



**KWASU INTERNATIONAL JOURNAL OF ARTS AND SCIENCE
EDUCATION**

ISSN:0795-820X (ONLINE)

Journal homepage

**A DESCRIPTIVE ANALYSIS OF PLURAL FORMATION THROUGH
REDUPLICATION PROCESS IN THE WARJI LANGUAGE**

Mustapha Ibrahim Garba¹, Takim Okongor², Maitama Suleman³

¹Department of English and Linguistics Federal University Dutse, Jigawa

²Department of English and Linguistics federal University Dutse, Jigawa State

³Department of Languages and Communication, Kano State College of Education and Preliminary Studies

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ARTICLE INFO

Article History

Accepted on July, 2025

Keywords: Method of
pluralisation, partial and
complete reduplication

ABSTRACT

This paper explores a descriptive analysis of plural formation through the reduplication process in the Warji Language. Warji is a minor language of the West Chadic Family in the Afro-asiatic phylum. It is spoken in Bauchi and Jigawa states in northern Nigeria. It is a language with very few linguistic studies, and it is even less spoken. Warji native speakers are scattered across various places in northern Nigeria. The study adopts Beard's (1995) Lexeme-Morpheme Basic Morphology theory. It uses a simple random sampling technique and selects very few nouns for analysis. Descriptive method guides this work. The paper uses data from native speakers and a wordlist of the language through interviews and observations. It reveals that pluralisation exists through partial and complete reduplication. Partial reduplication is more productive as it comprises Internal Semi-Vowel Lengthening, Internal Vowel Lengthening, Reduplicative Prefixes and Reduplicative Suffixes derived through the verb-noun process. Complete reduplication consists of Cardinal Numbers and Quality Adjectives derived through the adjective-noun process.

Background to the study

This paper intends to examine a descriptive analysis of plural formation through the reduplication process in the Warji language. Pluralisation is defined as a process of inflecting or deriving a singular noun to make an identity of two or more persons, things, ideas, concepts and entities. Pluralisation works to indicate the number of items (Crystal, 2008). Pluralisation is a linguistic universal presented variously among languages as a separate word, an affix or by other morphological signifiers such as stress or an implicit marker.

Warji is a minor language of the West Chadic Family in the Afro-asiatic phylum. It is spoken in Bauchi and Jigawastates in northern Nigeria. It is a language with very few linguistic studies and it remains less spoken. Warji native speakers are scattered across various places in Nigeria. The language is in Group 'B' West Chadic language family of the Afro-asiatic phylum. It is a minor and endangered language spoken in some localities such as Warji, Diri, Miya, Kariya, Katanga, Pa'a and other areas in Birnin Kudu and Gwaram of Jigawa State in north-eastern Nigeria. Warji people refer to themselves as Sirna and their language as Sirzakwai. The term Warji is used by Hausa and Western scholars to refer to Sirna or Sirzakwai and the area where they are found today (Blench 1998). Warji, Hausa, Karekare, Goemai and Bade, which are in the West Chadic group, have systems with two-level tones. Although some languages typically have sets of words distinguished only by tone, such as the following Bole from (West) and Margi (Central) have three tone Systems (Blench 2006). Warji, like other Chadic languages, is a tonal language that comprises three dialects known as Kikyadai, Rumbuna (rumba) and Zari (Schuh 1998).

Literature Review

Reduplication is found in a wide range of languages and language groups. Its level of linguistic productivity varies, and it is sometimes used interchangeably with repetition.

Repetition is a term which is used to indicate sounds and concepts that are repeated in one form or the other to provide reinforcement and emotional emphasis (Nadarajan (2006), Ghomeshi, (2004) refer to reduplication as child language amongst other definitions. They observe that the term is widely used as a poetic device which occurs when a sound, syllable, word, phrase, line, stanza or metrical pattern is repeated to make it the basic unifying device. Describing the features of repetition, Lausberg (1998) proposes that it has both informative and reinforcing functions. However, Wang (2005) insists that both repetition and reduplication have been used interchangeably because they overlap at some point in different languages as can be observed in Urhobo and Edo languages. According to Aziza (2007), reduplication is a morphological process in which a part or the whole of a stem is copied and attached to the stem. She identifies two types of reduplication which include partial and full which may be carried out on nouns or verbs in the Urhobo language. She adds that in some cases, semantic effect may be achieved.

Many investigations have been conducted on different languages in Nigeria on plural reduplications. Examples of studies conducted include Crystal (2008), which refers to reduplication processes as a form of repetition whereby the formed prefix/suffix reflects certain phonological characteristics of the root. He observes that the process involved in reduplication has been a particular focus of prosodic morphology. He distinguishes the base from the reduplicated form, which performs a certain grammatical context. In the same vein, Spencer (1991) sees reduplication as a morphological operation which is a species of affixation of a prosodic template to a stem, followed by copying that stem and in association with the template. Crystal (2008) refers to reduplication processes as a form of repetition whereby the formed prefix/suffix reflects certain phonological characteristics of the root. He observes that the process involved in reduplication has been a particular focus of prosodic morphology. He distinguishes the base from the reduplicated form, which performs a certain

grammatical context. In the same vein, Spencer (1991) sees reduplication as a morphological operation which is a species of affixation of a prosodic template to a stem, followed by copying that stem and in association with the template. Wang (2005) states reduplication is a morphological process in which the root or stem of a word or part of it is repeated. He says that in many languages, reduplication is used as inflexion to convey grammatical functions and as lexical derivations to create semantic forms. He adds that there is a general tendency among linguists to overlook its functions at the level of discourse. O'Grady, Archibald and Katamba (2011) agree that reduplication is a common morphological process in some languages. It functions as a grammatical or semantic contrast by repeating all or part of the base to which it applies.

Ekenerho (2014) and Yakasai (2023) examine reduplication as a process that copies part or the whole of the stem and attaches it to the stem, either before or after it. She adds that nouns, adverbs and adjectives are derived through the process of reduplication in the Ika and Urhobo languages. Oyebade (2007) sees reduplication as an affixation process that copies materials from the stem into the affix. He says that reduplication is used to derive nouns in Yoruba and also functions as an intensifier. He adds that through the aid of tones, Yoruba uses idiophones to identify particular character traits. Broselow and McCarthy (1983) view reduplication to be more exotic, though it is a very unusual phenomenon of infixing, where a copy of some portion of the root appears inside the root itself. Although they say that reduplication is extremely rare in infixing languages but it is of great interest because of the challenges it poses. The essence of reduplication, according to Broselow and McCarthy (1983), suggests that reduplication is a special case of an ordinary affixational morphological process where the affixes are phonologically underspecified, receiving their full phonetic expression by copying adjacent segments. They argue that the dictionary entry of the morpheme includes specification of its semantic, syntactic, morphological and phonological

properties and that what is odd about reduplication as an affixation process is the fact that the skeletal CV template introduced by the affix is underspecified. They say that for the morpheme to be phonologically represented, a phonemic melody must be mapped onto every C and V slot in the morpheme template. This is achieved by copying a portion of the segmental representation of the base or even the entire base, to which the underspecified morpheme is attached.

Marantz (1982), Yip (1982), Bell (1983) and Yakasai (2023) agree that the development in the works of reduplication is a special case of ordinary affixation morphology, where the affixes are phonologically underspecified, receiving their full phonetic expression by copying adjacent segments. Marantz adds that the fundamental insight of theories into the application of reduplication is that reduplication is accomplished not by special and quite powerful copying transformations as in the Sounds Pattern of English (SPE) framework but rather by the normal morphological device of affixation whereby words are decomposable into auto-segmental levels (tiers) that is, the skeleton, the CV, the phonemic melody etc. Phonologically, reduplication is described as reduplicated segments, such as sequences of vowels/consonants or reduplicated prosodic units, that is, syllables. Morphologically, it is described as the reduplication of linguistic constituents such as words, roots, stems or bases. Syntactically, it describes the lexical categories of the reduplicated word, and semantically, it tells the semantic effect of the reduplicated word. Because of the fact that reduplication interfaces among phonology, morphology, syntax and semantics, it involves a lot of theoretical approaches (Ghomeshi, 2004).

Frampton (2004) says that reduplication in Arabic is known as a means to indicate the occurrence of a word or an utterance more than one time in one context for the sake of emphasis, threat, glorification or praise. In other words, when you reduplicate a word in Arabic, it can stand for emphasis, threat, etc., depending on the context. Leonid (2003) posits

that reduplication is extremely rich and quite an intricate system of verbal formation in the oldest Indo-Aryan language. He identifies five verbal formation processes of reduplication; they include: perfect, present tense, causative, desiderative and intensive. We shall see data application in our empirical studies.

Rastall (2004) argues that most reduplication forms that appear in the media as ephemeral (short-lived) in the sense that they tend to appear as play words that do not remain with the language. He encouraged and stressed the need for studies to be done on reduplication beyond its lexical level. Raimy (2000) and Yakasai (2006) opine that the innumerable processes of reduplication have often been romanticised by providing a blueprint for language expressions. The important contributions of the work are in threefold: (i) its explicit formalization of precedence relationships in the phonology, (ii) its rejection of the reduplicant as the exponent of a terminal in the morphology and (iii) its characterization of over application and under application effects, analysed as the result of the ordering of phonological processes before transfer of the representation to the articulatory interface.

Gil (2005) says that reduplication appears to have various conventions: reinforcement, reiteration, recurrence or repetition, but it distinguishes one from the other in certain characteristics. He identifies three of these characteristics to include: (i) it is a mere morphological formation, (ii) its wider structure deals with the repetition of roots of individual words, and (iii) its repetitive elements are often juxtaposed.

Inkelas (2008) argues that the fundamental typological distinction about reduplication is that between phonological duplication and morphological doubling. Phonological duplication, which occurs for a phonological purpose such as providing an onset or nucleus for a syllable or filling in the featural content of an otherwise unspecified timing unit in the representation, is formally related to phonological assimilation. It obeys phonological locality conditions; a target phonologically defined constituent and is sensitive to phonological

markedness considerations. The morphological doubling which occurs for morphological purposes, such as making a change in meaning or creating a new stem/type, is the result of the doubling of a morphological category such as root, stem or affix. He observes that the morphological doubling via the double insertion mechanism is not derived by phonological correspondence and therefore is not subject to any of the phonological properties characteristic of phonological duplication. The two copies of related morphemes are semantically and phonologically independent.

Methodology

The method requires the collection, analysis, and interpretation of data. This paper employs a descriptive approach in an attempt to provide a concise description of the morphological analysis involved between singular and plural nouns through modification processes. This study adopts oral interviews as a method of data collection. The sources of data collection are primary and secondary. The Primary source is the Warji language native speakers. The secondary source comprises previous and present research relevant to the area of focus, such as books, journals, conferences, projects, Libraries and Departments of Linguistics. Concerning the population and sample size, according to Krjcie and Morgan (1960), in a list of numbered items, researchers can take eighty per cent (80%). In this paper, the researchers used a simple random sampling technique and selected eighty per cent (80%) items for analysis.

Theoretical Framework

This work adopts Beard's (1995) Lexeme-Morpheme Base Morphology (LMBM) theory. Lexeme-Morpheme Base Morphology (LMBM) is exclusively the domain of lexemes, which are defined specifically as noun, verb, and adjective stems and lexical categories (Number and Gender) which define them. Lexeme-Morpheme Base Morphology

(LMBM) is a theory of morphology based on the claim that lexical morphemes (lexemes) and grammatical morphemes (morphemes) are radically different linguistic phenomena. It sets out with this assumption based on the properties distinguishing lexemes and morphemes listed in the definitions of the two categories are simple: lexemes are noun, verb, and adjective stems. These items in all languages are manifested without exception as sound-meaning pairings whose meaning refers to something in the real world. Any other meaningful linguistic phenomenon is a morpheme, hence must refer to a grammatical category and cannot be used about anything in the extra-linguistic world.

Data Analysis

Reduplication is a common plural formation process, and it is very productive in the Warji language. The paper shows that low tones are marked differently from those of high tones. **Reduplicative Prefixes**

In Warji, verbs act and show plural strategies. This can be done through the reduplication of the base, considering the examples below:

	Base Form	Reduplicated form	Derived form	
1a	<i>bez</i> 'to close'	<i>be + bez</i> 'keep closing'	<i>bebez</i> 'keep closing'	
b-	<i>buj</i> 'to try'	<i>bu + buj</i> 'keep trying'	<i>bubuj</i> 'keep trying'	
c-	<i>be</i> 'to get'	<i>be + be</i> 'keep getting'	<i>bebe</i> 'keep getting'	
d-	<i>buk</i> 'to manage'	<i>bu + buk</i> 'keep managing'	<i>bubuk</i> 'keep managing'	
e-	<i>dagi</i> 'to hide'	<i>da + dági</i> 'keep hiding'	<i>dadagi</i> 'keep hiding'	Exa

Examples (1a-e), shows method of pluralization through prefixation process. The plurals are formed when the initial morpheme of the base is repeated. For instance, in example (1a), the verb base *bez* 'to close', derived the plural form *bebez* 'keep closing'. This process is formed when a prenominal *be* repeated partially from the beginning, for instance *be + bez = bebez*.

Infixation

The study recognizes infixation as another feature that the Warji language speakers use for the production of their plural nouns. It also identifies only one bound morpheme is used as an infix plural sign, namely-*wi*-.

Infex -wi-

Morpheme-*wi*-is inserted within the middle of the singular noun and produces the plural noun. Here are some examples:

	Singular Form	Plural Form	Derived form
2a	<i>Búungúumà</i> 'lizard'	<i>búungúu+ wi+ mà</i> 'lizards'	<i>búungúuwimà</i> 'lizards'
B	<i>Báatúunà</i> 'monkey'	<i>báatúu+ wi+ nà</i> 'monkeys'	<i>báatúuwìnà</i> 'monkeys'
C	<i>Círáanà</i> 'moon'	<i>círáa+ wi+ nà</i> 'moons'	<i>círáawìnà</i> 'moons'
D	<i>Gwáaráanà</i> 'rat'	<i>gwáráa+wi+ nà</i> 'rats'	<i>gwáráawìnà</i> 'rats'
E	<i>Vívínà</i> 'mosquito'	<i>víví+ wi+ nà</i> 'mosquitoes'	<i>vívíwìnà</i> 'mosquitoes'

Examples (2a-e), shows pluralization through infixation process. The plurals are formed when a prenomina is inserted in the middle of the singular base. For instance, in example (2b), the morpheme-*wi*-is a plural marker in the process of pluralization through infixation. This process is formed when a prenomina-*wi*-is placed in the middle of the singular form, for instance, *báatúu + wi + nà = báatúuwìnà*.

Cardinal Numbers

Adjectives are derived to show emphasis on a plural act. This happens when cardinal numbers are counted as noun numbers (plural). This can be done through reduplicating the base fully, as shown in the examples below:

	Singular Base	Reduplicated Form	Derived form
3a	<i>Dáala</i> hundred	<i>dáala+ dáala</i> hundred each	<i>dáala-dáala</i> hundred each

<i>B</i>	<i>Júb</i> ten	<i>júb + júb</i> ten each	<i>júb-júb</i> ten each
<i>C</i>	<i>kúsiyáa</i> nine	<i>kúsiya+ kúsiya</i> nine each	<i>kúsiya-kúsiya</i> nine each
<i>D</i>	<i>Maahaa</i> six	<i>maaha + máaha</i> six each	<i>máaha-máaha</i> six each
<i>E</i>	<i>wutii</i> one	<i>wuti + wúti</i> one each	<i>wúti-wúti</i> one each

In examples (3a-e), adjectives are reduplicated fully; the base form shows less emphasis, but when duplicated, the derivatives show more emphasis. In addition to this, the final vowels in the base forms are lengthened but when reduplicated, the derivatives change to a short final vowel. For instance, in example (3e), *wutii* 'one', the whole of the singular base is repeated and plurals are formed as in *wuti-wuti* 'one each'.

Qualitative Adjective

There is a situation where qualitative adjectives are counted as plural. This can be done through the reduplication of the base fully, considering the examples below:

	Singular Base	Reduplicated Form	Derived form
4a	<i>khir</i> small	<i>khir + khir</i> small	<i>khir-khir</i> small
b-	<i>kwaayaa</i> beauty	<i>kwáaya + kwáaya</i> beauty	<i>kwaaya-kwaaya</i> beauty
c-	<i>leb</i> soft	<i>leb + eb</i> soft	<i>leb-leb</i> soft
d-	<i>nduwaa</i> old	<i>nduwa + nduwa</i> old	<i>nduwa-nduwa</i> old
e-	<i>zek</i> tall	<i>zek + zek</i> tall	<i>zek-zek</i> tall

In examples (4a-e), qualitative adjectives are reduplicated fully the final vowels in the base forms are lengthened but when reduplicated the derivatives change to short final vowel. For instance, in example (4a), *khir* 'small', the whole singular base is repeated and plural is formed as in *khir-khir* 'more small' or smalls.

Colour Adjective

Colour adjectives count as plural in Warjith through the reduplicating of the base partially:

	Singular Base	Reduplicated Form	Derived Form
5a-	<i>Fyaal</i> white	<i>fyal+ anshi</i> whites	<i>fyalanshi</i> whites
b-	<i>Jiin</i> black	<i>jin+ anshi</i> black	<i>jinanshi</i> black
c-	<i>Kúr</i> green	<i>kúr+ anshi</i> green	<i>kuranshi</i> green
d-	<i>Raw</i> yellow	<i>raaw+ anshi</i> yellow	<i>raawanshi</i> yellow
e-	<i>zeel</i> red	<i>zel+ anshi</i> reds	<i>zelanshi</i> reds

In examples (5a-e), the bases are free morphemes before suffix is attached. The part of the base is repeated and a morpheme 'anshi' is attached at end of the base. The plurals of its kind are formed. For instance, in example (5c), the adjective *kuur* 'green', derived the plural noun as in '*kuranshi*' greens.

Internal Vowel Lengthening

	Singular Base	Reduplicated Form
6a-	<i>bim</i> spread	<i>biim</i> keep spreading
b-	<i>kub</i> learn	<i>kuub</i> keep learning
c-	<i>kur</i> throw	<i>kuur</i> keep throwing
c-	<i>lid</i> fall	<i>liid</i> keep falling
d-	<i>tsal</i> break	<i>tsaal</i> keep breaking
E	<i>ta</i> give	<i>taa</i> keep giving

Nominal verbs form through the reduplicating base, partially shown in the examples below.

In (6a-e), verbs are reduplicated fully, the base form shows short vowel emphasis, but when duplicated, the derivatives show vowel lengthening emphasis. This means the

vowels in the base forms are shortened but when reduplicated, the derivatives change to long vowel. For instance, in example (6b), *kub* 'learn', the whole base is repeated and plurals are formed as in *kuub* 'keep learning'.

Internal Semi-Vowel Alteration

A semi-vowel alteration shows emphasis on the pattern of pluralisation. This can be done through the reduplication of the base partially, considering the examples below:

	Singular Base	Reduplicated Form	
7a-	<i>du</i>	<i>Dwu</i>	I
	sweep	keep sweeping	n
b-	<i>cu</i>	<i>Cwu</i>	
	finish	keep finishing	exa
c-	<i>kon</i>	<i>Kwon</i>	
	tell	keep telling	mpl
d-	<i>ki</i>	<i>Kyi</i>	
	bite	keep biting	es
e-	<i>ver</i>	<i>Vyer</i>	
	give	keep giving	(7a-

e), verbs are reduplicated partially, the base form shows short vowel emphasis, but when duplicated, the derivatives show more vowel lengthening emphasis. This means the final vowels in the base forms are shortened but when reduplicated, the derivatives change to lengthen the final vowel using vowel-like sound morphemes '-w-' and '-y-'. For instance, in example (7c), *kon* 'tell', derived plural *kwon* 'keep telling', and in example (7e), *ver* 'give' derived plural *vyer* 'keep giving'.

List of Findings

The findings reveal that the pluralisation in the Warji language exists through the use of the reduplication process, which consists of partial and complete reduplication. The study highlights partial and total plural reduplications in this language derived through verb-noun and adjective-noun. The study shows partial reduplication is very productive where verbs are derived to form a plural through vowel lengthening, semi-vowel alteration, reduplicative

prefixes and reduplicative suffixes. The paper reveals that under total reduplications, adjectives are derived to form plural strategies. This includes cardinal numbers, quality adjectives and colour adjectives.

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