions that were appropriate for each group. A copy of the questionnaire for each group is attached to this paper as appendix. The questionnaires were analyzed using descriptive statistics while the transcripts from the interviews were thematically analyzed. The questionnaires were written in English. However, the interviews were conducted in English and Ghanaian languages with some amount of

code switching as it became necessary. The data was sampled from the following selected health facilities in Accra:

- The University of Ghana Hospital, Legon (quasi-public)
- Nyaho Clinic (private)
- SSNIT hospital - Osu, Adenta, Accra-central, Dansoman (private)
- Accra Ridge hospital (public), and
- Mamprobi Polyclinic (public)

All these health facilities are in Accra, the capital city of Ghana. The facilities are also located in communities with diverse demographies such as ethnic/cultural, educational, social, and economic orientations. For instance, the University of Ghana community is a city within the capital that has become the residence of over 30, 000 students, staff, faculty, and workers of all levels, who are Ghanaian and international. Nevertheless, the Legon hospital is accessible to residents of neighboring communities, including East Legon, Madina and even residents of rural Greater Accra and Eastern regions. The other sites from which data was collected are also culturally and socially diverse.

Two sets of respondents/participants were randomly selected from the facilities. The first set consisted of participants drawn from a patient population while the second set was drawn from a health worker population. Permission for data collection was granted by the University of Ghana College of Humanities Ethics Board as well as the appropriate bodies in the selected health facilities. Individual participants also gave oral/written or both consent before data collection began. The characteristics of individual participants are provided below:

There were 134 patient participants comprising 123 (92%) male and 11 (8%) female. As expected, the participants were of varying ethnolinguistic backgrounds. Their ages ranged between 18 years and 40 years, but most of them (91%) were between the ages of 18 years -25 years. Only 1(1%) was below 18 years; 1(1%) between 31- 40 years, and 8 (6%) between 26-30 years. Two (1%) of the participants did not indicate their age. The age distribution reflects the national population distribution in Ghana (Ghana Statistical Services, 2014). Finally, majority, 128 (96%) of the patient participants indicated that they are students; 1 was unemployed and the rest comprised a pastor, a graphic designer, an auditor, a technology assistant, and a trader. Table 1 below summarizes the number and distribution of patient participants across the health facilities:

Table 1: Number and distribution of patient participants across health facilities

Research sites	No.	Percentage
Legon	104	78
SSNIT	23	17
Nyaho	7	5
Ridge	0	0
Mamprobi	0	0
Total	134	100

As expected, many participants traced their ethnic origins to one of 14 different indigenous Ghanaian ethnolinguistic groups, while 6 did not indicate their ethnic group, as indicated in Table 2 below:

Table 2: Ethnolinguistic profile of patient participants

Ethnic Group	No.	Percentage
Akan	87	65
Ewe	20	15
Ga-Adangme	8	6
Mole-Dagbani	2	1
Kasena	2	1
Nzema	1	1
Kotokoli	1	1
Chanbah	1	1

Frafra	1	1
Gonja	1	1
Gurun	1	1
Guan	1	1
Dagaati	1	1
Bimoba	1	1
No answer	6	4
Total	134	100

There were 42 health worker respondents consisting of 30 (71%) females and 12 (29%) males. 5 (12%) were between the ages of 18-25; 13 (31%) between 26-30; 16 (38% between 31- 40; 1(2%) each between 41-50 and above 50 years of age. 6 (14%) did not indicate their ages. 17(40%) of these respondents were nurses; 7(17%) medical doctors; 4 (10%) physiotherapists; 3 (7%) each of physician assistants and midwives; 2(5%) each of dentists, pharmacists, and cashiers; and 1 (2%) each of an administrator and records officer. The number of health worker respondents and the health facilities from where they were randomly selected is presented in Table 3 below:

Table 3: Health worker participants distribution

research sites	no.	Percentage
Legon	18	43
SSNIT	15	36
Nyaho	5	12

Ridge	1	2
Mamprobi	3	7
Total	42	100

Consistent with the patient population, health worker participants traced their ethnolinguistic origins to many different ethnolinguistic groups as shown in Table 4 below. It is important to note that even though Accra, the city in which data were collected, is the indigenous home of the Ga-Adangme ethnic group, as the table above shows, many of the respondents for both patient and health worker group, were of the Akan ethnic group. This is not surprising since the Akan ethnic group makes up 39.8% of the population of Accra (Essegbey 2009: 120) and 47.3% of the population of Ghana (Ghana Statistical Service 2014:61).

Table 4: Ethnolinguistic distribution of health workers

Ethnic Group	No.	Percentage
Akan	20	48
Ga	11	26
Ewe	8	19
Builsa	1	2
Guan	1	2
Dagaari	1	2
Total	42	100

4. Results

4.1. The language situation in healthcare delivery in Accra

In this section, we present the findings on the first objective, which was to investigate the language situation in the healthcare delivery system in Accra. In order to do this, we present and discuss responses to the following questions which point us in that direction: (i) what

are the linguistic repertoires of respondents including the language (s) they are more comfortable speaking and therefore prefer to use in giving or seeking health at a health facility; (ii) what language(s) do health facilities tend to promote (directly or indirectly); (iii) what language(s) do respondents use/choose to initiate conversation at the health facilities and what informs such choices, and (iv) is there availability and accessibility of language services in the health facilities.

4.1.1 The Linguistic repertoires of Respondents

As has been indicated above, the data revealed that both patient and health worker respondents come from diverse ethnolinguistic backgrounds. Nevertheless, in many African contexts, there is a high possibility where people's ethnic identities do not necessarily match their linguistic identities. In addition, there is a high chance of bi/multilingualism among many African populations. Consequently, we asked respondents to indicate the language(s) they are fluent in both in terms of speech and writing. From the patient responses, 75% indicated fluency in English and one or more indigenous Ghanaian languages;14% were fluent in one indigenous Ghanaian language only, while 11% indicated fluency in English only[2]. In terms of writing, however, whereas 60% reported that they could read and write in English only, the remaining 40% said they could read and write in English and, at least, one indigenous Ghanaian language. Thus, it is safe to say that majority of the patients in this study are bi/multilingual, but mono literate.

Similarly, the results of health worker respondents showed that out of 42 respondents, only 4 (10%) reported oral fluency in English only; the remaining 38 (90%) were fluent in English plus one or more indigenous Ghanaian language(s). Regarding written language(s) however, 16 (38. %) of health workers reported literacy in English only; the rest 26 (62%) were literate in English and one or more indigenous Ghanaian languages. These results also show that the health workers in this study were mostly bi/multilingual and bi/multiliterate. Tables 5 and 6 below summarise the linguistic repertoires and literacy status (respectively) of both patient and health worker participants:

[2] This corroborates the recent phenomenon of the emergence of a sub-population in Ghana who are native speakers of (Ghanaian) English (see Afrifa et al 2018).

Table 5: Summary of participants' linguistic repertoires

Languages	Patients	(%)	Health workers	(%)
English only	15	11	4	10
One Indigenous language only	19	14	0	0
English and one or more indigenous languages	100	75	38	90
TOTAL	134	100	42	100

Table 6: Literacy status of participants

Languages	Patients	(%)	Health workers	(%)
English only	80	60	16	38
One Indigenous language only	0	0	0	0
English and one or more indigenous languages	54	40	26	62
TOTAL	134	100	42	100

Thus, from the results presented above, it is obvious that the linguistic repertoires of majority of our respondents (both patients and health workers) are multilingual. Considering that it has been established in the literature, e.g., Mufwene (2008), that multilingual speakers are often motivated to make language choices that are conditioned by the socioeconomic and other dynamics of their spaces while negotiating their daily lives, we asked respondent to indicate which of the languages in their linguistic repertoires they prefer

and/or choose for health care encounters. Tables 7 and 8 below summarise respondents' preferred and chosen language (s) respectively in health care encounters:

Table 7: A summary of respondents' preferred language (s) in health care encounters

Languages	Patients	(%)	Health workers	(%)
English only	74	55	11	26
One Indigenous language only	25	19	4	10
English and one or more indigenous languages	35	26	27	64
TOTAL	134	100	42	100

Table 8: Language (s) chosen in health care encounters

Languages used to initiate conversation	Patients	Percentage	Health workers	Percentage
English only	86	64	16	38
1L1 only	13	10	3	7
English and L1s	35	26	22	52
No response	0	0	1	2
Total	134	100	42	100

A comparison of the figures in Tables 6, 7 and 8 above show some disparity between participants linguistic repertoires and their preferred language(s) on the one hand, and their preferred language(s) and their chosen language(s) on the other hand. For instance, even though only 11% of the patients indicated that they were fluent in English only, 55% of the same population preferred to use English only, and 64% choose to use English only in health care encounters. In other words, 44% of the patients reported as choosing a language they are less fluent (competent) in during health care encounters. This has a potentially very serious implications for quality health care, since patients' ability to describe the symptoms of their diseases accurately and adequately, is vital for accurate prognosis and diagnosis. Similarly, while majority of the health workers (90%) indicated that they were bi/multilingual in English and one or more Ghanaian languages, only 64% preferred to use more than one language in health care encounters, and 55% indicated that they adopt bi/multilingual practices (choose more than one language in health care encounters).

The most striking observation for us is the differences (in percentages) in the disparities between health worker populations and patient populations regarding language preference and language choice in health care encounters against their respective linguistic repertoires. For instance, on the one hand, while 55% of patients preferred English only but 64% chose English only (even though only 11% were competent in English only), only 26% of health workers preferred English only but 38% chose English only (even though only 10% said they were fluent in English only). On the other hand, 26% of patients preferred multiple languages (even though 75% had bi/multilingual competencies) while 52% of health workers preferred multiple languages (even though 90 % had bilingual competencies). What these results show is that there must be something other than linguistic ability that is influencing language choice among both populations in health care encounters among multilingual populations. The next section presents responses to the question of what informs language choice in health care encounters.

4.1.2 Factors that inform language choice in health care encounters

To explain the disparities identified above, we analysed respondents' responses to the questions on what informed their choice of language in health care encounters. A second dimension to this was to ascertain whether, in the perception of respondents, certain languages were expected (promoted) to be used in/by the health facilities where they work or

seek health care. Tables 9 and 10 below thematically present what informed health workers' and patients' choice, respectively, of language(s) while Table 11 presents results on the languages perceived as being promoted by health facilities:

Table 9: Factors that inform health workers' choice of language

What informs choice of language	No	Percentage
Ease of/ effective communication	7	17
Patient-driven (whatever language the patient begins to communicate in)	20	48
Patients' level of education	3	7
Dominant language in community	5	12
No common L1	1	2
No reason	6	14
TOTAL	42	100

Table 10: Factors that inform patients' choice of language

What informs choice of language	No	Percentage
Ease of/ effective communication	45	34
Health worker -driven	36	27
Dominant/prestigious/official language	19	14

Random	9	7
No reason	25	19
Total	134	100

From the tables above, most of the patients (34%) said they choose the language that they are most comfortable with and in which they feel they can effectively communicate. Given that majority of the patient population (64%) indicated that they choose to use only English in health care encounters, we can conclude that English appears to be most dominant language in health care encounters even though majority of the patients are bi/multilingual. There are two ways to explain this state of affairs: (1) majority of our patient participants were from the university community where the defect official language is English; (2) that health communication is potentially face-threatening, containing topics that are classified as taboo in Ghanaian cultures (sexuality, reproduction). In the case of the latter, English, which is acultural then becomes the most appropriate medium of communicating culturally sensitive topics.

The second highest reason for choosing a language in health care encounters among the patients was health-worker driven (patients chose the language health workers used in such encounters). 27% said they choose health-worker driven languages as shown in this example: "*If the health workers communicate in Twi, I respond. Also, I do the same for Fante and English"* Again, other patients said they choose the language they feel the health workers would better understand (mostly English). As two patients put it: *Almost all health workers can speak English; This is because most health workers are fluent and more comfortable with English.* Thus, the overwhelming preference and choice of English by patients in health care encounters may also mean that patients are simply accommodating to the perceived linguistic needs of health workers. Finally, the third highest (14%) reason patients' language choice was the perceived prestige or dominance or official status of a language. English and Akan were the most selected languages in this regard.

Interestingly, the top two factors that influence language choice among patients were the same for health workers: ease of /effective communication and patient-driven languages. Nevertheless, the topmost reason for health workers was 'patient-driven' (48%) while the 2nd highest reason was ease of communication (17%). 12% mentioned language dominance while 7% mentioned patients' level of education. Other health workers said they

choose whichever language they feel would promote better communication between them and the patients. Of course, such health workers must be highly multilingual to be able to do this. However, whether the patients would feel the same is another matter altogether. Interestingly, quite a sizable number of patients (19%) and health workers (14%) gave no reasons for their choice of a particular language(s) in health care encounters.

The final concern of this section was to determine whether participants' choice of language in health care encounters is overtly or covertly influenced by their perceived understanding that a particular language(s) is/are the norm in the facilities where they provide/seek health care services. In other words, we wanted to find out what language(s) participants thought their health facilities promoted. Table 11 below summarises the results of responses:

Table 11: Participants perception of the language(s) that are promoted at their health facility

Languages	Patients	(%)	Health workers	(%)
English only	57	43	24	57
One Indigenous language only	9	7	9	2
English and one or more indigenous languages	65	48	8	19
Two or more indigenous languages	3	2	1	2
TOTAL	134	100	42	100

Even though none of the health facilities used in this study reported to have any laid down policy on what language(s) to use (in fact, no health facility in Ghana does), majority of health workers (57%) and many patients (43%) believe that their health facilities promote an English only policy. In other words, both patients and health workers perceive English as what most facilities promote by practice or circumstances, or both. If the general perception of both patients and health workers is that English is the normative/expected language of communication in health facilities in urban Ghana, how do the facilities cater to the needs of non-English-speaking populations among their clients? In the next section, we

present results on the questions of availability and accessibility of language services in the health facilities we studied.

4.1.3. Availability and accessibility of language services in the health facilities

When we asked whether language services were available at the health facilities, 61.9% of the health workers said no such services were available at their facilities. However, only 38.9% of this number said the available language services are made accessible (made known) to patients. Similarly, 60% of the patients indicated their awareness of their health facilities offering language services even though majority said such services are not usually made accessible to them upfront. For a highly linguistically diverse population, the lack of language services or its accessibility is a potential challenge in health communication. Considering that there are many health facilities without language services, we asked the more direct question of whether, in their opinion and experience, language differences among health seekers and givers pose a potential or real barrier to health communication in the health care system. We discuss participants responses to this question and related ones in the next section.

4.2 Language differences as a barrier to communication in healthcare

As has been discussed in the literature, language differences among health care seekers and care givers lead to a barrier in communication in healthcare delivery in other jurisdictions. One main aim of this study was to find out whether this phenomenon occurs in urban Ghana where populations are generally linguistically diverse. Table 12 below summarises the responses provided by participants on whether they felt that language differences among care givers and health seekers lead to communication barriers in health care system:

Table 12: Do language differences lead to communication barrier?

Language differences cause barriers?	Patients	Percentage	Health workers	Percentage
Yes	86	64	34	81
No	48	36	8	19

Total	134	100	42	100

From Table 12 above, it is obvious that most of both patient and health worker populations see language differences as a barrier to communication in the health care system. As a follow up to the question of whether language differences cause communication barrier in the health care encounters, we asked participants who responded in the affirmative to indicate the ways in which such a barrier may occur. Participants' responses are presented with illustrations below:

4.2.1 Barrier for Patients

This section thematically presents responses of patient participants regarding the ways in which they have experienced communication barrier that is caused by language differences in health care encounters:

- **Inability to explain illnesses in terms that the health workers could understand**
  i. Couldn't describe my illness properly
  ii. Lack of better wording or wrong choice of words
  iii. I could not get the right words in English to explain it, so she understood it differently from what I was trying to express

- **Inability to understand medical terms used by the health workers**
  i. Communication not effective because of technical terms and language expression
- **Misinterpretation given information**
  i. due to difference in languages spoken
  ii. misinterpretation during my time explaining myself in the consulting room

4.2.2 Barrier for Health workers

This section thematically presents responses of health worker participants regarding the ways in which they have experienced communication barrier that is caused by language differences in health care encounters. Here, we provide more than bullet points and sample responses because respondents provided a bit more detailed information in their responses.

- **Quality of care compromised**

Several health workers opined that, from their experience, language differences lead to poor assessment of patients because they impede health workers' ability to obtain precise medical information (history and description) from the patients on the conditions and symptoms they are suffering. Poor patient assessment, they indicated, leads to wrong or poor diagnosis and treatment outcomes. This finding corroborates what is already known in the literature from other jurisdictions. Indeed, it has been established in the literature that when health workers fail to explain or counsel patients in a language that patients can understand, patients are typically unable to comply with or follow treatment plans fully (Karliner et al. 2007; Snowden et al. 2010; Morales et al. ,1999). All these affect the quality of health care patients receive. The health workers felt this is a very serious issue that needs to be addressed since it undermines their core roles as health care providers as is illustrated in the examples below:

i. For all patients to get the best results in our therapy, it starts from doing a proper assessment. The assessment is done in two parts: subjective and objective. Subjective assessment deals with how a patient perceives her symptoms and this enable us to understand how she feels about her condition. If there is a difficulty in understanding our patient during assessment, therapy may not be effective.

ii. It is difficult understanding what the client means hence I am unable to make proper assessment and diagnosis

iii. It makes it very difficult to triage patients

iv. It interferes in every aspect of the care

- **Invasion/ breach of privacy**

Inasmuch as the need and use of interpreters becomes important, in the absence of qualified and trained interpreters, the use of non-qualified people including family members, staff or complete strangers leads to a breach in privacy and the loss of vital information needed for proper diagnosis and treatment. The use of such unqualified personnel leads to miscommunication between health worker and patient. In fact, according to some of the health workers, the use of these interpreters sometimes makes their work even more difficult and causes the patients so much discomfort that there is a complete breakdown of communication.

i. It makes my patient very uncomfortable.
ii. Some patients end up doing things contrary to the instructions given them.
iii. This usually results in poor outcome of treatment.

- **Patient dissatisfaction**

Health workers are service providers and aim to please their clients, but the barriers caused by language differences interfere with this (Stewart et al., 2000; Teutch, 2003). When they can use a language that the patient is fluent in, it enhances communication and trust, so that the patient leaves satisfied and hopeful of full recovery. On the other hand, inability to communicate effectively results in patients mistrust and dissatisfaction in the health worker, and health worker frustrations as illustrated in the excerpts below:

i. When I speak a language that a client understands, they can open up to tell me any challenges they have with their medication.
ii. Patients leave with less understanding and more confusion.
iii. Patients sometimes are not pleased you are unable to use the language pertaining to the locality you work. They forget you are also from another tribe and may not have had the opportunity to learn their language.

It is important to note that all the specific ways in which language differences create combination barrier among the participants in this study have also been reported in the literature and have been established as impacting negatively on health care delivery.

4.2.3 Navigating language barrier in health communication

In the literature, some studies, like Karliner et al. (2007) and Snowden et al. (2010), have proposed ways to navigate communication barrier that is caused by language differences in health encounters to mitigate the negative effects on the health care process. In this current study, we also tried to ascertain the methods our health workers employed to navigate the communication barrier language differences create in health care encounters.

When we asked health workers to explain how they navigate communication barriers caused by language differences between themselves and their patients, 57% said they randomly looked for translators - anyone at all (another patient, a family member, etc.) who speaks the patient's language and is available/willing at that moment to assist. Neverthe-

less, 29% reported as relying on a staff of the facility who may have some level of understanding of the patient's language. Thus, we may argue that the reported language difference-based communication barrier in health encounters is artificial because majority of health workers seem to have a ready solution to the apparent problem. The challenge with these methods is that they create problems with two fundamental concerns in health care delivery: breech of health worker-patient confidentiality and the invasion of patients' privacy, both of which may discourage patients from expressing themselves freely and being open/truthful about their illnesses. Besides, it may be wrong to assume that anybody who speaks a particular language will have the competence to successfully translate/relay medical/technical information from patients to health workers and vice-versa as trained translators are able to do. Interestingly, 2% of the health workers explained that they used phone (on-line) translators, especially with non-Ghanaian patients. However, they did not indicate whether this involves the use of professional language translators as exist in Europe and the Americas. Though this route is also not foolproof, because there is no third party who is physically present, it reduces the risk of a breech in confidentiality and invasion of privacy. In an extreme case, 2% of the health workers reported as using gestures to navigate communication barrier in health encounters. How effective this is likely to be is everyone's guess. Unfortunately, 10% of the health workers did not respond to this question.

4.2.4 Resolving language barrier in health communication

Since both patient and health worker participants considered language differences to create communication barriers in health encounters, we asked them to suggest possible ways to deal with/resolve communication barriers in health encounters that are caused by language differences between patients and health workers. Sample responses are shown in the bullets below:

4.2.4.1 Patients' view

- A qualified health worker should at least speak English, Twi, and other local dialects. preferably a language dominant in the area of health facility.
- Allow patients to express how and what they are experiencing in a language they are comfortable in. If necessary, translators should be available at the various facilities.
- Basic training should be made for health workers to become familiar with different languages.

- Communicating with patients with the language they feel comfortable with will be one way of solving the problem
- Develop training programmes in local languages.
- Employing language translators in the health sectors.

4.2.4.2 Health workers' view

- There should be a facility or unit in the hospital to help with the translation of languages to aid in communication to be able to render quality health care to every individual.
- Clients should be encouraged to express themselves in other languages. English should not be a major language.
- Communicating mostly in our part of the world that should be our mother tongue. We should make effort to learn most of our local languages.
- Health facilities must provide the means for a professional interpreter in our workplaces.
- Hospitals should inculcate language services.
- Incorporate more than one local language in the primary and secondary school curriculum.
- We should be ready to learn other languages in open mindedness.
- There should be a national policy on language in healthcare delivery.
- We must develop a glossary of medical terminologies in our local languages.
- Health workers must have competence in the dominant language of the area they work in.

5. Conclusion

The language situation in Ghana is such that for most patients and health care practitioners who live in urban areas, the language used in healthcare delivery is Akan and English. For most of these people, this means they are compelled to use a second language. Research has shown that the use of a second language in healthcare delivery leads to miscommunications that affects the success of recovery for the patient and makes the work of health workers more difficult. In other jurisdictions, e.g. in the United States, individual States have begun to emphasize educating health professionals about language access. There is a deliberate attempt to offer training that focus on raising the awareness of how cultural and language barriers can affect the quality of care, with the goal of increasing clinicians' support for and use of language services. For instance, between 2004 and 2006, New Jersey, California, and Washington have enacted requirements for each medical school to educate

students on cultural competency of which language access is a core component. Cultural competency education is required for physician re-licensure. These states have also put in place clinically oriented continuing medical education (CME) programs, whose curricula include cultural and linguistic competency, for physicians and surgeons. Still in the US, several states mandate language services as a condition of facility licensure. Health facilities are required to post notices of interpreter availability in English and, minimally, the three most frequently encountered languages in the facility.

Unfortunately, issues pertaining to language have not been a priority for those in the healthcare delivery system in Ghana in particular. Our study has revealed that the health workers, who are mostly multilingual, are trained in English only and yet they have to offer health services and communicate health information (that they acquired in English) to multilingual patients. They therefore try their best (and sometimes fail) to accommodate to the languages their patients would understand them best in. The patients, on the other hand, though are also largely multilingual, perceive health facilities and health workers as English-speaking and thus accommodate to English at the health facilities they visit (irrespective of their level of competence). Apart from this, some patients also wish to use the most prestigious language, which is English. These differences in choice of, competence in and actual use of languages in healthcare delivery has lead to both patients and health workers both agreeing that language differences is a potential source of miscommunication/language barrier in health encounters, though the health workers see this as more of a problem than the patients do.

Also, both patients and health workers suggest and advocate for better ways to resolve language problems in health care system in Ghana.In fact, it is high time all stakeholders in the healthcare care delivery system in Ghana, who are genuinely interested in the human resource of this nation, gave this situation all the seriousness it deserves. We call on the health regulatory bodies, e.g. Ministry of Health, Ghana Health Services, Ghana Medical and Dental Association, the Department of Public Health, to as a matter of urgency, take the appropriate steps to rectify this anomaly in order to improve health care and ensure safe and quality health care system.

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WAR METAPHOR STRATEGIES IN EXPRESSING COVID-19 MESSAGES IN PRESIDENTIAL SPEECHES IN KENYA IN 2020

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Abstract:

Presidential addresses are commonly used by leaders across the globe in addressing issues pertinent to society. Such addresses were given during the wake and spread of the COVID-19 pandemic in Kenya. Since the first case of COVID-19 was confirmed, the then President of the Republic of Kenya, Uhuru Kenyatta addressed the nation on a regular basis regarding the spread of COVID-19 and the containment measures meant to slow down its spread. In Kenyatta's speeches, there were many metaphors used while addressing the nation on COVID-19. The war metaphors were however found to be preponderant. This paper therefore investigates some of the WAR metaphors that were used in the presidential speeches in Kenya with a view to establishing what they were, why they were dominant, and how they were used in order to achieve communicative effect. The paper also makes an investigation of the conceptual nature of the WAR metaphors used in selected presidential addresses in Kenya. The paper further sought to interrogate the metaphorical implications of their usage in information management among Kenyans given that metaphorical constructions are efficient tools in helping citizens understand the complex information about COVID-19 pandemic. To achieve this, data for this study were collected from presidential speeches that were delivered to the Kenyan nation. The speeches were purposively selected from among eight (8) presidential speeches given between March and October 2020. This was the period within when Covid-19 pandemic was at its peak in Kenya. The data were transcribed and analysed qualitatively. The study was guided by the Conceptual Metaphor Theory (CMT) proposed by Lakoff and Johnson (1980). This theory sees metaphor as a means by which language users

cognitively think by way of transferring attributes from the concrete domain to the abstract domain thus making the abstract domain clearer, more simple, more understood and presented with some emphasis and even more foregrounded. The study found out that WAR metaphors were used essentially to warn, caution, inform, encourage, rally, and reassure the Kenyan people that the Kenyan government was taking charge of the entire situation. Most importantly, the metaphors were used in the oversimplification of information that was relayed to the people of Kenya in the management of COVID -19. The metaphors used were largely drawn from the Kenyan socio-cultural environment thus expected to make Kenyan people understand the complexity and nature and the effects of COVID-19.

Keywords: WAR metaphors, presidential addresses, COVID-19 pandemic, conceptualization, culture

1. Introduction

The world has over the years experienced several epidemics which have been a threat to human life. These pandemics include the Severe Acute Respiratory Syndrome (SARS) in 2002, the 2009 H1NI pandemic and the Ebola outbreak in 2014. Such pandemics are known to cause deaths and illnesses thus affecting the socio-economic status of nations and individuals negatively. The COVID-19 pandemic is the most recent of these pandemics and it has spread to all corners of the globe. Since it was first reported in Wuhan China in 2019, it spread to other parts of the world at an amazing rate. The entire world as a result experienced lockdowns in an attempt to slow down its spread. African countries like South Africa, Nigeria, Ethiopia, Tanzania, Morocco, Egypt, Kenya, and Burundi experienced and reported high number of infections from the COVID-19 pandemic. In view of these rising numbers of COVID-19 patients, there were global efforts to stop or at the very least slow down the spread of COVID-19 pandemic. Such efforts included travel advisories, precautions, warnings, orders and other containment measures from various government departments.

In Kenya, when COVID-19 was first reported there was a big challenge that brought some issues to the fore. There was a casual attitude with which Kenyans treated it. Most Kenyans thought it was not a serious disease after all. Further, there were rumours in Kenya

especially in social media that COVID-19 was a creation of the state, and that the government was using it as a way of obtaining international funding. Following other practices elsewhere, the government shut down production units rendering many people jobless. Others were forced to work from their homes. Measures were put in place including weekly ministerial press statements by the cabinet secretary, Ministry of Health in Kenya on the status of the COVID pandemic, use of the media to keep Kenyans adequately informed on the status and precautions to take, and presidential addresses by the president which were given on a regular basis, after every two weeks, during the period between March and July 2020. Could these concerns have been the reason the president of Kenya applied WAR metaphors in his speeches? Are WAR metaphors adequately understood? Was language on the whole a critical component in relaying the critical information needed in the management of this pandemic? Were all these efforts made to ensure that COVID-19 pandemic does not negatively impact the Kenyan population?

In an attempt to address the issues above, this paper investigates the WAR metaphors that were used in selected presidential addresses with a view to establish why they were dominant. The paper further seeks to interrogate the metaphorical effects and the implications of their usage in information management among Kenyans given that metaphorical constructions are efficient tools in helping citizens understand the complex information about COVID-19 pandemic. This was in line with WHO (2020) who outlined six crucial principles for effective communication during this pandemic: accessibility, actionability, credibility, relevance, promptness, and understandability. Governments the world over were advised to make any pandemic-related information timely accessible and use plain language. Since COVID-19 pandemic related strategies were abstract, the presidential addresses in Kenya heavily utilized metaphorical expressions which were concrete to aid in relaying information to the citizens. Through metaphor, people could arguably understand the situation and follow the guidelines to prevent the spread of the coronavirus

2. Theoretical Orientation

This paper was informed by the Conceptual Metaphor Theory (CMT) that was proposed and developed by Lakoff and Johnson (1980). Unlike the classical model on metaphors by Aristotle which views metaphor as expressing something in terms of the attributes of another thing (Stallman, 1999:10), CMT theory sees metaphor as a means by which language users cognitively think by way of transferring attributes from something concrete

to another that is abstract, (Kövecses 2010:4); thus making the abstract thing clearer, more simple, more understood and presented with some emphasis and even more foregrounded. Conceptual Metaphor Theory (CMT), also called Cognitive Metaphor Theory (CMT), was expanded within the discipline of Cognitive Linguists. The theory received its prominence at the publication of *Metaphors We Live By*, (Lakoff and Johnson, 1980). CMT has since then grown and expounded. CMT has a basic principle which states that metaphor operates at the cognitive level, that is, at the level of the human mind.

Metaphors show the relationship between two cognitive domains the 'source' domain and the 'target' domain (Lakoff and Johnson, 1980). The source domain has a set of literal elements, attributes, processes and connections, connected semantically and kept together in the mind of language users. These are experienced in language via words and expressions which are related and organized in sets defined by linguists as 'lexical sets' or 'lexical fields'. The 'target' domain is the abstract domain, and it acquires its form from the source domain, through mapping of the metaphorical link, or 'conceptual metaphor'. Target domains have connections between entities, attributes and processes which reflect those in the source domain. At language level, entities, attributes and processes in the target domain are presented through words and constructions from the source domain called metaphorical constructions which are distinct from conceptual metaphors.

Conceptual Metaphor Theory (CMT) is anchored on a number of tenets. Only four of the tenets are relevant in the analysis of data in this paper. Firstly, there is the tenet on the conceptual nature of metaphor. According to this principle, metaphor is not simply based on language alone but shows embedded relationships between conceptual systems in the brain. These conceptual systems are referred to as domains or frames which are a reflection of the mental organization of human experience.

Secondly, the mapping process in conceptual metaphors is unidirectional. Conceptual Metaphor Theory contends that conceptual metaphorical mappings are unidirectional, that is mapping of structures is done from the source domain to the target domain and not vice versa. This is evident from example (1), where mapping is from the construction whose attributes are 'to furiously go out of control' and onto the construction 'it' (COVID-19 virus).

Thirdly, the image schemas are structured as source domains for metaphorical mapping, (Lakoff and Johnson, 1980, in Evans and Green 2006:301-305) that is, the image schemas

are the knowledge structures which are sourced directly from language users' pre-conceptual embodied experience. These knowledge structures carry meaning at the cognitive level mainly because they derive from the embodied experience, which directly carries meaning. From example (1), the image schemas of COVID-19 virus include 'able to move into action across cities and countries, unstoppable, not sparing anyone and moving courageously'. These image schemas are mapped on to the target domain for conceptualization to take place.

Lastly there is the hiding and highlighting feature in metaphor. This tenet holds that in the interpretation of metaphorical constructions, the mapping of encyclopaedia entries from the source domain to the target domain allows the highlighting of certain elements of the target domain and at the same time concealing other elements. This allows interpretation of metaphors only in specific contexts of metaphor use. For instance, from example (1), only image schemas or attributes which are related to the war metaphor are used in the mapping process. Those which have no relationship such as 'settling down after an attack or even making amends with the enemy' are not considered.

3. Review of Related Literature

Over the years a considerable number of studies have documented the use of metaphors in the fight against diseases and also its role in other aspects of human life. Kobia (2008) for instance, conducted a study on the use of metaphorical language in the management of HIV/AIDS in Kenya. Kobia observed that Ololuyia speakers of Western Kenya use metaphors when discussing issues related to HIV/AIDS. This is because sex is a taboo topic in the Luhya community and cannot be discussed overtly without a metaphorical strategy which camouflages some information but at the same time relaying the intended meaning. Besides, the speakers choose to use metaphors because some of the speakers lack literal equivalents for some concepts. The metaphorical strategies help them talk about myths and reveal reality in an appropriate way thus protecting the face of the interlocutors in the Ololuyia speech community. Among the Abaluhya of Western Kenya, politeness is highly regarded. The study explored the perceived origin, spread, signs and ways of dealing with HIV/AIDS pandemic. The study is relevant to the current study as it sheds light on how CMT is used in the interpretation of conceptual, metaphors. However, the two studies differ as they have investigated two different pandemics; HIV-AIDS and COVID-19

pandemics, whose outbreak and spread are also considered to have occurred at different times historically.

In his examination of sexist overtones in Kiswahili metaphors, Simala (1998) analyses the metaphor's structural organization which aimed at arriving at the expression of content in relation to its total effect. He described, explained, and critically analysed aspects of female metaphors with the intention of explaining their function thematically. The study emphasized that metaphor is a linguistic device used to underscore the abominable male chauvinism that characterizes Swahili societal life. The current paper defines metaphor as not only as a strategy in communication but also as a conceptual mechanism which allows the Kenyan population to conceptualise the dangers and effects of COVID-19 pandemic through the WAR frame.

Closely related to the present study is research by Wicke and Bolognesi (2020) which analysed the discourse of COVID-19. The study focused on social media engagements. It was based on a corpus of 200 thousand tweets posted on Twitter during the month of March up to the month of April 2020. Using topic modelling approach, the study analysed the topics around which the discourse could be classified. Further, the study demonstrated that the WAR framing is used to talk about specific topics, such as the virus treatment, but not others, such as the effects of social distancing on the population. The study measured and compared the popularity of the WAR frame to three alternative figurative frames (MONSTER, STORM and TSUNAMI) and a literal frame used as control (FAMILY). The study demonstrated that while the FAMILY literal frame covers a wider portion of the corpus, among the figurative framings, WAR is the most frequently used, and thus arguably the most conventional one. However, the study concluded that, the WAR frame was not sufficient in explaining many other aspects involved in COVID-19 operations. It is noted here that social media is fairly extemporaneous and informal as compared to presidential speeches which are planned formal addresses. A lot of thought goes into the organization of the presidential speeches before they are verbalized to the public and metaphor realization is likely to be different compared to social media engagements.

In another study, Kamalu and Iniworikabo (2016) studied metaphors in political speeches of Nigerian Democratic Presidents. The study adopted the tenets of Conceptual Metaphor Theory (CMT) of Lakoff and Johnson in the analysis of selected political speeches of Presidents Olusegun Obasanjo (OBJ henceforth), Musa Yar'Adua (UMY henceforth) and

Goodluck Jonathan (GEJ henceforth). The study discovered that metaphor is a great resource in political communication and that the speakers drew from source domains that represent social, economic and political situations and conditions in Nigeria essentially as conflict and war, building, disease, journey, illness, games and sports, and as a family. The study considers ways in which metaphors facilitate the discourse on Nigerian nationhood and how the speakers exploit metaphorical expressions in communicating their ideologies to Nigerians. The paper used CMT which is also used in this paper, but the two papers have different orientations and focus. Although like this paper the paper focused on presidential addresses, they differ in that the current paper unlike Kamalu and Iniworikabo's study that looked at metaphors in general this one investigates only WAR metaphors used in presidential addresses as a strategy in expressing COVID-19 messages to Kenyans.

Kiptinness and Okoye (2021) undertook a study on Media coverage of the novel Coronavirus (Covid-19) in Kenya and Tanzania: Content analysis of newspaper articles in East Africa. In this study, they used the framing theory to analyse dimensions being conveyed in the coverage of COVID-19 in Kenya and Tanzania between February 2020 and April 2020. A quantitative analysis of the *Daily Nation* and *Citizen* newspapers showed different patterns of framing of the virus. Specifically, this analysis focused on multiple frames used by the two newspapers with respect to the following topical categories: context, basic information, preventive information, treatment information, medical research, Social context, Economic context, Political context, personal stories and other. Although the *Daily Nation* published more stories than the *Citizen* Newspaper, only the frame *personal stories* were significantly higher in the *Daily Nation* compared to *Citizen* Newspapers. This paper focused on different ways of framing the virus while the current paper investigates framing COVID-19 as an enemy through the WAR metaphor.

Seixas (2021) like the present study focused on WAR metaphors studied in Political Communication on Covid-19. In this study it was established that although militaristic metaphors have been pervasive during health crisis in political and science communication, few works have examined how these linguistic devices may influence crisis communication. Drawing on critical discourse analysis (CDA) and on crisis communication literature, the author showed how political representatives have used the WAR metaphor for very different purposes in terms of crisis communication and management of the current Covid-19 pandemic. She further suggested that such findings challenge previous criticisms of the WAR metaphors as inherently negative and damaging in their operation. Finally, she discussed the possibilities of using CDA, and specifically,

metaphor analysis to inform and expand crisis communication. The paper relates to the current paper in that they both interrogate WAR metaphor in communicating COVID-19 messages. They however are guided by two different theoretical frameworks. Whereas the earlier paper by Seixas utilizes Critical Discourse Analysis this paper is informed by the tenets of CMT.

There are also studies on how COVID-19 has impacted language use and even growth globally. According to Mweri (2021) for example, COVID-19 has impacted virtually everybody in the world today by introducing various changes leading to the 'new normal'. The paper is an analysis of how English language has been able to adapt to the changes that COVID-19 has occasioned. The research established that the spread of corona virus has changed the lives of billions of people worldwide by ushering in a new set of lexica that cuts across all disciplines. In another related study, Asif et al. (2020) conducted a linguistic analysis of neologisms related to corona virus (COVID-19). The study focused on the phenomena of neologisms to explore the creation of new words during the outbreak of COVID-19. The study revealed that with the outbreak of COVID-19, word formation was utilized by majority of people with most of them using nouns, adjectives and verbs while communicating about the pandemic.

Similarly, Akut (2020) conducted a morphological analysis of neologisms during COVID-19 pandemic, it was revealed that most of the neologisms are nouns and that the morphological processes that were involved in their formation were compounding, blending and affixation. The study concluded that the neologisms formed during the COVID-19 pandemic reveal the morphological processes and the morphemic structures in English language that could be exploited in word formation processes. These studies investigated impact of corona virus on language use which is the point of convergence with the current study. On the contrary, these studies take different orientation since the current study investigates war metaphor strategies in expressing COVID-19 messages in presidential speeches in Kenya in 2020.

Another study which investigated metaphors in political circles is by Sacco (2009). In this study, metaphorical reframing and the role of metaphor in the United States government, by President Obama was investigated. Obama sought to address the gaps in the health sector so as to provide stability and direction to the American economy. Metaphor was a central tool in this endeavour. The key procedure was geared toward revealing the covert

intentions via the interconnections of rival metaphors. The study found three common metaphorical constructions in these interactions: These were metaphors of embodiment/health, foundation/building and journey metaphors. Notable also were studies by Sabir (2015); Habwe (1999); Jeremy (2012); and Pennick (2014) who concluded that politicians find metaphors important in expressing messages that seem tricky and which require tact.

Other studies which have investigated metaphor guided by CMT and found relevant to the current paper are for example by Ndung'u and Marete (2019) which investigated metaphorical constructions and mappings at the Kiswahili word level. The paper realised that an analysis of Kiswahili metaphorical linguistic expressions, specifically the word category, through the Conceptual Metaphor Theory (CMT) resolves problems in meaning determination through meaning enrichment. Such problems result from having referring expressions which create the problem of over-determination in which meaning remains too abstract, overly vague, and unclear in under-fictionalized contexts. Through CMT, concepts or sense construals are mapped from the source domain mostly in verbs to the target domain mostly in nouns or nominals in the Kiswahili clause structure. The central issue of the paper was to investigate how the referential paradigm is improved by the higher paradigm of meaning expression in Kiswahili word level metaphorical constructions. The paper explored the process of easier conceptualisation of Kiswahili linguistic expressions through metaphor. The analysis was on how metaphorical constructions at the Kiswahili word level makes meaning more intelligible by doing the following: making abstract expressions concrete; bringing into perspective metaphorical interpretations; providing experiential metaphorical interpretation of arguments meaning; and providing internal focus of personification attributes by foregrounding metaphor and back grounding referential interpretation as a low-level meaning which is not dependent on context.

Of significance also is a paper by Ndung'u and Habwe (2019) which investigated metaphorical construction and interpretation of the Kiswahili compound and complex clauses. This paper investigated Kiswahili metaphorical constructions at the complex clause level. It argued that whereas Kiswahili metaphor has been studied for a considerable length of time grammatical features of Kiswahili metaphor are poorly understood and therefore required revealing. Further the conceptual aspects of the Kiswahili metaphors have not been conclusively studied to date. This paper therefore seeks to determine how these metaphorical expressions are constructed and how they express the conceptual metaphor. Conceptual Metaphor Theory as proposed by Lakoff and Johnson (1980) and

Langacker's theory of Cognitive Grammar (CG) (1987, 1991) were used in informing the study. The paper therefore examined the form-meaning components in a Kiswahili clause in order to identify how they are syntactically and semantically structured in the construction of metaphor. The data research was largely library based. The data was obtained from purposively selected Kiswahili plays that had used metaphor in their expression. It was revealed by this study that the cultural context is important in understanding metaphorical constructions. The verb at the clause level is crucial in the construction process because it relates with other elements in the construction of metaphor. When a metaphor is constructed with a relative clause, the verb in the relative clause is the one that is the source domain and therefore responsible for the mapping process.

Lastly, there is the study by Ndung'u M.N. (2019) which investigated the grammatical structures of figurative language in Kiswahili metaphorical constructions. The study was an investigation of how Kiswahili metaphorical constructions are lexically, syntactically, and semantically structured. The study was library based and was to a large extent qualitative. The data were sourced from four Kiswahili literary texts: Mazrui (2003), wa Mberia (2004), Arege (2009) and wa Mberia (2011), which were purposively selected. Data was collected by reading the literary texts, identifying the metaphorical constructions there in and listing them to make it easier for classification into lexical, phrase or clause categories. The study was guided by Conceptual Metaphor Theory (CMT) which was supplemented by Cognitive Grammar (Langacker 1987) and Construction Grammar (Goldberg's 1995) approaches. The three theories were used as tools of analysing the data as they guided on the identification of Kiswahili metaphorical grammatical constructions in the selected literary texts, investigating and explaining how they are structured in the formation and interpretation of metaphor, and determining the extent to which they express socio-cultural context and embodied experiences of language users. It was revealed that the concepts of Conceptual Metaphor Theory, Cognitive Grammar, and Construction Grammar can be utilized in the interpretation of Kiswahili metaphorical constructions. In the study it was also revealed that the verb and the noun are the two major lexical categories in the formation of Kiswahili metaphorical constructions that evoke metaphor. However, other lexical categories like the adjective, adverb, and prepositional phrases are understood and interpreted metaphorically in the context of nouns and verbs. The study further revealed that in the Kiswahili clause, the verb manifests the source domain while the target domain is manifested by the noun and its immediate constituents in a construction. Other constructions which evoke metaphor are the DO, IO, complements, and subordinate

clauses in compound and complex sentences. The Kiswahili verb interacts with other constructions for metaphorical interpretation to occur. These include the noun phrase in the argument position, the adjectival phrase, noun phrase, prepositional phrase, and other complements within the predicate position. In examining the Kiswahili lexical, phrasal and clausal levels, it was revealed that meanings of constructional elements such as verbs and nouns are relativised to frames or cognitive models which include the language users' knowledge of their referents. This knowledge includes social cultural contexts and the encyclopaedic entries of the referents and entities targeted. Finally, the study has brought into perspective areas for future and further research which are largely on use of other construction grammar theories and on interrogation of sense relations, under Goldberg's Cognitive Grammar, such as antonymy, homonymy, and synonymy. The study has thus provided pioneering research on the analysis of Kiswahili metaphorical constructions by examining how they are utilised in the building of conceptual metaphors while expressing the socio-cultural contexts and embodied experiences of language users.

The studies cited above demonstrate the centrality of metaphor in language use. The present study therefore focuses on WAR metaphors in Kenya using Conceptual Metaphor Theory (1980) which maintains that one conceptual domain can be understood in terms of another domain. The paper thus investigates the conceptual nature of WAR metaphors used in selected presidential addresses in Kenya because little research has engaged it and therefore poorly understood to date. We seek to understand what WAR metaphors are used and what their conceptual structure is. This study further aims at investigating the motivation for such metaphors in handling of the COVID-19 pandemic activities in Kenya and thus providing an explanation on the suitability of the WAR metaphors used.

4. Methodology

This paper investigated the conceptual nature of WAR metaphors used in selected presidential addresses in Kenya. In order to achieve this, the paper investigated some of the WAR metaphors that were used in the presidential speeches with a view to establish how they were formed, how they conceptually frame the war metaphor and what conceptual implication they have in communicating issues on COVID-19 pandemic. The paper further interrogated the metaphorical implications of their usage in information management among Kenyans given that through conceptualization ideas or concepts are formed, developed and clarified (Evans and Green, 2006). Of significance to note is that the metaphorical constructions used were efficient tools in helping citizens understand the

complex information about COVID-19 pandemic. The data for this study were obtained from the library sources through internet services such as State House website and YouTube where all the interactions for presidential addresses on COVID-19 pandemic are recorded and stored. Five (5) presidential addresses to the nation were purposively selected from eight (8) presidential speeches. These are the 2nd, the 4th, the 6th, the 7th and the 8th presidential addresses by President Uhuru Kenyatta to the nation on 25th March 2020, 16th April 2020, 16th May 2020, 23rd May 2020, and 6th June 2020, September 2020 and October 2020 respectively. The speeches were selected as they were read out by the president, Mr. Kenyatta at the onset and height of the COVID-19 pandemic and thus provided necessary and relevant data for analysis according to the objectives of this paper. The speeches contained information to Kenyans on containment measures on how to prevent and control the spread of the virus. In those speeches the president used WAR metaphors which would assure Kenyans that the government was in control of the situation and thus minimized panic among the citizens.

In the eight presidential addresses, metaphorical expressions that conceptualize COVID-19 and related activity as WAR were selected purposively. The speeches that were selected for this study were in English; one of the official languages in Kenya besides Kiswahili according to the 2010 constitution. English tends to be more preferred in Kenya in giving presidential addresses compared to Kiswahili. Out of the total number (20) of metaphorical constructions selected, only 12 were considered for analysis as they were rich in metaphorical expressions whose attributes contribute to the conceptualization of the WAR metaphor. This was guided by the nature of data which is related in expression and reference to the same WAR frame but presented through different metaphorical constructions. The data selected were then analysed in accordance with the principles of Conceptual Metaphor Theory. The selection of 12 metaphorical expressions was satisfactory as it would be representative for the study in investigating the conceptual nature of the WAR metaphor in transmitting information on COVID-19 to Kenyans. This study was largely qualitative since it identified metaphors and analysed them through presentation of data, analysis and discussion. The tenets of CMT were applied in the analysis of data bearing in mind that Conceptual Metaphor Theory has a basic principle which states that metaphor operates at the cognitive level, that is, at the level of the human mind and not language as it was earlier thought.

5. WAR Metaphors in Presidential Addresses in Kenya in 2020

Presidential addresses in Kenya during the COVID-19 pandemic season (2020) were replete with metaphorical expressions. Although there are metaphors from other frames, it is noted that a considerable number of metaphors came from the WAR frame. For instance, Kenyatta uses WAR metaphorical expressions in a speech delivered on 16 May 2020 when he says,

(1) It is however, clear we have not delivered the **final blow to this enemy that has invaded our community and** the world at large.

In example (2) President Kenyatta, uses three metaphorical expressions; *Final blow, this enemy* and *has invaded*. The expression *final blow* is a WAR metaphor which in Conceptual Metaphor Theory terms provides the concrete domain that is mapped onto the target domain *success.* The conceptual features mapped from *final blow* are features like *hitting, struggle strength, destroy and defeat*. The expression *final blow* as a WAR metaphor is clearer and easy to follow and therefore suitable for the Kenyan context as compared to the target domain-*success* which is essentially abstract and complex to follow. COVID-19 was a fairly new disease that was not well understood at the time by most people in Kenya and the world at large. The conceptual metaphor expression *this enemy* is certainly more accessible to the Kenyan people as it exposes the dangers of COVID 19 more easily. The Kenyan people understand the schemata of an *enemy* better than that of COVID-19. The conceptual attributes of an *enemy* help the audience process the seriousness of the disease at hand. In this case, *enemy* is a concrete domain, and it is mapped on to COVID-19 which is a target domain. An *enemy's* schema in the Kenyan cultural context is one who attacks and sometimes without warning, has no mercy, unfriendly, destructive and one whom people must avoid at all costs and be careful about. This is because besides causing destruction the enemy at war could easily kill. All these features of the enemy are mapped onto COVID-19 which is the target domain. By using the WAR frame, Kenyatta intends to reinforce a certain perspective and also influence thought regarding the perception of COVID-19 to Kenyans. Many people without medical knowledge at this time were thinking COVID-19 was a minor ailment and sometime behaved casually. However, with the use of the WAR metaphor, *this enemy,* Kenyatta gets to convey the correct information, indicating that they are dealing with something that is more serious than they initially thought. It is for this reason that Lakoff and Johnson (1980) underscored the centrality of metaphor use in human communication. It is this reference to

COVID-19 as an *enemy* that is a precursor to the giving of orders, directions and protocols to the Kenyan people by the president.

Equally, the use of the conceptual metaphor *invaded* is another construction in example (2) which cannot be taken literally. It is used to expresses the coming of the *enemy* referred to above. *Invaded* as a concrete domain is easily understood by language users in the Kenyan community and it is conceptually mapped on to the act of *coming* which is a target domain. It is important to note here that *invaded* is a WAR expression that maps the *use of force*, *destruction, danger*, *unfriendliness,* and *loss of life*. It communicates frightening conceptual features not present in the target domain and therefore easy to interpret for this purpose of persuasion.

In another example Kenyatta refers to this *enemy* again by saying,

(2) A brutal and unforgiving enemy is at our wall. **He is trying to gain entrance** using every door and every window. He is asking every Kenyan to sneak him in so that **he can attack us all.**

The metaphorical construction, *a brutal and unforgiving enemy* used by the president in example (3) is mapped onto COVID-19 virus by giving the disease human attributes like brutality and unforgiving through the process of personification thus making the metaphor even clearer and forceful and hence oversimplifying understanding. Brutal and unforgiving constructions maps features like *hate*, *destructive*, *strength* on to the construction *enemy* and therefore amplifies it more unlike in the earlier example when only the construction *enemy* is used.

Kenyatta also uses constructions such as …*he is trying to gain entrance*; *he is asking Kenyans to sneak him in…so that he can attack us all*. Notice the use of *attack* in the last construction. It is a WAR frame metaphor which is meant to warn and put Kenyans on high alert. Personification is largely used in the preceding examples to communicate a conceptual metaphor. *Attack* is a concrete domain that is mapped on to *infection* which is a target domain. The conceptual features that are mapped are like the use of *force*, *suffering* and *destruction.* With this expression Kenyatta communicates caution, alertness which would not be realized with the use of *infection*. According to Lakoff and Johnson (1980, 2003: 33); Lakoff (1992); Lakoff and Turner (1989), use of personification allows language

users to comprehend a wider variety of experiences relating to nonhuman entities in terms of human motivations, characteristics, and activities. This is successfully done by mapping the attributes of a human entity through the highlighted metaphorical constructions and whose meaning is more accessible compared to those of a nonhuman entity which if used would render comprehension more difficult.

In an apparent reference to COVID-19 as *an enemy*, Kenyatta says the following about the *enemy*,

(3) He **multiplies his forces rapidly,** with one infected person able to infect dozens of others if insufficient measures are not put in place. Or if all of us do not take heed of the dangers and behave accordingly a lot shall be lost.

In example (4) the president uses the style of personification while referring to the pandemic. He describes what the enemy is able to do through the metaphorical construction *he multiplies his forces rapidly*. This expression is a WAR metaphor that is presented as a concrete domain mapping features like, *strength, fighting, being armed* which is conceptualized as an *increase in the number of COVID-19 infections* which is a target domain. This conceptual metaphor that uses a WAR frame has a schema that is understood easily and is easy to process thus providing or communicating information on how dangerous the virus is to the Kenyan people.

This is a clear description of what an ENEMY is capable of doing while preparing for war and while ready to attack in a fighting scenario. For the ENEMY to defeat his opponent in WAR, he has to ensure that his army is well equipped, has enough numbers, has reserves in place and the front-line soldiers could be increased anytime they are required so as to ensure that the opponent does not fight back more strongly and win the battle. For Kenyans to conceptualize the force and aggression of the pandemic, the use of the concrete attributes of an ENEMY at WAR are used; the multiplication or duplication of the virus in its spread among the people is compared to that of an enemy in war. This is understood to mean that the virus has the capacity to infect one person and in a span of time, if precautions are not taken, it spreads very fast to infect dozens of others. Further, the WAR metaphor is understood through the call by the president to Kenyans to *take heed of the dangers* likely to occur or else *a lot shall be lost*, meaning that Kenyans are likely to lose the WAR in case they do not follow the precautionary measures and guidelines given by the Ministry of Health in combating the COVID-19 virus.

In the same speech, we see the president of Kenya describing the enemy through the following expression,

(4) Given enough opportunities, **this enemy will lay waste** our families, our children, our parents, our neighbours and our friends**. He will find the least aware among us** and use them to carry him to the most vulnerable.

The metaphorical construction in example (5) used in Mr. Kenyatta's address show another use of personification. According to Lakoff and Johnson (1980, 2003:34), personification not only gives language users a very specific way of thinking about a specific situation or framing, but also a way of acting toward it, in this case in the framing of the WAR metaphor. People think of the VIRUS as an adversary that can attack them, hurt them, steal their lives from them, and even destroy them. This is alluded by the metaphorical construction *this enemy will lay waste our families*. The metaphor PANDEMIC IS WAR therefore gives rise to and justifies action by the government of Kenya to declare WAR on COVID-19 pandemic and expecting all the Kenya citizens to follow the guidelines given by the Ministry of Health: keeping social distance, sanitizing, washing hands with soap and running water and staying at home. Failure to do so on the side of Kenyan citizens would enhance the pandemics ability to attack the most vulnerable in the society, which is the case of the virus having caused death to those having pre-existing health conditions such as diabetes, hypertension, HIV and AIDS, and cancer. The construction *he will find the least aware among us* as used in the speeches by the president also points back to that.

Kenyatta also uses the following metaphorical construction on 6th June 2020 where he says,

(5) Permit me to close by saying that **this Disease is beatable if we work together**; listen to and apply the regulations, guidelines and protocols issued by the Ministry of Health; and **keep our eyes on slaying the enemy.**

In example (6), the President uses the construction *this disease is beatable if we work together.* The choice of the metaphorical construction *beatable* is ideal in the circumstances. Kenyatta uses the constructions to say if Kenyans were to unite and follow the guidelines given by the Ministry of Health, they would succeed in the treatment of COVID-19. The construction *beatable* is a concrete domain which is used to communicate the WAR metaphor. The WAR metaphor *beatabl*e as mentioned above could only be understood through its schema which is within the linguistic and cultural reach of the

Kenyan language users. That is, in times of a disaster, unity, order and defence are necessary for the nation to come out as the winner. Mapping in this metaphor is from the construction *beatable* whose attributes are mapped onto the *management* of the disease which is the target domain. Consequently, conceptual features like *struggle*, *strength*, *win, use of force success* are transferred on to the target domain. It is important to note that *beatable* in this context refers to all the strategies of managing the ailment including all the protocols for prevention and treating all conditions associated with COVID-19 pandemic. This seems to agree with Wocke and Bolognesi (2020) when they studied tweets that there is a liking of WAR metaphors when it comes to treatment and management of COVID-19 in social media.

In example (6), Kenyatta also says … *and keep our eyes on slaying the enemy.* The president uses this conceptual metaphor *slaying* the *enemy* which is the concrete domain that maps features like *destroying, succeeding, wiping out* on the target domain which is *finishing COVID-19.* The WAR metaphor of *slaying* is more ideal in communicating and resonates well with the Kenyan audience at this point in time when information has to be reconstructed for appropriate briefing. It communicates the idea of completely dealing with the virus in a way that the construction *finishing* cannot communicate.

On May 23rd the president of Kenya Mr. Kenyatta used a WAR metaphor to express hope for a nation that was in despair. He said:

(6) I urge all of us to remain true to our economy and confident that the endurance we are so famous for will **drive us to victory**

In example (7) *drive us to victory* is a WAR metaphor that maps feature like *struggle*, *movement* and *winning* onto the target domain which is *success.*

In yet another example of WAR metaphor, on June 6th, Kenyatta says,

(7) Later on, more measures to contain the **havoc** visited upon us by COVID19 were put in place.

The WAR metaphor *havoc* lies in the WAR domain. It is commonly used as a dead metaphor in many other domains to refer to adverse effects for a number of things. It needs to be pointed out that metaphors are largely contextual in their operation (Kövecses 2015).

As a concrete domain in the WAR frame, it maps features like *destruction and loss*, rendering useless to the effects of COVID-19 pandemic. In this context, Kenyatta uses the construction *havoc* to communicate the adverse effects of COVID-19 that have left many people sick, bed ridden and some dead and the pandemic's effects still threatening to bring down the entire economy.

It is important to note that the metaphorical constructions used in the presidential addresses are full of hope and assurance to the nation of Kenya. This is evident when we look at the following examples as used by Mr. Kenyatta,

(8) I am as anxious as all of you, to get back to building this country. However, we will only be able to do this the sooner **we sharply suppress the growth of infections**.

In example (9), the WAR metaphor is communicated through the construction *sharply suppress the growth of infections*. For a successful fight against the COVID-19 pandemic, the president is urging Kenyans to be ready to unite and never to give up until the virus is completely wiped out. This is in comparison to a situation during the time of WAR where two opponents have to use all their might. In the long run the oppressed party has to ensure that the enemy is completely and finally defeated. It is the same case with the efforts Kenyans are urged to put in place in order to weaken the virus and finally win the WAR against the infections. This as earlier mentioned can only be possible through adherence to the guidelines given by the Ministry of Health in Kenya. The WAR metaphor that is communicated is expressed through the construction *suppress* which acts as the source domain and whose attributes are mapped onto the target domain, *lowering.* The construction *suppress* is used to map attributes such as *force, strength, might, power, skill,* and *strategy* on *lowering* which is the target domain in this context.

Another metaphor of hope drawn from WAR frame is used in the following example,

(9) We will **emerge** knowing that we have a mighty strength in our unity, our resilience as a people will see us through this pandemic.

The use of the metaphorical expression *emerge* is not limited to the WAR domain. It could be used in other contexts. However, when it is used in the WAR domain it expresses winning of a WAR. This usage in example (10) refers to the usage in a war given the

context of Mr. Kenyatta's speech. The expression is understood with ease because the schematic information such as *coming to view or come out especially after a struggle, be visible, and with renewed strength* makes it construed as the source domain through which the WAR metaphor is understood. This shows that after suppressing the efforts of the *enemy*, COVID-19, Kenyans will rise up again and regain control of their affairs including their freedom from the virus and therefore going back to participate fully in building the Kenyan economy. As indicated earlier, the metaphor *emerge* would also be understood through its attributes such as *successful return, strength,* and *freedom*. These attributes are mapped onto *come forth* which is the target domain that would be complex for Kenyans to process.
In another expression in September 2020 Kenyatta says,

(10) …. and this **clash** of two rights places us on the horns of dilemma.

The construction *clash* is used as a WAR metaphor and it is meant to reinforce the intensity of the disagreement between the people who want the economy opened in spite of COVID-19 pandemic being on the rise, and those people who felt Kenya was not ready to open its economy. As a concrete domain *clash* maps its attributes of *strength, intensity and force* on the idea *disagreement* which is the target domain. This expression helps Kenyans to think in a particular way. In effect, it reorders their thinking and how they would react to the situation at hand (Lakoff & Johnson1980; Cameroon 2003; Khan & Awaz 2015).

The president of Kenya, Mr. Kenyatta in another instance also uses WAR metaphorical constructions in talking about the effects of COVID-19 on the Kenyan economy. For example, he says,

(11) This COVID-19 pandemic is not only a health crisis; it is fundamentally an economic crisis. Jobs have been lost, businesses have closed, and the **economy is on a go-slow. To combat the effects of this down-turn,** my Administration has had to take additional measures.

In example (12), the choice of the construction *to combat the effects of this down-turn* which are largely aspects of struggle are therefore mapped on to *correcting* the shape the economy had taken, that is, non-performance and non-profitability acts as the abstract and target domain respectively in this metaphorical construction. *Combat* is a WAR frame

metaphor used as a concrete domain mapped on *to correct.* When it is so used it maps attributes such as *struggle, engagement, force, strength* and *strategy.*

In a speech delivered in October 2020 Kenyatta says:

(12) The COVID-19 *positivity rate* we were all happy and excited about when it dropped has now **shot up** to an incredible 15%.

In example (13) *the positivity rate of COVID-19* is metaphorically being expressed as having *shot up*. *Shot up* is a WAR frame metaphor which is being mapped on to *increase* as a target domain. This metaphorical phrase makes expressing of this information clear and have the force to let Kenyans see the worrying changes. *Shot up* maps features like *short time, force, high numbers,* and *hitting* which are mapped onto the construction *increase* and are clear in expressing the increasing numbers of COVID-19 infections because the schema of *shooting up* provide an easier access to more Kenyans who would easily understand the construction *increase*. From the expression *shot up* one can understand that there is need to act because the situation would be getting out of hand. Most WAR metaphors used in the speeches cited above tend to be physical. They are used to map on fairly abstract entities; target domains, thus affording the abstract entities clarity.

6. Conclusion

This paper investigated WAR metaphors as used in presidential speeches in Kenya in the year 2020 to address issues of COVID-19. The research identified, described, analysed, and interpreted some WAR metaphors occurring in selected speeches with the aim of establishing why they were preferable in expressing a considerable number of messages related to COVID-19. At this point in time Kenya was facing a difficult time of having to engage a medical crisis jointly as a nation. The present research found out that in this difficult situation, the President of the republic of Kenya Mr. Kenyatta was compelled to use WAR metaphors to warn, caution, inform, reassure, rally, reconstruct some world views and generally sensitize the Kenyan people about the dangers of the COVID-19 pandemic and its effects. Metaphors were also used to offer hope to the Kenyan people. Most of the attributes of WAR metaphors were associated with strength, struggle, winning and therefore success. The metaphors besides oversimplifying information on COVID-19 were used as a way of rallying Kenyan people to act jointly on the containment measures

that were suggested by the Ministry of Health in Kenya and whose key points were being relayed in presidential speeches. The WAR frame metaphors which were localized and therefore easy for the Kenyan people to follow were an embodiment of struggle and winning of the fight against COVID-19**.**

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PHONOLOGICAL OUTCOMES OF YORUBA AND ENGLISH CONTACT ON URHOBO LOAN WORDS

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MULTILINGUALISM AND LANGUAGE BARRIERS IN HEALTH DELIVERY SYSTEM IN GHANA

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WAR METAPHOR STRATEGIES IN EXPRESSING COVID-19 MESSAGES IN PRESIDENTIAL SPEECHES IN KENYA IN 2020

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Heine, Bernd and Derek Nurse, eds. 2000. *African Languages, an Introduction*. Cambridge: Cambridge University Press.

An article appearing in an edited book should be referenced under the author's name, with the editor(s) and full details of the book and page numbers of the particular article. For example:

Osam, E. Kweku. 1997. "Serial Verbs and Grammatical Relations in Akan." In *Grammatical Relations: A Functionalist Perspective*, edited by T Givón, 253-280. Amsterdam: John Benjamins.

However, if you cite several articles from the same book, you can give the full details just once, in a reference under the editor's name, as the one for the book edited by Heine and Nurse above, and abbreviate the reference details for the specific article, as below:

Bender, Lionel M. 2000. "Nilo-Saharan." Pp. 43–73 in *African Languages: An Introduction*, edited by B. Heine and D. Nurse. Cambridge: Cambridge University Press.

A journal article should be cited similarly to an article in an edited book. Note that the words ‘volume’, ‘number’ and ‘pages’ can be omitted, provided the correct punctuation is observed, as in the following:

Amfo, Nana Aba Appiah. 2010. “Noun Phrase Conjunction in Akan: The Grammaticalization Path.” *Pragmatics* 20 (1):27-41.

If the page numbering is continuous through all issues of the volume the ‘number’ itself can also be omitted:

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Items in newspapers can be cited in the same way as journal articles. Unpublished papers will not have a place of publication or a publisher: simply add ‘ms’ (for ‘manuscript’), or the name and place of the meeting at which it was presented.

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HEADERS should be organized in the following manner:

1. Introduction

1.1. Methodology

1.1.1. Background

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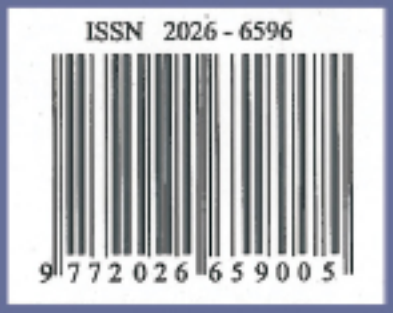

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