

Integrity Journal of Arts and Humanities

Volume 6(4), pages 143-150, August 2025 Article Number: C6840A281

ISSN: 2811-2407

https://doi.org/10.31248/IJAH2025.206 https://integrityresjournals.org/journal/IJAH

Full Length Research

Modification as a method of pluralization in the Warji language

Mustapha Ibrahim Garba^{1*} and Muhammad Auwal Tayyib²

¹Department of English and Linguistics, Federal University Dutse, Jigawa, Nigeria. ²Department of Hausa Language, Federal College of Education, Kano State, Nigeria.

*Corresponding author. Email: igmustaphasays@mail.com; Tel: 07063988688.

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Received 11th February 2025; Accepted 20th June 2025

ABSTRACT: This paper explores a method of pluralization through the modification process in the Warji language. Warji is a minor language of the West Chadic Family in the Afro-Asiatic phylum. The language is spoken in Bauchi and Jigawa States in northern Nigeria. It is a language with very few linguistic studies. Their people have scattered in different places in Nigeria. The language is now on the verge of extinction. Therefore, the intention of this paper is to make a descriptive analysis of plural strategies with a view to identifying how singular base forms a plural noun in this language. The study uses Beard Lexeme-Morpheme Base Morphology theory. The paper used a simple random sampling technique and selected very few nouns for analysis. This was employed through interviews, observations and grounded wordlist. The study reveals that pluralisation in this language exists through a modification process such as the plural markers that include vowel alternation; this is where the plural marker is on vowel quality initially, medially and finally. There is a segmental subtraction; this is where the plural marker is upon a missing consonant, vowel or final syllable. There is an initial vowel lengthening while complete modification consists of suppletive and zero plurals. Partial modification is more productive as it comprises vowel substitution, segmental subtraction and initial vowel lengthening, and complete modification consists of suppletive and zero plurals.

Keywords: Bauchi and Jigawa States, modification, plural strategies, northern Nigeria, Warji language.

INTRODUCTION

This paper aims to examine plural strategies in the Warji language with a view to identifying ways the singular bases form plural nouns through the modification process in the language. A few investigations had been done in Warji with regard to the linguistic perspectives. The first linguistic work on Warji was conducted by Jungraithmayr (1997) identified the language with a very short vocabulary. The study also suggests that Warji might be described as having forty sounds among six phonemic vowels and thirty-four consonants. However, some consonants are somewhat inconsistent, but are retained until agreement can be reached on another orthographic form.

Skinner (2007) investigates phonemic consonants and vowels between the Kariya and Warji languages. His work identifies that the Kariya language is close to Warji. His study shows that, sometimes, the two languages can use

the same lexicons phonologically, morphologically and in meaning. Examples: *laanai* 'bed', *yawaana* 'thorn', *maaruuna* 'ant', *jiin* 'black', and *fyaal* 'white', among many more vocabularies. He opines that both languages remain largely unstudied.

Schuh (2017) examines differences between Warji and Miya vocabularies. His study reveals that both languages sometimes use the same vocabulary phonologically, morphologically and in meaning. Examples: saara 'emir 'daala, 'hundred' and gwaara 'masquerade' among many more vocabulary. The study reveals that Warji remains largely unstudied compared to the Miya language. Luka (2006) presents a proposal for reading and writing the Warji language. His research shows Warji might be described as having forty sounds, among which six phonemic vowels and thirty-four consonants. He states,

Warji, like other Chadic families, is a tonal language and that probably every language has phonological rules specific to its tones. Apart from this literature, the language is still in its documentation process. The literature review on morphological works in this language is not rich enough to help the ongoing study. Therefore, the study seeks to examine plural strategies based on the data available used in this paper.

Pluralization

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 language

Warji 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 the North East geo-political zone of Nigeria. Warji people refer to themselves as Sirna and their language as Sirzakwai. The term Warji is used by Hausas and Western scholars to refer to Sirna or Sirzakwai and the area where they are found today. Warji, Hausa, Karekare, Goemai and Bade are in the West Chadic group and have language systems with two-level tones. Although some languages typically have sets of words distinguished only by tone, such as the following Bole from Margi, have three tone systems (Blench 2006). Warji, like other Chadic languages, is a tonal language with three dialects known as Kikyadai, Rumbuna (rumba) and Zari. Zari dialect is spoken in Baima, Dagu, Wando and Zurgwai towns. Rumbuna dialect is spoken in Rumba, Aru, Kankare and Muɗa, while Kikyadai dialect is spoken by Ranga, Katanga, and Gabanga, respectively (Schuh, 2017).

National Population Commission of Nigeria (2006) views that the village (Warji) has an area size of 625 square km and a population of 105,770 Nigerians. The language is categorised as one of the potentially endangered language communities in Northern Nigeria (Haruna 2014). Jungraithmayr (1997) and Luka (2006) identify the Warji language with a very short vocabulary. He examines the language might be described as having forty sounds among six phonemic vowels and thirty-four consonants.

Many investigations have been conducted on pluralisation strategies, patterns and methods in different

languages in Nigeria. Such investigations like plural affixes, plural reduplications and plural modifications. Examples of studies conducted include: Abubakar (2021), Ado (2017), Alhaji (2012), Aliyu (2015), Aliero (2014), Fomwul (2011), Garba (2012), Newton (2012), Ighor (2006), Ishowna (2015), Mu'azu (2019), Nkanga (2012), Nwoye (2016), Schuh (2015), Ajíbóyè (2020), and Umukoro (2019), among many more researchers.

The paper analyses a very small portion of selected words. The study is significant in a number of ways. Firstly, it is an addition to the previous investigations as it seeks to study pluralisation in Warji. Secondly, it provides a linguistic documentation for the language as it is on the verge of extinction. Thirdly, it can serve as an important tool to the educational sector for the national curriculum and the development of a morphology course. Fourthly, it can be important in the English and linguistics fields. Fifth, it might have helped students in the focus area as an additional material for further investigations.

Theoretical framework

Schuh (2017) Morphological marking of noun (and adjective) plurals varies considerably across the Chadic family. Some Chadic languages get along largely pluralization and some without morphological pluralization. Typically, such languages have plurals for a few words, such as terms referring to humans and important domestic animals, but most nouns are not marked for plurality.

This work adopts Beard's (2005) Lexeme-Morpheme Base Morphology (LMBM) theory. Lexeme-Morpheme Base Morphology (LMBM) is exclusively the domain of lexemes which defined specifically as noun, verb and adjective stems and lexical categories (Number and Gender) which defined 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 soundmeaning pairings who 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 in reference to anything in the extralinguistic world. (Grammatical) morphemes refer exclusively to closed-class grammatical universally available categories like Tense, Aspect, Number and may be affixes, infixes, changes in accent or tone, even predictable omissions (zero morphemes).

The Three Basic Hypotheses of LMBM are firstly, the **Separation Hypothesis** claims that lexical and inflectional

derivations are processes distinct from affixation. Secondly, the Universal Grammatical Function Theory claims some universally available grammatical functions used for both inflectional and lexical derivations. Thirdly, the Base Rule Hypothesis claims that the universal categories of word and clause structure must originate in a base component if we are to explain both lexical and syntactic (inflectional) derivation most economically. This work seeks to use LMBM theory because it maintains a pristine distinction between lexeme and grammatical morphemes and consequently predicts this distinction at every level of language.

METHODOLOGY

The study is an analytic- descriptive that requires the adoption of the analytic technique of research. The paper is not a quantitative that uses measurement and statistics to transform empirical data into numbers or develop models that quantify behaviour. This study employs a descriptive approach in attempt to explain a concise description of the morphological analysis involves between singular and plural nouns of the Warji language. It examines words that cut across the objectives of the study from the Wordlist of the language with Hausa and English equivalents of Blench (2006) wordlist, interview and observations of some utterances of the language are the instruments for this research. Descriptive method guides this study being it deals with descriptions and analysis of the ways in which a language operates and use by a given set of speakers at a given time (Tarni 2008). It describes how language works, rather than how it should be and what its relation with other languages.

The paper uses oral instruction-interview as a method of data collection. The researchers visit the Bauchi State where the speakers of Warji language are available. The researchers and respondents communicate in Hausa language for describing Warji words.

The sources of data collection are both primary and secondary. The Primary sources are Warji native speakers and recorded utterances. The secondary source comprises of previous and present relevant evidences such as books, journals, conferences, projects, libraries and departments of linguistics. In the study, data were gathered through an observation and interview procedure. A range of lexical items was randomly recorded from the native speakers who were engaged in an interview. The paper uses descriptive method and answer the objectives and problem of study.

Concerning the research design, the study employs a qualitative approach in an attempt to explore and provides a concise description of the morphological analysis involves in Noun plurals of the Warji language. There is quite a number of qualities involves in using qualitative approach in language related research. Miana (1998)

proposes three ways of being particularistic, descriptive as well as being heuristic for in-depth analyses for information rich of findings.

By being 'particularistic', it implies that the researcher has clear definition of the specific phenomenon being focused as case to study. In this study the researcher focuses on exploration of the Plural Affixes, Modifications and Reduplications involve in pluralization patterns of the Warji language.

Miana (1998) views 'description' as the end product of a case study's phenomenon in focused which in parallel coincide with the objective in this study' to provide a concise morphological description of noun plural formation process in the Warji language'.

'Heuristic' on the other hand, according to Miana (1998), a researcher could make a given phenomenon clearer. In fact through, qualitative approach we were able to provide rich and comprehensive description of the secondary data been used with clarity of purpose as shown under data collection and instrumentation.

Concerning the population and sample size, the researchers select native speakers who also can speak Hausa language to serve as respondents to the interview. The sample size, according to Krjcie and Morgan (1990), in a list of one hundred (100) items, the researcher can select seventy five percent (75%) for analysis.

DATA PRESENTATION AND ANALYSIS

This paper presents and analyses selected words based on the data used for this study. The study shows modification is common feature of forming plural noun in Warji. The data used shows that low tones are marked while the high tones are left unmarked.

Plural modification in Warji language

Plural modification is one of the features of pluralization in Warji. Matthews (2021) identifies two types of modification processes namely; partial and total modification.

In Warji, there are three types of partial modifications namely; vowel change, segmental subtraction and vowel lengthening.

Vowel change (vowel alternation) is a plural strategy in Warji. It is a part of partial modification that shows the method of pluralization is on the vowel quality. This means a vowel morpheme in singular base substitutes to a vowel morpheme in plural form. The vowel change (alternation) is considered as a plural marker. In this regard, three vowels change can identify.

Vowel alternation initial

In warji, some plural nouns are marked through vowel

Table 1. Vowel alternation initial.

Examples	Singular	Plural	Gloss
1a	E ree	Ire	Boarders
b	E snaa	I snaa	Times
С	A rnai	E rnai	shadows
d	A gai	E gai	Lions
е	A wai	E wai	goats

Table 2. Vowel alternation medial.

S/N	Singular	Plural	Gloss
2a	dáaviinà	dáavúunà	Charcoal
b	cáaciinà	cáacúuunà	Basket
С	insáanà	ins ee nà	Sky
d	miiráanà	miir ee nà	Metals
е	zàkwáatáanà	zàkwáatuunà	Youth

Table 3. Vowel alternation final.

Examples	Singular	Plural	Gloss
3a	baakaar i	Baakaar a	cockroaches
b	baazaan i	Baazaan a	girls
С	Kaas ai	Kaas au	ploughs
d	Laan ai	Laan au	beds
е	paar ai	Paar au	horns

alternation initially, as it has shown in Table 1. The study reveals that some singular bases started with a vowel initially. Their plural nouns are formed forms w an initial vowel that In examples (1a-e), the plurals are formed when a vowel morpheme in the singular base alternates with a vowel morpheme in the plural initially. For instance, in (1a/b) 'e-' vowel morpheme is substituted with i-, vowel morpheme for instance, 'eree' boarder, 'iree' boarders. In examples (1c, d, e), a replaced with e, as in 'awai' goat, 'ewai' goats.

Vowel alternation medial

There is a situation where the vowel alternation appeared in the middle of the singular base as exemplified in Table 2. In examples (2a-b), the study identifies a vowel morpheme in the singular base alternated with a vowel morpheme in plural form medially, for instance, *i*-replaced with *u*- in 'caaciinà" basket' 'caacuunà' baskets'. In (2c-d) replaced with *e* morphemes "miiraanà 'metal', miireenà 'metals' (2e), a- replaced with *u*- in zàkwataanà 'youth', zàkwatuunà 'youths'.

Vowel alternation final

Sometimes, vowel change appeared at the end of both the singular and plural nouns as exemplified in Table 3. In examples (3a-b), a vowel morpheme in the base is substituted with vowel in the plural form finally. the study highlights *i* alternated with *a* at end of the bases, for instance 'baazaani' 'girl', 'baazaana' 'girls'. In examples (3c-3e), ai- vowel morpheme alternated with au- as in "paarai, 'horn' inflects plural paarau 'horns'.

Segmental truncation (subtraction)

Subtraction is a common feature of pluralisation in. It is part of the partial modification where an element of the base is missing. There are three ways of segmental truncation in Warji as shown below:

Vowel subtraction

The deletion of vowel morphemes is considered another feature of plural strategies in Warji, as shown in Table 4. In examples (4a-e), the part of the bases is finally missed.

Table 4. Vowel subtraction

Examples	Singular	Plural	Gloss
4a	taalaan à	Taalaan	animal skins
b	raakiin à	Raakiin	Rags
С	yaawaan à	Yaawaan	Thorns
d	zaamaan à	Zaamaan	Beans
е	guud i	guuɗ	Women

Table 5. Consonant subtraction.

Examples	Singular	Plural	Gloss
5a	tiin ɗai	tii ɗai	Stirrers
b	Tsaan bai	Tsaa bai	Rice
С	Suun naa	Suu naa	Eggs
d	Waan gyaanà	waa gyaanà	Seeds
е	zaan gaaɗà	zaa gaaɗà	Groundnuts

Table 6. Syllable subtraction

Examples	Singular	Plural	Gloss
6a	Baazaani yai	Baaazani	Widows
b	maamwaan ci	Maamwaan	Men
С	Maaruu n à	Maaruu	Ants
d	Muumyaanà	Muumyaa	Bulls
е	Zaakuumà	Zaakuu	Sweats

This deletion is considered a plural marker. See Example **(4c)** 'yaawaanà', 'thorn', 'yaawaan' 'thorns'.

Consonant subtraction

Deleting of consonant morpheme is a feature of pluralization in Warji. Table 5 shows some of the examples. In examples (5a-e), the bases started with CVC pattern and the plural started with CV pattern. This means the plural nouns formed through missing -n-morpheme in the bases. Example (5c) 'sunnaa' 'egg', 'suunaa' 'eggs'. Deleting the n- morpheme of the base is considered as a plural marker.

Syllable subtraction

There is a situation where a final syllable is deleted. This is considered as a sign of pluralization in the Warji language. Table 6 shows some of the examples. In examples (6a-e), the final syllables of the bases are deleted to introduce the plural form. For instance, 'maaruunà' 'ant' inflicted for 'maaruu' 'ants'. Deleting the final syllable is a plural marker.

Initial vowel lengthening

In other situations, Warji employs vowel lengthening for their plural. It is part of partial modification. Vowel lengthening occurred from short vowels of bases to long vowels of plurals. The study is exemplified in Table 7. The study identifies the plural nouns formed through the use of Vowel lengthening. In examples (7a-e), the bases started with short vowel morphemes and the plural started with long vowel morphemes. For instance, in example (7a), àteem 'ring', inflects plural noun as in aateem 'rings'.

Total modification

There are two types of total (complete) modifications: suppletive plurals and zero modification.

Suppletive plurals

Suppletive plural is part of total modification, where a base form does not show similarity with the inflected form. The concept of suppletion is applicable to pairs of minimal segmental signs such as number (singular and plural) and

Table 7. Initial vowel lengthening.

Examples	Singular	Plural	Gloss
7a	Àguun	Aaguun	dates (fruit)
b	Àgwaam	Aagwaam	locusts
С	Àteem	Aateem	Rings
d	Débaakoo	Deebaakoo	blind men
е	Jeengér	Jeengér	Knives

Table 8. Suppletive plurals.

Examples	Singular (X)	Plural (Y)	Gloss
8a	naa	Meeruu	children
b	gaaluu	Zeeliinà	slaves
С	gaambuunà	Baataali	gourds
d	waarjii	Zaarsé	humans
е	Zai	Maam	bows

Table 9. Zero modification

Examples	Singular (X)	Plural (Y)	Gloss
9a	Davà	Davà	friends
b	Gúwarà	Gúwarà	beanstalks
С	lyanà	lyanà	Dogs
d	Puu	Puu	Stones
е	Wúhai	Wúhai	Sands

gender (masculine and feminine). This means signifiers are not identical upon the inflectional meanings of language (Buckley 2011). This method is part of the total modification where the difference between the singular and plural is suppletive to each other automatically. Table 5 shows some of the examples. In examples (8a -e), the study shows no morphological relationship exist between the singular and plural nouns. They have no alternations with which to relate the signifiers of the two classes. In examples (8a), the data show the singular noun'naa' 'child', 'meeru' children'.

Zero modification

Zero plural method is a process which does not show any difference between singular and plural. The zero plural method is common in the Warji language. It is part of the total modification process where the difference between the singular and plural nouns is upon the same words. See examples in Table 9. The study observes in examples (9a-e), zero modification is an operation which does not affect the structure of a lexeme nor its phonology. In example (9a), the singular noun stem 'davà' 'friend' stands as a free

morpheme that poses no any plural marker. The plural noun in this class is formed by total modification where the plural noun is 'davà' 'friends through deleting -i vowel morpheme in the singular base finally.

Findings

The study reveals that plural modifications, Warji use partial and total Modification for the production of the plurals. The study recognizes under partial modification, the plurals are in the vowel quality, through which vowel change initially, medially or finally. This shows vowel alternation is a plural marker. Subtraction occurs through missing consonants, vowel or final syllable. This means segmental deletion is a sign of pluralization. Initial vowel lengthening from singular base to plural form is considered as a plural marker.

The study recognizes under total modification, Warji uses suppletive plurals which nouns have not shown morphological relationship between the singular and plural words. It also uses zero plural which is part of the total modification process where the difference between the singular and plural noun are the same words. The study

recognizes under partial modification, the plurals are in the vowel quality, through which vowel change initially, medially or finally. This means vowel alternation is a plural marker.

- 1. Subtraction occurs through missing a consonant, a vowel or final syllable. This means segmental deletion is a sign of pluralization. Vowel lengthening is considered as a plural marker in Warji.
- The study recognizes under Total Modification, Warji uses suppletive plurals which nouns have not shown morphological relationship between the singular and plural words.

DISCUSSION

It has been thoroughly described in Newman (1993) and Jaggar (2011) as well as other sources, which should be consulted for details state generalizations that nominal plural morphology in a broader Chadic, especially West Chadic have three broad types of plural morphology: vowel change, reduplication, and suffixation. All classes and subclasses of these types are in terms of both segmental shape and tone patterns.

LMBM is currently morphological theory comprising distinct competence and performance theories. assumes that language contains means of creating new words based on productive rules similar to those of morphology. These rules are restricted to lexical items in the lexicon, e.g. in Warji, pluralization forms through addition of affixes such as prefixation, infixation and suffixations, these are well attested and characterized by these Chadic languages, for instance, in Miya, beeta 'untie' derived plural noun baabeeta, 'keep untying', in Hausa, karva break changed to **kak-**karva, in Margi, petle gourd inflects plural form pepetle. These characterized in Warji, *yaakwai* tree and **pu**yaakwai trees. In other Chadic languages, among many, Hausa, kwalbaa bottle become kwalabee bottle, in Ngizim, kaasu broom become kaa**se**su brooms. Similarly the pattern matches plural act in Warji as in viiviinà mosquito and viiviiwinà mosquitoes. In term of suffixation, in Bole, 'kondo' singer, become 'kondowa' singers. In Hausa, 'hannu' hand, inflected to 'hannuwa' hands. Similarly this characterized by Warji as in 'viin' room become 'viinse' rooms.

Jaggar (2011) states some Chadic languages get along largely pluralization through mordification process. This is very common feature in some languages for instance, in Hausa, 'tsaako' chick; modify its noun number as 'tsaaki' chicken. In kariya, 'tangai' window, modify for 'tangau' windows. Similarly, it matches plural strategy in Warji, example, 'paarai' horn; produce a plural through modification 'paarau' horns. Sometime, modification process occurs through missing part of singular base. Such missing elements may be a consonant, vowel or final

syllable morpheme. For instance, in Dirya, 'kaanaana' house become 'kaana' houses. In Miya, 'guungu', man becomes 'guugu', men and in Warji, 'raakiinà' rag, become raakin' rags.

According to Newman (1993) and Jaggar (2011) many nouns and adjectives were probably not be pluralizable in any case. This is related to complete modification such as zero and suppletive pluralization process. Undoubtedly, many of the count nouns would have plural forms that did not emerge from elicitation or texts but that would be acceptable to at least some speakers. Nonetheless, the small number of attested plurals demonstrates the general absence of nominal and adjectival plural marking. In many Chadic languages, some count heads have no plural marker, which characterized the zero and suppletive method of pluralization, for instance, Miya among some Chadic languages, 'aam' woman and 'tevaan' women. In Bole, 'Oshi' goat and 'uwwa' goats. Similarly, in Warji, 'naa' child and 'meeruu' children. This proves warji is within Chadic languages in term of method of supplative plurals.

In addition to this, non plural marker characterized some languages, attested to zero plural act. Bole, among many languages, 'diindi' toad becomes 'diindi' toads. In Hausa, 'ruwa' (singular noun) and ruwa' (plural form). Similarly, in Warji, 'daava' (singular noun) and 'daava' (plural form). This proves warji is within Chadic languages in term of method of zero pluralization.

Schuh (2017) sees some Chadic languages have extensive plural morphology and, in principle, have a plural form available for every count noun. The main difference between languages is whether they have a small number of nouns with idiosyncratic plurals and one or two default plurals that are, in principle, available for every count noun, or whether the inventory of plural types itself is large and large numbers of count nouns have apparently idiosyncratic plurals (or a pluralization system that follows complex rules). The former type is seen in some Chadic languages that have a substantial number of nouns (and adjectives) with idiosyncratic plurals through partial or complete repetition, including Bole, Hausa, Ngizim, Warji and Zaar among many languages. At end of this study, there is no any shock discovered considering the theoretical implication. The study has also proved in terms of typological classification, Warji is within the Chadic family.

Suggestions and Recommendations

The study covers some, not all, the aspects, patterns, strategies and acts of pluralization in Warji. This is due to limited time and data available during this work. Although the research reveals only one aspect of plural, but the study fatherly suggests that more aspects of study in linguistics are available for this language particularly in morphology. There are more areas such as plural

compounding, gender and a study of pluractional verbs as well to the present investigation or bridging gap of the next studies. More again, this work is an open door for other studies in the area of linguistics particularly in the field of morphology in the Warii language.

Conclusion

Conclusively, this paper discusses about Modification process as a way of forming noun Plurals in the Warji language. The paper observes two types of modification process in this language, namely, partial and total modification. The study recognizes that partial modification, vowel alternation which comprises of vowel alternation initially, vowel alternation medially and vowel alternation finally. Subtraction (segmental truncation) comprises of consonants subtraction, vowel subtraction and syllable subtraction while total modification comprises of suppletive and zero plurals.

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