

MORPHOPHONEMIC PATTERNS OF AFFIXATION IN TIV PLURAL FORMATION

Francis Iorchia Ayagah.

Department of Languages and Linguistics,
Benue State University Makurdi

Abstract

This paper examines the morphophonemic patterns of affixation in Tiv plural formation. Given that there exists an interactive relationship between morphology and phonology, this paper seeks to investigate the sound changes that occur when morphemes concatenate through affixation processes to form plurals in Tiv, a Bantoid language spoken mostly in the middle Belt area of Nigeria, especially in Benue, Plateau, Taraba, Nasarawa and Cross River states of Nigeria. The study classifies and analyses the phonological factors that affect morpheme, or grammatical factors that influence phonemes in Tiv plural formation. The objectives of this paper are specifically to: investigate the morphophonemic patterns of affixation in Tiv plural formation in order to describe the rules/constraints in Tiv plural formation, ascertain which environments affixation patterns occur in plural formations in the language, identify which changes occur in morphemes in the course of plural formation and to examine the effect of such changes on the Tiv grammar. The study adopts qualitative research design using Generalized Alignment and Transderivational Antifaithfulness models of Optimality Theory to explain the permissible patterns in Tiv plural formation. Data for the study was collected from monolingual native speakers of Tiv language, who are deemed to be proficient in the language. The data was analysed in tables and findings indicate that when affixes align with singular noun stems in Tiv, various sound changes occur to newly formed plural form of nouns. The paper finds out that plural formation in Tiv takes place by use of prefixes such as mba, 'i-', 'a-' and 'u-'; by the use of the prefix 'i-' with an insertion of /j/ after the plosive, by vocalic alternation/depalatalization/consonant deletion, voiced prenasalised bilabial plosive copula (mba) prefix, as well as by the 'ev' and 'ov' suffixes. The paper concludes that in all the plural formation processes, sound changes occur, the paper therefore recommends that particular attention be paid to these sound changes that are occasioned by plural formation processes so as to enhance proper understanding and mastery of the Tiv language.

Key Words: Morphophonemics, Affixation, Plural formation, Generalized alignment theory, Transderivational Anti-Faithfulness Model

Introduction

Linguistic literature gives one general view that language is by its nature very complex. This is why the structural linguist (Vachek 1945:1) describes language as "a system of systems". This is because language is a set of inter-related systems having both the phonological and the grammatical systems. This description implies the existence in language of a number of levels or planes, each of which is characterized by its specific structure and its specific problems. The levels or planes include: phonology, syntax, morphology and semantics. These components of language otherwise referred to as levels of linguistic analysis work in synergy

and each dovetail into another in all languages. This means that there are inseparable inter-relationships amongst these levels of linguistic analysis and a gap between any of them can affect meaning processing. The locus of this work, therefore, is the morphophonemic alternations which occur when morphemes concatenate to form plurals in Tiv. In the course of plural formation in the language, many sound changes are observed. This work examines the interaction between morphology and phonology and the implications of this interaction on Tiv pluralisation.

Morphophonemics is a concept that represents a hybrid interaction between word

structure (morphology) and sound structure (phonology). It is the branch of linguistics that studies the interaction between morphological and phonological processes. Inkelas (2008:1) while explaining the interface between morphology and phonology posits that:

Morphology and phonology intersect insofar as the statement morphological generalizations include information about sound pattern (realisation morphology), and insofar as the statement of phonological generalizations include information about morphology (morphologically conditioned phonology). This intersection is extensive, blurring the distinction between morphology and phonology in many situations.

Morphophonemic is a phenomenon that involves processes. It also involves the interaction between the word structure and sound structure. Dwivedi (2012, p.1) explains that “due to this interaction, pronunciation of a morpheme may get modified or completely changed.” Thus, in morphophonemics, attention is paid to the changes that occur at the margins/boundaries of morphemes. The concept of morphophonemics is therefore, elaborately explained as an analysis and classification of the phonological factors which affect the pronunciation of morphemes or, correspondingly, the morphological factors which affect the appearance of phonemes. In morphophonemics, we basically study the interaction between morphological and phonological processes and how they affect each other. Morphophonemic changes usually occur at morpheme boundaries and it involves sounds that are associated with separate phonemes (Dwivedi, 2012).

Plural formations in most languages are facilitated by the process of inflection. This involves some level of affixation. Affixation is a morphological process whereby a bound morpheme - an affix - is attached to a morphological base for derivational and inflectional purposes (McCarthy, 1992). Affixes as bound morphemes are attached to a Tiv noun base to alter its grammatical information. The environments of this category of plural patterns are occasioned by morpheme assembly or

concatenation in Tiv and are predominantly morphologically conditioned, that is, a particular phonological pattern is imposed on a subset of the morphological construction of the patterns. In this pluralisation process in Tiv, affixes are prefixed, infixes or suffixed to a noun stem.

It is against the backdrop of the foregoing that this study classifies and analyses phonological factors that affect morphemes, or grammatical factors that influence phonemes in Tiv pluralisation. The objectives of this study include to: investigate the morphophonemic patterns of Tiv language plural formation through affixation; identify and describe the rules/constraints in Tiv plural formation by affixation, ascertain which environments plural patterns by affixation occur in Tiv language, identify the changes which occur in morphemes to perform plural formations and investigate the effects of the rules/constraints on Tiv grammar.

Review of Related Literature

Pluralisation in Tiv language is an area that has received scholarly attentions from different persons. Most of the scholars have stated various patterns of pluralisation with examples and from different theoretical approaches. One thing that is identified as a major gap in this spectrum of works is that none of them seems to have paid particular attention to the sound changes that occur in the pluralisation of Tiv words. Aloba (2008), for instance, states that the pluralisation of nouns cannot be discussed in isolation of number. This is because the inflection of nouns to indicate their plurality is essentially a business of number. The English number system comprises the singular which denotes ‘one’ and the plural, which denotes more than one. In a bid to make a comparison between Tiv and English pluralisation, Aloba (2008:35) explains that there are diverse ways of plural formation in English borrowing. The author notes that generally speaking, English nouns have different ways of forming their plurals. This happens because of the numerous foreign words that exist in the language. This may not necessarily be the case with Tiv language. The fact is that even the borrowed words in Tiv must conform to the Tiv plural formation principles. The principles of forming plurals using plural morphemes like “u-”, “a-”, “i-”, “m-”, “mba-” is apparently evident in

Tiv. This is however, not the case with English Language where most words adopt the borrowed words' original language plural principles: medium~media; radius~radii; cherub~cherubim, etc. However, the observable gap between Alobo (2008)'s study and the present study is that Alobo did not pay particular attention to the phonological processes or sound changes that occur in the pluralisation of Tiv words while the present study seeks to do so.

Yina (2009) in an article entitled "Radical Particles and Inflectional Processes in Tiv Morphology" notes that Tiv language is inflectionary, however, like in English the inflectional affixes defy any descriptive pattern of regularity or consistency. He explains that the plural exponent in Tiv is realised by series of prefixations, vocalic transformations, additives, replacements and tonal inflections. This process, according to Yina, involves arbitrary fusion of morphemic segments with each other and with the lexical stem. The morphemes according to him are added to the lexical stems, but these added elements, which are fused with stems, have neither independence nor meanings on their own. This process according to the author is quite complex and vexatious. Yina cites examples of nouns which inflect by prefixing additive elements to the stem. These additive affixes include: i-, u-, a-, m-, mba-, or tonal inflections, which are both singular and plural markers. Yina employs the combinatorial principle which includes all significant particles that contrast in shapes, functions and meanings recognized by the language user. This principle embraces the entire gamut of affixations; replacives, reduplications, vowel modifications and tonality. In sum, Yina's work is richly endowed with morphological ingredients that have provided impetus for this study. However, his concern seems to be on rules rather than constraints, and his analysis is not within the ambit of Optimality Theory as it is the case with this study.

Waya (2012) studied the morphology of the Tiv language, focusing on inflectional morphemes with much emphasis on the plural/possessive and past-tense markers in Tiv language. He contrasted Tiv with the English language and established their differences and

similarities. To Waya therefore, the major types of formation are phonological and morphological conditions, while English is represented by suffix in environment of word ending in voiceless segments, voiced and sibilant/affricate/vocalic respectively, where morphological conditions are irregular in pattern. The focus of Waya's work which is on suffixation processes in the morphology of Tiv words differs significantly from this work because while Waya (2012) handles inflectional morphology with emphasis on plural/possessive, and past tense markers, this work looks at the morphophonemic patterns of affixation in Tiv plural formation. Waya's view that the morphological aspect of the plural marker in Tiv is traditionally realised at the prefix levels: (mba-), (u-), (m-), (i-) (a-) to form the plural perfectly aligns with the position of this paper. Waya employs the "frame of reference" model within which an analyst approaches the grammatical description of word and paradigm "item and arrangement and item and process". This model constitutes the morpho-syntactic categories of the language. In this paper however, we have adopted Generalised Alignment and Transderivational Anti-Faithfulness models of the Optimality Theory.

Jija (2012) in a paper entitled "Aspects of Tiv Pluralisation" looks at the morphosyntactic and morphophonological structures of the Tiv language, with focus on noun pluralisation. He investigates the techniques for plural formation in the Tiv language essentially, exploring the grammatical category of the Tiv plural system which comprises mostly prefixation, suffixation, replacives, morpheme additives, tonation and consonant mutation. He employs Sapir's cultural determinism and the Chomskyan theory of intuition for the analysis of his work, which demonstrates that, pluralisation in the Tiv language, has a sociolinguistic background fundamentally anchored on the Tiv linguistic habit and idiosyncrasies. He establishes some rules of pluralisation in Tiv, noting that Tiv grammar, especially regarding aspects of pluralisation, is characterized by a peculiar plural system which defies a static or general rule. Given that Jija has used the Sapir's cultural determinism and the Chomskyan theory of intuition for the analysis of

his work which attributes Tiv pluralisation to the socio-linguistic background of the Tiv people, his focus therefore differs from that of this paper whose central concern is the alignment of affix to stem for phoneme realization.

Ishowua (2015) researched on the contrastive analysis of Tiv and English pluralisation processes. The study also looked at different morphological rules that govern pluralisation in the two languages and how these morphological realizations affect the syntactic structure of Tiv and English. In spite of the fact that the study is germane to this paper, it is important to note that Ishowua has dwelt on the rules of pluralisation by juxtaposing English and Tiv languages to the neglect of the sound changes which occur when plural morphemes align with noun stems in Tiv. Again, Ishowua has not concentrated on the Tiv language. This, therefore, creates a boundary between his study and the present study.

A general assessment of these reviewed works shows that even though the pluralisation process of the Tiv language has received scholarly attention, most of the works simply state Tiv singular nouns with their plural forms without further explanations. Particularly, the sound changes that take place in the metamorphosis of nouns from singularity to plurality which is the crux of morphophonemics has unfortunately been left unattended to. This forms the knowledge gap of the present study.

Theoretical Framework

The study adopts two sub-theories of the Optimality Theory for the analysis of noun pluralisation in Tiv namely; Generalised Alignment Theory and the Transderivational Anti-faithfulness Theory (TAT) by Alderete (2001) for analysis. These two sub-theories of OT in this section proffer explanation and insights into the diverse ways in which plural nouns are formed in Tiv. The following constraints from each of these theories are used.

Generalized Alignment Constraints: The study adopts Russel's (1997) Generalized Alignment Constraints model of OT. Russel gives the following Generalized Alignment constraints for concatenation of the plural morphemes:

PL-AFTER-N (Plural, Left; Noun-stem, Right): That is, the left edge of every plural morpheme must align with the right edge of the stem.

PL-AFTER-N (Plural, Right; Noun-stem, Left): That is, the Right edge of every plural morpheme must align with the Left edge of the stem.

Transderivational Anti-Faithfulness

Constraints: The constraints are the negation of the corresponding Faithfulness constraints, encouraging dissimilarity where Faithfulness constraints require similarity. This study adopts Alderete (2001)'s Transderivational Anti-Faithfulness constraints for morphemes alternations. The tenets of this model are as follows:

IDENT (F): (At least) one pair of correspondent segments must differ in feature F

MAX-X: If there is one, delete (at least) one X in the S1 ~ S2 mapping.'

DEP-X: Insert (at least) one X in S2 not present in S 1"

Constraints are violable. Violation of constraints is marked as follows: a fatal violation is marked using (*!), a non-fatal violation with (*), and the optimal candidate with the pointer (♣). The data is presented using Leipzig Glossing Rules and analysed using the constraints which are explained above.

Methodology

This study adopted the qualitative research design. Qualitative research is expressed in words. The data for the study were obtained from the field from adult/elderly monolingual native speakers of Tiv language, the clergies, the academics and members of the Tiv Language Studies and Development Association (TLSDA). Participant observation, consultations, unstructured interviews and the researcher's intuitive knowledge was used. The study purposively sampled 90 respondents. Out of this number, 60 respondents are Tiv adult monolinguals from ages 45-60. These are the people who could express themselves with confidence in Tiv language because they are Tiv monolinguals. A total of 15 respondents each from academics and the clergy were selected as representatives of people with formal knowledge of Tiv language. The reason for

selecting people with formal knowledge on Tiv language by the researcher is to use their knowledge to filter the data collected from the monolingual speakers, who do not have formal knowledge of Tiv language. The presentation of data is done in tables while the analysis of data was done using the Optimality Theory (OT).

Data Presentation and Analysis

The major processes of plural formation in Tiv are: affixation, tonal alternation and morpheme deletion/modification. This study, however, limits itself to Tiv noun pluralisation by

affixations. This is due to the wide scope of pluralisation patterns/processes in Tiv which cannot be adequately covered in a single paper

Tiv Plural Formation by Affixation

This is a pluralisation process whereby affixes are prefixed, infixes, and suffixed to a noun stem. This process is subdivided into prefixation and suffixation process. With these processes, we observe instances of sound modifications through insertion of infixes. Our presentation and analysis of plural formation through affixation is as follows:

Plural Formation with Prefixes

A prefix is an additive morpheme attached to an already existing noun root or stem to realize its plural form. The following are phonemes which trigger pluralisation in Tiv: ‘i-’, ‘a-’, ‘u-’ m- and ‘mba-’

Plural Formation by ‘i-’ Prefix

	Singular	Gloss	PL. Marker	Plural	Gloss
1.	angev	‘illness’	i-	i-angev	‘illnesses’
2.	haav	‘roof’	i-	i-hyaav	‘roofs’
3.	or	‘person’	i-	i-or	‘persons’
4.	kpenga	‘container’	i-	i-kpenga	‘containers’
5.	ho	‘tunnel’	i-	i-hyo	‘tunnel’

Plural Formation by ‘a-’ Prefix

	Singular	Gloss	PL. Marker	Plural	Gloss
6.	Gbande	‘drum’	a-	a-gbande	‘drums’
7.	Bebajondo	‘broken calabash’	a-	a-bebajondo	‘broken calabashes’
8.	bamber	‘piece’	a-	a-bamber	‘pieces’
9.	hir	‘talisman’	a-	a-hir	‘talismans’
10.	tindi	‘law’	a-	a.tindi	‘laws’

Plural Formation by ‘u-’ Prefix.

	Singular	Gloss	PL. Marker	Plural	Gloss
11.	ya	‘home’	u-	u-ya	‘homes’
12.	uma	‘life’	u-	u-uma	‘lives’
13.	ifi	‘river’	u-	u-ifi	‘oceans’
14.	daar	‘platform’	u-	u-daar	‘platforms’
15.	wondo	‘trouser’	u-	u-wondo	‘trousers’

Examples 1-15 demonstrate that ‘i-’ ‘a-’ and ‘u-’ are plural markers in Tiv. When ‘i-’ ‘a-’ and ‘u-’ are prefixed to a noun stem, they inflect it for number and change its form to indicate grammatical information (plurality). The Tiv noun stems which are preceded by ‘i-’ ‘a-’ and ‘u-’ as triggers to the formation of plurality appear to be so irregular in both their morphological and phonological make up. And the knowledge of when and where to prefix a grammatical

morpheme to a noun stem in Tiv to realize the plural form according to Jija (2012) is intuitive.

This work does not agree with Jija (2012) and, therefore, seeks to provide formal rules/constraints for explaining such realisations. This study asserts that Tiv is a noun class language – ‘a language in which nouns are grouped into a number of semantically based classes with each of these classes having its own distinct class marker (Sanusi, 2003, p. 2).

Tiv noun class system is based on the morphological make up of the nouns. There are four noun class markers of pluralisation in Tiv. These include ‘mbi’, ‘ngi’, ‘nga’ and ‘mba’ ‘mbi’. The rules governing the application of these classes markers show that: (a) in all environments where a Tiv plural noun begins with high unrounded vowel /i/ and ends with the voiced labio-dental fricative /v/, it takes the class marker ‘mbi’. Plural in example 1-2 belong to this category; (b) all Tiv plural nouns that begin with /a/ take the class marker ‘nga’ plurals in examples 6-10 belong this category. (c) all Tiv plural nouns with /i/ as initial syllable takes ‘ngi’ as class marker, all the plurals in example 6 -10 and (d) all plural nouns which have /u/ as initial syllable take ‘mba’ as class marker, all plurals in example 11-15. This may seem morpho-syntactical; it shades light on the misconstrued conception that the process plural is so irregular.

OT Analysis

Examples 1-15

This study uses the following Generalized

Alignment and Transderivational Anti-Faithfulness constraints model of OT to evaluate examples 1-5.

PL-BEF-N (Plural, Right; Noun-stem Left): Here, the right edge of every plural morpheme must align with the left edge of the stem.

IDENT(F) — (At least) one pair of correspondent segments must differ in feature F.

PL-AFTER-N (Plural, Left; Noun-stem, Right): That is, the left edge of every plural morpheme must align with the right edge of the stem.

The constraints are ranked as follows [PL-BEF-N>>IDENT (F)>> PL-AFTER-N]. PL-BEF-N is ranked higher than other constraints because in the formation of the plurals in examples 1-5 is triggered by the prefixation of ‘i-’, ‘a-’ and ‘u-’ to the stems of the singular nouns to realize their plural forms. In this direction, the plural marker ‘i-’ ‘a-’ and ‘u-’ preceded the root of the nouns for plural formation. Each of the examples has a singular noun form from which, it generated three candidates to contest against the ranked constraints for optimal result as shown in Table 1

Table 1: [PL-BEF-N>>IDENT (F)>> PL-AFTER-N

	(input can)	PL-BEF-N	IDENT(F)	PL-AFTER-N
1	a. angev	*	*	*
	b. angeev	*		*
	☞ c. i.angev			*
2	a. kpenga	*	*	*
	b. kpyinga	*		
	☞ c. i.kpyenge			*
3	a. Ifi	*	*	*
	b. ufi	*		*
	☞ c. u.ifi		*	*
4	a. gbaa	*	*	*
	b. gbyaa	*		*
	☞ c. a.gbaa			*
5	a. bamber	*	*	*
	b.baamber	*		*
	☞ c. a.bamber			*

Field work. January, 2020

Discussion of the Analysis in Table 1

The result of the test indicates that candidate [a] in each of the examples has neither prefix nor suffix to align with. On these bases, the candidate incurred the violation of markedness constraint, PL-BEF-N- the highest constraint in the ranking order, which says the right edge of every plural morpheme, must align with the left edge of the stem. Apart from this candidate [a] in each of examples, violate all the other constraints and thus stand eliminated.

Candidate ‘b’ in each of the examples incurred the same violation of the markedness constraint, PL-BEF-N though, the candidate has satisfied the provision of IDENT (F), the second constraint in the ranking order, which specifies that at least one pair of correspondent segments in a candidate, must differ in feature in its output form. It also violates PL-AFTER-N- constraint- by not aligning the right edge of the stem with left edge

of plural morpheme. It is equally eliminated.

Based on the provision of the three constraints selected for evaluation of the candidates in each of the examples in Table 1, candidate [a] incurred less violations. It violated only one constraint- PL-AFTER-N- by not aligning the right edge of the stem with left edge of plural morpheme (which is conspicuously absent in these environments). It abides by the provisions of the markedness constraint PL-BEF-N where the right edge of the plural morphemes ‘i-’ ‘a-’ and ‘u-’ aligned with the left edge of the stems in the examples. It also satisfied the provisions IDENT(F) (At least) one pair of correspondent segments must differ in feature F as exemplified in the sound changes at the beginning of each output representation. Having satisfied the major constraints which provides for its grammaticality, candidate in the 15 examples is optimized.

Plural Formation by Prefixation and Infixation [/i-/ prefix + /j/ insertion]

	Singular	Gloss	Plural	Gloss
16.	Tar	‘nation’	i-tyar	‘nations’
17.	Kwa	‘leaf’	i-kya	‘leaves’
18.	Bua	‘cow’	i-byua	‘cows’
19.	Takeda	‘book’	i-tyakeda	‘book’
20.	Tom	‘job’	i.tyom	‘jobs’

Examples 16-20 portrays the prefixation of the front high unrounded vowel to and infixation of the semi vowel /j/ in a singular noun stem for plural noun formation.

OT Analysis:

Table 2 Plural Formation by /i/ Prefix + /j/ insertion

[PL-BEF-N >>IDENT(F)>>PI-AFTER-N

		PL-BEF-N	IDENT(F)	PI-AFTER-N
16	Tar			
	a. Tar	*	*	*
	b. taa	*		*
	☞ c. i.tyar			*
17	Kwa			
	a. kwa	*	*	*
	b. kwaa	*		*
	☞ c. i.kya		*	*
18	Bua			
	a. bua	*	*	*
	b.biua		*	*
	☞ c. ibyua			*

19	Takeda			
	a. takeda	*	*	*
	b. takerada	*		
	☞ c. i.tyakeda			*
20	Tom			
	a. tom	*	*	*
	b. tiom	*		*
	☞ c. i. tyom			*

Source: Field work. January , 2020

The analysis of data in table 2 above shows that in examples 16-20, candidate [a] violates all the constraints in the ranking order. The stem did not have grammatical morpheme neither on the right edge nor on the left edge to align. Secondly all its segments in the input representation correspond with that of output representation which is a violation of **IDENT (F)** and thus it stands eliminated. The candidate [b] in each of the examples violated PL-BEF-N and PI-AFTER-N because the noun stem are neither prefixed nor suffixed though a change in the feature correspondence between the input representation and output representation satisfies **IDENT (F)**.

The satisfaction of IDENT (F) without satisfying PI-AFTER-N caused the elimination of the candidate in all the examples. Candidate [c] in all the examples incurred less violation of constraints. The left edge of each stem in the examples aligns with the right edge of its grammatical morpheme which is in line with the provisions of Tiv plural formation through prefixation. There are changes between the structural make up of input representation and output representation which is in consonance with the provisions of IDENT (F). Having satisfied the highest constraint in each of the examples, candidate [c] is selected as optimal candidate.

Plural Formation by Vocalic Alternation/Depalatalisation or Consonant Deletion

Singular	Gloss	Plural	Gloss
21. ibyaver	'piece of information'	abaver	'news/information'
22. ivyaan	'arrow'	avaan	'arrows'
23. ibya	'sack'	aba	'sacks'
24 .ibyeen	'cloud'	abeen	'clouds'
25. ibyumeor	'foolish man'	abumeior	'foolish men'

Table 3 examples 21-25 present singular nouns whose morphological make up contains initial V-shape syllable (the front high unrounded vowel /i/) accompanied by CV and CVC syllable structures respectively. The onsets of the CV and CVC syllables as demonstrated by these examples have initial phonemes which are plosives and labiodental fricatives. It is earlier stated in this work that in Tiv phonotactic, when the front high unrounded vowel /i/ precedes a syllable whose initial phoneme/segment is any of the following stop consonant sounds /p/, /b/, /f/, /v/ /t/, /d/, /k/, /kp/,

/gb/, /m/ /n/, /ng/. /mb/, /l/ and /h/ such a segment gets palatalised. The entire singular forms of the nouns in example 21-25 contain the initial V syllable - the front high unrounded vowel /i/ preceding syllables whose onset are /b/ and /v/ consonant sounds. This means that the initial segment of each of the singular forms of these nouns is palatalised. It is further demonstrated by these examples that the output forms (plural form) are prefixed by 'a' and thus the initial segment of the second syllable are not palatalised thus, presenting a contrast between the morphological

makeup of the singular and plural stems.

OT Analysis

To account for the changes in the morphological configuration and phonological alternations between the singular and plural forms of the nouns in examples 21-25, within the provision of OT analysis, this study adopts depalatalisation constraints by Lloret & Mascaró (2006) in addition to Russel (1997) alignment constraints as stated below:

- a. **PL-BEF –N** (Plural, Right; Noun-stem, Right), the right edge of every plural morpheme must align with the left edge of the stem. (Modification of Russel 1997 by this study)

- b. ***PAL L**): Do not have a palatal place of articulation. Lloret & Mascaró 2006)
- c. **b. Identity-Onset (Place)ID-ONS(PL)**
The place of articulation of an onset in the input should match the place of articulation of this onset in the output.(Lloret & Mascaró 2006)
- d. **PL-AFTER-N** (Plural, Left; Noun-stem, Right). That is, the left edge of every plural morpheme must align with the right edge of the stem (Russel 1997)
The constraints are ranked as shown in Table 4.

Table 3: Plural Formation by Vocalic Alternation/Depalatalisation or Consonant Deletion

[PL-BEF-N >> *PL L) >> ID-ONS (PL) >>PI-AFTER-N

		PL-BEF-N	*PAL L):	ID-ONS (PL)	PI-AFTER-N
21	Ibyaver				
	a. Ibyaver	*	*	*	*
	b. baver	*		*	*
	☞ c. a.baver			*	*
22	Ivyaan		*	*	*
	a. Ivyaan		*	*	*
	b. vyaan	*	*	*	*
	☞ c. a.vaan				*
23	Ibya				
	a. i.bya		*	*	*
	b. bya		*	*	*
	☞ c. a.ba			*	*
24	Ibyeen				
	a. Ibyeen		*	*	*
	b. been	*		*	*
	☞ c. a.been			*	*
25	Igyungu				
	a. igyungu		*	*	*
	b. gungu	*		*	*
	c.a.gungu			*	*

Source: Field work. January , 2020

The analysis in table 3 examples 21-25 indicate that candidate [a] in each of the examples does not

possess a plural marker and thus violate markedness constraint which, states that the right

edge of every plural morpheme must align with the left edge of the stem (PL-BEF –N). Secondly, the candidate in each of the examples violates *PAL L): which forbids any segment from having a palatal place of articulation. The candidate in each datum also violates ID-ONS (PL) which says the place of articulation of an onset in the input should match the place of articulation of the onset in the output. The place of articulation of the onset of the first syllable in the input stem in each of the examples does not correspond with the place of articulation of the onset of the first syllable in the output. Finally, candidate (a) violates PL-AFTER-N – a constraint which demands that the left edge of every plural morpheme must align with the right edge of the stem. The candidate is therefore knocked out due to numerous violations.

Candidate [b] in the examples (21-25) does not have affixes and consequently, knocked out of contest for optimisation because they have nothing to align with, to the left edge of the stem. And the markedness constraint requires that the right edge of a plural marker should align to the left edge the stem. Candidate [b] apart from

violating the markedness has violated all the constraints from the highest to the least. It is thus eliminated.

Candidate [c] in each of the examples possesses the plural markers thus satisfies the markedness constraint (PL-BEF-N) which spells out that the right edge of plural morpheme must align with the left edge of a noun stem in Tiv. The candidate also satisfies the constraint PL L) which constrains a segment from having a palatal place of articulation. By satisfying these most high ranking constraints, candidate [c] stands optimized.

The changes in the initial syllable also cause a change in the morphological make up of the stem. In Tiv, a stem beginning with a plosive can be modified with the insertion of ‘y’ only if it is preceded by the vowel /i/ which functions as a preceding syllable as seen in example 6 (i-v) above. That the palatalised segment in the singular form of the nouns in examples 24 (i-v), is depalatalised in their plural form. That is c +y c –y

Plural formation by the voiced prenasalized bilabial plosive copula ‘mba- prefix

Singular	Gloss	Plural	Gloss
26. Vanya	‘visitor’	mbavanya	‘visitors’
27. Mnyion	‘sickness’	mbamnyion	‘sicknesses’
28. Mhen	‘thought’	mbamhen	‘thoughts’
29. Aôndo	‘deity’	mbaAondo	‘deities’
30. Alôm	‘rabbit’	mbaAlom	‘rabbits’

The Tiv plural morpheme ‘mba-’ is collective noun indicator. The copula ‘mba-’ is normally attached to a singular noun stem to express a group or collection of a particular noun as shown in examples 26-30.

OT Analysis

Table 4: Analysis of Pattern 5

pl → [+mba- +sgN base]

PL-BEF-N >> IDENT(F) >> PI-AFTER-N

26	Vanya	PL-BEF-N	IDENT(F)	PI-AFTER-N
	a. vanya	*	*	*
	b. vaenya.	*		*
	c. mba,vanya			*
27	Mnyion			
	a.mnyion	*	*	*

	b. mnyoon	*		*
	☞ c. mba.mnyion			*
28	mhen			
	a. mhen	*	*	*
	b. henmba	*		
	☞ c. mba.amhen			*
29	Aôndo			
	a. aôndo	*	*	*
	b. aônde	*		*
	☞ c. mba.aôndo			*
30	Alôm			
	a. alôm	*	*	*
	b. alômo	*		*
	☞ c.mbaalom			*

Source: Field work. January , 2020

The analysis of data in table 4 above portrays that in examples 26-30 candidate [a] violates all the constraints in the ranking order. The stem did not have grammatical morpheme neither on the right edge nor on the left edge to align. Secondly all its segments in the input representation correspond with that of output representation which is against **IDENT (F)** and thus stands eliminated. The candidate [b] in each of the examples violated PL-BEF-N and PI-AFTER-N because the noun stem are neither prefixed nor suffixed though a change in the feature correspondence between the input representation and output representation satisfies **IDENT (F)**. The satisfaction of **IDENT (F)** without satisfying PI-AFTER-N caused the elimination of the candidate in all the examples. Candidate [c] in all the examples incurred less violation of constraints. The left edge of each stem in the examples aligns with the right edge of its grammatical morpheme which is in line with the provisions Tiv plural formation through

Examples of plural nouns form through prefixation are as follows:

Singular	Gloss	Plural	Gloss
31. nomso	‘male’	nomsoov	‘males’
32. anngô	‘brother’	anngôôv	‘brothers’
33. won	‘in-law’	wonov	‘in-laws’
34. anter	‘kinsman’	anterev	‘kinsmen’
35. kwase	‘woman’	kasev	‘women’

prefixation. There are changes between the structural make up of input representation and output representation which is in consonance with the provisions of **IDENT (F)**. Having satisfied the highest constraint in each of the examples, candidate [c] is selected as optimal candidate.

Plural formation with Suffixes

Suffixation is a morphological process whereby a bound morpheme is attached to the end of a stem. The kind of affix involved in this process is called a suffix. Tiv plural suffixes are very minimal and restricted to ‘v’ ‘ev’ ‘ôv’ and ‘ov’. The ‘ev’ ‘ôv’ and ‘ov’ suffix morphemes are realised with the tip of the upper teeth mildly touching the lower lip. Thus, a velar sound is produced as a result of this “teeth-lip” contact, with stresses on the double vowels /o:v/ in the masculine gender, ‘nomsoov’, and the non-masculine gender – ‘anngoov’, which are phonologically realised as /nomso:v/ and /anngo:v/, respectively (Jija 2012:29) .

As earlier said in this analysis, alignment constraints are markedness constraints. Markedness and faithfulness constraints conflict so that when markedness constraints outrank faithfulness, the output (derivative) is unfaithful to the input (base) Antifaithfulness and when faithfulness constraints outrank the markedness constraints, the output is faithful to the input. The examples above call for re-ordering of the alignment constraints considering the fact that the data under analysis here is suffixes. The

constraints are ordered in terms of dominance as follows:

PL-AFTER-N (Plural, Left; Noun-stem, Right). That is, the left edge of every plural morpheme must align with the right edge of the stem.

PL-BEF -N (Plural, Right; Noun-stem, Right), which says the right edge of every plural morpheme must align with the left edge of the stem.

IDENT(pal) which says an infix marker must coincide with the right edge of the first consonant.

Table 5 PI-AFTER-N>> PL-BEF-N>> IDENT(pal)

s/ no	Input(sg. base)	PI-AFTER-N	PL-BEF-N	IDENT(pal)
31	Nomso			
	c. nomso	*	*	
	b. on-nomso	*		*
	☞ c. nomsoov		*	*
32	Anngô			
	a. anngô	*	*	*
	b. unngô	*		*
	☞ c. Anngôôv		*	*
33	Won			
	a. won	*	*	*
	b. uwon	*		*
	☞ c. wonov		*	*
34	Anter			
	a. anter	*	*	*
	b. uter	*		*
	☞ c. anterev		*	*
35	Kwase			
	a. kwase	*	*	*
	c. ukwase	*		*
	☞ c. kasev		*	*

Source: Field work. January , 2020

From the analysis of candidates' a-c interactions with constraints in examples 31-35 indicates that candidates [a] in each of the examples incurred more violations. What this mean is that there is a total misalignment between the candidate in each and the constraints it interacted with. In each of the examples the right edge of the plural morpheme

did not align with left edge of the input (base) neither did the right edge of the base align with left edge of plural morpheme. Secondly, candidate 'a' in each of the examples contains an insertion of a plural morpheme in its base. These gross violations cause the elimination of the candidate [a] in each of the examples.

Candidate [b] in each of the examples satisfies the second marked constraint. That is, in each of the examples in table 6 the right edge of the plural morpheme aligns with the left edge of the base. However, the candidate incurred violation of the highest-ranking constraint- **PI-AFTER-N-** on which its grammaticality is hanged therefore disqualified. Candidate [c] in each of the examples violates the second and third constraints - **PL-BEF-N** and **IDENT(pal)** respectively. This failure is in good one in that not violating the constraint would have negative effect on the grammaticality of the candidate. Candidate [c] in examples 26-30 therefore is optimized for satisfying the highest constraint- **PI-AFTER-N-** in the plural formation where suffixation is foregrounded in Tiv.

Observations

In Tiv phonology, the ‘v’, “ev” and “ov” suffix morphemes are realised with the tip of the upper teeth mildly touching the lower lip. Thus, a velar sound is produced as a result of this “teeth-lip” contact, with stresses on the double vowels /e:v/ in the masculine gender, ‘nomsoov’, and the non-masculine gender – ‘anngoov’, which are phonologically realised as /nomso:v/ and /oŋo:v/, respectively.

Summary of Findings

The analysis of the morphophonemic patterns of plural formation in Tiv has revealed a lot of things, especially; with regards to the interplay of morphology and phonology in the formation of words.

This study revealed that nominal pluralisation in Tiv is realized through the process of affixation which is a morphological process whereby a bound morpheme, an affix is attached to a morphological base for derivational and inflectional purposes conditions epenthesis, a phonological process in which one or more sounds are added to initial, middle or end of a word.

This study finds out that in Tiv, the vowel is lengthened if it is prefixed to singular noun whose initial phoneme is the vowel /u/ as in *uma* (life) – *uuma* (lives). And in such a situation, ‘u’ becomes a syllable of its own in the output form (plural form).

The study also finds out when the front high unrounded vowel /i/ is prefixed to the root

whose onset of the first syllable of the initial morpheme is any of the following /p/, /b/, /t/, /d/, /k/, /kp/, /gb/, /m/, /mb/, /n/, /ŋ/, /h/ and /l/ to form plural triggers the insertion of /j/ to conditions a phonological process of palatalisation. This process involves internal modification of the stem with an insertion of the semi-vowel /j/. And in this /j/ insertion, first phoneme in the second syllable is modified to assume palatal position. For example, *tar* (nation) – *ityar* (nations). This brings about a change in the pronunciation of the output stem.

Another finding of this study is that in all environments where a Tiv singular noun begins with any of the following consonant sounds /p/, /b/, /t/, /d/, /k/, /kp/, /gb/, /m/, /mb/, /n/, /ŋ/, /h/ and /l/ as the onset of the first syllable of the initial morpheme, its plural form takes the front high unrounded vowel /i/ as prefix and the stem is modified with an insertion of the semi-vowel /j/ after the initial consonant in the onset and before the nucleus. The process conditions a phonological process of palatalisation

The study further realises that if the first syllable of a singular noun in Tiv is the front high unrounded vowel /i/ and the onset of the accompanying syllable is palatalized, its plural begins with low central unrounded /a/ and the palatalized trigger /i/ which engineers the glide is elided. What is noticeable here is that the changes in the initial syllable also cause a change in the morphological makeup of the stem and thus conditions a phonological process called depalatalisation

It was equally finds out that the prefix ‘mba-’ can also be used as a plural marker. when ‘mba-’ precedes a noun stem whose initial phoneme is a vowel hiatus is created. However, there is also a phonological process of vowel lengthening which is employed to simplify the pronunciation of the plural form of the nouns with this contagious formation in rapid speech. There occurs a left-right alignment in the pronunciation which effects a change in the stem’s grammatical and semantic function from singular to plural. The Tiv plural morpheme ‘mba-’ is a collective noun indicator. The copula ‘mba-’ is normally attached to a singular noun stem to express a group or collection of a particular noun. For example, *vanya* (vistor) - *mbavanya* (visitors). In this case, there

also occurs a left-right alignment in the phonological realization of the plural noun.

Another major finding of the study is that suffixes such as 'v' 'ev' 'ôv' and 'ov' can be used to form plural forms of nouns. For instance, *kwase* (woman) – *kasev* (women), *nom* (husband) – *noov* (husbands) etc. also, the plural formation on the other hand takes place through vowel alternation. For example, *iji* (egg) – *aji* (eggs).

Conclusion

This study demonstrated that affixation is

one of the major processes of plural formation in Tiv. The paper has shown that most plural nouns in Tiv are formed by aligning the edge of a singular noun stem with the edge of a prefix or suffix. These alignments result into some sound changes which follow certain patterns as shown in the analysis of this paper. It is hereby recommended that these sound changes that occur in the plural formation process need to be given attention to by teachers and learners of the Tiv language for proper understanding and mastery of the language.

References.

- Alderete, I. (2001). "Dominance effects as transderivational anti-faithfulness." *Phonology* 18 201-253.
- Alobo, J.O. (2008) *Advanced grammar for schools and colleges*, Kano: Afomat dE Printers.
- Crystal, D. (2008). *A dictionary of linguistics and phonetics*. (6th ed.). Oxford: Blackwell
- Dwivedi, P. (2012). *Morphophonemics*. A study module for UGC MHRD ePG Pathashala.
- Inkelas, S. (2014). *The interplay of morphology & phonology*. UK: Oxford University Press
- Ishowua, D T.(2015). *A contrastive analysis of Tiv and English pluralisation processes*. Unpublished M.A dissertation, Ahmadu Bello University, Zaria
- Jija, T. (2012). "Aspects of Tiv pluralisation" In *Journal of Igbo Language and Linguistics* No. 4. <http://www.linguisticsafrikana.com> 9/04/201
- Lloret and Mascaró (2006). "Depalatalization in Spanish revised". Universitat de Barcelona and Universitat Autònoma de Barcelona
- McCarthy A. (1992). *Current morphology*. London: Routledge
- Vachek (1945). Some remarks on writing phonetic and transcription. *Acta linguistica* vol 5 (1-5).
- Way, D. T. (2012). "Contrastive analysis of Tiv and English morphological processes: An exploration of inflectional morphemes". Agams Sinclair. www.scribd.com,
- Yina, G (2009) "Radical particles and inflection processes in Tiv morphology". In *Makurdi Journal of language and literature*. Makurdi: Bookwork Publishers.