

## Original Paper

# Nasalisation as a Phonological Process in Tiv

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### Abstract

*Tiv phonology has major and minor phonological processes and nasalisation belongs to the former. This study explores the nature of the Tiv nasalisation process. It describes Tiv nasals; discusses syllabic nasal consonants; examines the nature of nasalised vowels and differentiates between oral and nasal sounds. This study used Generative Phonology model which was popularised by Chomsky and Halle's (1968). The Sound Pattern of English. This model formulates theories that help in the analysis of Tiv nasals and points out that vowels that precede nasal consonants are nasalised. The author used participant-observation instrument for data collection. Both primary and documentary sources are used in this study. It has been observed that Tiv phonology has pre-nasalised consonants. It has been discovered that Tiv language has five nasal consonants: /m/, /n/, /ɲ/, /ɲ/ and /ŋ/. It has also been noted that /m/, /n/, /ɲ/ and /ŋ/ appear at the word-initial, medial and final positions of Tiv words. It has also been known that nasals have phonological, morphological and syntactic functions. It has been recommended that learners should pronounce n in nd, ng, nj, nk, and nz as /ɲd/, /ɲg/, /ɲdʒ/, /ɲk/ and /ɲz/ and should note that /m/ and /ɲ/ are not the same: /m/ is a bilabial nasal whereas /ɲ/ is labio-dental sound. Researchers should carry out acoustic description of nasals and describe articulatory processes of producing nasals.*

### Keywords

*nasals, nasalisation, nasalised vowel, phonology, prenasalisation and syllabic nasals*

## 1. Introduction

Tiv, a member of the Bantoid subgroup of Benue-Congo spoken in the north-central geo-political part of Nigeria is spoken in Benue, Nassarawa, Taraba and Plateau states of Nigeria and Southern Cameroon, has tripartite connotations: it is a name of a tribe; language and ancestral father. Tiv

phonology has vowels and consonant sounds and these vowels and consonants have oral and nasal sounds. Oral sounds are produced when the air passes through the vocal cavity (mouth) whereas nasal sounds are produced when the velum is lowered and the air passes through the nasal cavity (nose). Apart from /m/, /n/, /ŋ/, /p/ and /ɲ/, all other consonants and vowels in Tiv are oral sounds. Nasalisation is one of the prominent phonological processes in the Tiv phonology. It is obvious that Tiv phonology does not differentiate between oral vowels and nasal vowels orthographically. For the identification of nasalised vowels, a tilde [˜] is used to show nasalisation as opposed to the oral vowels. In the Tiv language, nasalised vowels precede nasals, consonant produced by lowering the velum that the air escapes through the nose. Tiv language also shows nasalisation at the consonantal level.

All nasals in the Tiv language are voiced. There is usually a mechanical vibration of the vocal cords in the articulation of these nasals. There are five nasals in the Tiv phonology: bilabial nasal /m/, alveolar nasal /n/, velar nasal /ŋ/, labio-dental nasal /ɲ/ and palatal nasal /p/. These Tiv nasal consonants are shown Table 1.

**Table 1. Tiv Nasal Chart**

<b>Manner of Articulation</b>	<b>State of the Glottis</b>	<b>Place of Articulation</b>	<b>of Articulators</b>	<b>Words</b>	<b>Glosses</b>	
<b>Nasal</b>	/m/	voiced	bilabial	lower and upper lips	<i>m̃em</i> /m̃ɛm/	rest
	/ɲ/	voiced	labio-dental	upper teeth & lower lip	<i>m̃t̃om</i> /ɲt̃ɔm/	pillars
	/n/	voiced	alveolar	alveolar ridge & tongue tip	<i>ña</i> /ñæ/	give
	/p/	voiced	palatal	tongue tip & palatal nasal	<i>ñyima</i> /ɲ̃imæ/	bite
	/ŋ/	voiced	velar	soft palate & tongue back	<i>ñgu</i> /ŋ̃ɔ/	is

Table 1 shows that Tiv phonology has five nasals; all the five nasals are voiced; apart from /p/ the remaining four nasals can appear at the word-initial, word-medial and word-final positions as indicated in Table 1. Their places of articulation and articulators differ greatly.

Nasalisation as a major phonological process does not receive scholarly attention. Most studies on nasalisation are found in English and other languages. Foreign and native speakers of Tiv have neglected this suprasegmental phonological process in their studies. Karshima, Sokpo, Aor and Yio did minute studies on nasalisation in Tiv. It is unarguably clear that there is a paucity of scholarly studies on nasalisation in the Tiv language. As a result of this paucity, this study principally aims at exploring the nature of nasalisation process in the study of Tiv phonology.

## 2. Conceptual and Empirical Reviews

Phonology, the study of sound patterning of particular languages, has certain phonological processes that it subscribes to. Trask (1996) defines a process as any phonological statement that is stated in the form of a rule that applies to one representation and changes the said rule to another representation. Carr (2008) asserts that a process expresses the union between similar phonetic and phonological. Crystal (2008) avers that a process is a description that views some phonological elements as being the consequence of a change that exerts on other elements in any given language. Anyanwu (2008) posits that phonological processes deal with changes that segments undergo in connected speech. These phonological processes are: nasalisation, elision, epenthesis, assimilation, palatalisation, labialisation, fusion, dissimilation and metathesis. Phonological processes or rules are language specific, productive, intuitive and unlearned. These processes or rules help speakers and writers to know when to nasalise, assimilate, dissimilate, palatalise, delete, insert, link, fuse, simplify and transpose segments or phrases. The thrust of this paper is on nasalisation.

Carr (1993, p. 7), O'Connor (1998), Bussmann (1998), Roach (1998), Davenport and Hannahs (2005), Trask (1996), Gussenhoven and Jacobs (2017) and Crystal (2008) state that the production of nasals involves the lowering of the soft palate and blocking of the mouth so that the air is expelled through the nose. We have nasalised consonants and vowels. A “nasalised consonant” refers to a consonant which, though normally oral in a language is articulated in a nasal manner because of some adjacent nasal sound. Nasal consonants occur when there is a total closure in the mouth, and all the air thus escapes through the nose. Furthermore, if a vowel precedes /m/, /n/, /ŋ/ and /ŋ/ then such a vowel must be nasalised. The best known examples of nasalisation in Tiv are nasalised vowels. In the production of most vowels, the airflow escapes entirely through the mouth, but often, in a vowel preceding or following a nasal consonant, we find air escaping also through the nose.

**Table 2. (Pre)-Nasalised Vowels**

Words	Phonemic Transcriptions	Phonetic Transcriptions	English Glosses
<i>mán</i>	/mæn/	[mǣn]	and
<i>mém</i>	/mem/	[mēm]	rest
<i>dááng</i>	/da:ŋ/	[dǣ:ŋ]	bad
<i>dóóm</i>	/do:m/	[dō:m]	good me
<i>icéngè</i>	/ɪʃeŋge/	[ɪʃēŋge]	shard
<i>sángè</i>	/sæŋge/	[sǣŋge]	select
<i>tám</i>	/tæm/	[tǣm]	chew
<i>píném</i>	/pɪnɛm/	[pīnēm]	asked me

The phonemic and phonetic transcriptions of the above words show the “non-nasalised” and the

“nasalised vowels.” A nasalised vowel must come before a nasal sound.

Nasalisation is, therefore, the articulation of a vowel or a consonant, especially one that has a partial closure, with an accompanying lowering of the velum, thus the air passes through the nasal cavity. According to Matthews (2003, p. 566), nasalisation is a change or process by which vowels or consonants become nasal. Car (2008) defines nasalisation as one of the processes of assimilation where a vowel becomes nasalised when it precedes a nasal consonant. Tench (2011) opines that vowels following nasal consonants are pronounced as if the air goes through the nasal cavity. He maintains that the nasalisation of vowels adjacent to consonants is automatic and does not need any transcription to know whether such vowels are nasalised. In a parallel way, word-final /n/ easily adjusts to a velar /ŋ/ in anticipation of following velar consonants /k/ and /g/. Jones (2010, p. 341) asserts that nasalisation is the addition of a nasal escape of air to a sound which would not normally have it.” Ladefoged and Johnson (2010, p. 308) attest that nasalisation is lowering of the palatal velum during a sound in which air goes out through the nasal cavity.

Nasalisation may be described as “inherent” when speakers do not exert strong control over the raising of the velum, allowing nasalisation to become an “unintended” characteristic of all their vowels, even when not adjacent to nasal consonant. Nasalisation may also be a general property of speech, for reasons of individual articulatory habits, dialect type, or pathological condition such as cleft condition. Such nasalisation is often described as “pervasive.” Nasalisation can be pigeon-holed into pre-nasalisation and post-nasalisation.

In pre-nasalisation, according to Clark, Yallop and Fletcher (2007), a component of nasal articulation appears in the initial part of the basic articulation of a phoneme. Most commonly this applies to stops, which can have nasal output during the initial part of the occlusion phase. Tiv *b, d, m, n, r, w, y, z, c, h, k, p, s* and *t*, for example, are pre-nasalised and may be represented in phonetic transcription as:

**Table 3. Pre-Nasalisation of Consonants in Tiv**

Voiced Pre-nasalised consonants				Voiceless pre-nasalised consonants			
Nasalised symbols	Words	Transcriptio ns	Glosses	Nasalised symbols	Words	Transcriptions	Glosses
[mb]	<i>mba</i>	/ <sup>m</sup> bæ/	they	[mc]	<i>mcivir</i>	/ <sup>m</sup> ʃɪvi:/	worship
[md]	<i>mduon</i>	/ <sup>m</sup> dõ:n/	beauty	[mc]	<i>mchiem</i>	/ <sup>m</sup> ʃĩẽm/	fear
[mm]	<i>mmar</i>	/ <sup>m</sup> ma:/	birth of	[mf]	<i>mfe</i>	/ <sup>m</sup> fe/	knowledge
[mn]	<i>mningen</i>	/ <sup>m</sup> nĩŋgẽn/	sap	[mh]	<i>mhembe</i>	/ <sup>m</sup> hẽmbe/	victory
[mr]	<i>mrumun</i>	/ <sup>m</sup> rõmõn/	acceptance	[mh]	<i>mhide</i>	/ <sup>m</sup> hide/	return of
[mw]	<i>mwen</i>	/ <sup>m</sup> wẽn/	flour	[mk]	<i>mkulem</i>	/ <sup>m</sup> kolẽm/	oil
[mv]	<i>mvese</i>	/ <sup>m</sup> vese/	growth	[mk]	<i>mkem</i>	/ <sup>m</sup> kẽm/	pepper
[my]	<i>myima</i>	/ <sup>m</sup> jĩmæ/	help	[mp]	<i>mpase</i>	/ <sup>m</sup> pæse/	revelation



followed by /j/; when a vowel sound appears after a nasal sound; when a vowel sound appears before a nasal sound in the same phonological environment and when a vowel sound appears between two nasals. His study is on “aspects of phonological processes of Tiv” which indicates that not much has been said about nasalisation.

None of the above studies indepthly discussed Tiv nasalisation as a word formation process. Karshima only suggests symbols for writing nasal consonants and mentions that Tiv has three nasal vowels. Sokpo merely contrasts nasalised and non-nasalised vowels. The thrust of her study is on autosegmental features of Tiv phonology. Again, Aor’s studies discuss Tiv clitics and elisions. Yio examines Tiv phonological processes which nasalisation received less attention. Considering the paucity of scholarly studies on the Tiv nasalisation, a major phonological process, this study attempts to fill the existing gap by describing Tiv nasals, discussing syllabic nasal consonants, examining the nature of nasalised vowels and differentiating between oral and nasal sounds in Tiv.

2.1 Theoretical Framework

The author adopted Chomsky and Halle’s (1968) Generative Phonological Theory in this study. There were series of attacks on orthodox phonemics in America in the 1960s. The 1960s saw discontent with orthodox phonemics in North America. A series of publications by Halle (1959, 1962, 1964) and Chomsky (1964) vigorously attacked phonemics and structuralism and this marked the emergence of generative phonology with the publications of Postal (1968) and Chomsky and Halle (1968). Clark, Yallop and Fletcher (2007, p. 134) state that Generative Phonology is an integral part of transformational-generative theory. The thrust of this theory of linguistic description is to construct a grammar that would formulate or generate linguistic forms. This means that the phonology of Tiv grammar will generate phonological rules and principles which will be applied to the underlying forms of the language and yielding surface phonetic representations.

In this study, the author centres his discussion of Generative Phonology on nasalisation rules. Dairo (2003, p. 30) states that “all consonants become nasalised when followed by nasal sounds.” For instance, /t/ in “button” is nasalised because of /n/. This can be expressed as:

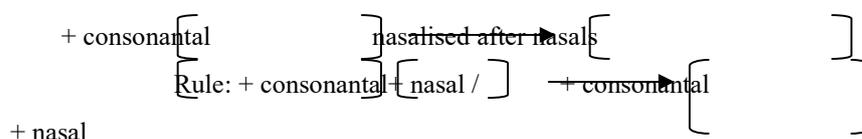


Figure 1. Nasalisation of Consonants before Nasals

Dairo (2003, p. 30) further states that when a vowel precedes a nasal sound, that vowel is nasalised, For example, /e/ in the word “pen.” This can be expressed as:



### 3. Result

The result of this study is presented under four headings-description of nasal consonants in the Tiv phonology, syllabic consonants, nasalised vowels in the Tiv phonology and comparison between nasalised vowels and oral vowels.

**Table 4. Description of Voiced Bilabial Nasal /m/**

Initial Position		Medial Position		Final Position	
<i>má</i>	drink	<i>hánmà</i>	every	<i>kém</i>	pride-price
<i>mèm</i>	rest	<i>tímé</i>	dig	<i>pám</i>	pound
<i>mèndé</i>	germinate	<i>tùmé</i>	weave	<i>díim</i>	loud sound
<i>mìlé/ mìrí</i>	submerge	<i>ìmò</i>	voice	<i>kyúm</i>	bosom
<i>mée</i>	tempt	<i>kùmá</i>	stab	<i>núm</i>	lick
<i>misé</i>	root	<i>kùmú</i>	pound	<i>món</i>	neck

**Table 5. Description of the Voiced Labio-Dental Nasal /ɱ/**

Initial Position		Medial Position		Final Position	
<i>mbá</i>	they	<i>ómbò</i>	store	<i>dóóm</i>	good me
<i>mcívír</i>	adoration	<i>tyúmbà</i>	breast	<i>tèrém</i>	my father
<i>mfè</i>	wisdom	<i>hèmbá</i>	win	<i>tèsém</i>	teach me
<i>mkóm</i>	satisfaction	<i>kómbó</i>	weed	<i>kóóm</i>	correct
<i>mlyám</i>	tears	<i>jímbà</i>	fornication	<i>dém</i>	leave me
<i>mmém</i>	rest	<i>kèmbér</i>	scrape	<i>sarem</i>	I desire
<i>mníngém</i>	sap	<i>cámbér</i>	entwine	<i>tám</i>	hit me
<i>mndér</i>	resurrection	<i>jèmbé</i>	ask	<i>túhwám</i>	curse me
<i>mpase</i>	revelation	<i>ikyámbè</i>	crab	<i>cám</i>	squeeze
<i>mrúmún</i>	answer	<i>gómná</i>	governor	<i>meem</i>	tempt me
<i>msórom</i>	alcohol	<i>àkómbó</i>	idol	<i>sórom</i>	visit me
<i>mìim</i>	destruction	<i>bàmbèr</i>	piece	<i>yímám</i>	help me
<i>mvéndè</i>	refusal	<i>kwámbè</i>	spleen	<i>kèrém</i>	look for me
<i>mwen</i>	flour	<i>sómbó</i>	fracture	<i>kàrém</i>	test me
<i>myôm</i>	salvation	<i>tèmbé</i>	court yard	<i>yimam</i>	help me
<i>mzôndón</i>	calabashes	<i>mkómbò</i>	meeting	<i>zómóm</i>	catch me

**Table 6. Description of the Voiced Alveolar Fricative /n/**

Initial Position		Medial Position		Final Position	
<i>ná</i>	give	<i>kándè</i>	emaciate	<i>píin</i>	squeeze

<i>nèngé</i>	see	<i>kwéndè</i>	arm	<i>icán</i>	poverty
<i>nór</i>	elephant	<i>ándè</i>	appear	<i>kwén</i>	gong
<i>nìmbé</i>	yellow yam	<i>béndè</i>	touch	<i>án</i>	to smoke
<i>nôô</i>	to rain	<i>tiné</i>	stem	<i>kón</i>	tree
<i>nàndé</i>	to burn	<i>kiné</i>	scream	<i>sôn</i>	request
<i>núné</i>	locust beans	<i>mèndè</i>	germinate	<i>dàn</i>	to evade
<i>nàsé</i>	mill stone	<i>pándè</i>	reduce	<i>sáán</i>	happy

**Table 7. Description of the Voiced Palatal Nasal /ɲ/**

Initial Position			Medial Position		
Words	Transcriptions	Glosses	Words	Transcriptions	Glosses
<i>nyùmá</i>	/ɲõmæ/	to bite	<i>ikpányár</i>	/ikpɲæɲa:/	purse
<i>nyám</i>	/ɲæm/	animal/meat	<i>inyá</i>	/ɲɲæ/	ground/soil
<i>nyór</i>	/ɲo:/	enter	<i>inyóm</i>	/ɲɲõm/	dry season
<i>nyágh</i>	/ɲa:ɣ/	abstain	<i>inyón</i>	/ɲɲõn/	bird
<i>nyóósò</i>	/ɲo:so/	tighten	<i>mnyím</i>	/mɲɲim/	smoke
<i>nyìnyá</i>	/ɲɲɲæ/	horse	<i>ànyí</i>	/ãɲɲi/	teeth

**Table 8. Description of the Voiced Velar Nasal Consonant /ŋ/**

Initial Position		Medial Position		Final Position	
<i>ngór</i>	shout	<i>sánkér</i>	spear	<i>dôông</i>	stoutly
<i>ngô</i>	mother	<i>àngwé</i>	herald	<i>púúng</i>	white
<i>ngùrúm</i>	to bend	<i>tèngér</i>	to quake	<i>wááng</i>	pure
<i>ngú</i>	is	<i>nùngwá</i>	mix	<i>víng</i>	quiet
<i>ngá</i>	are	<i>dùngwáá</i>	handle	<i>dááng</i>	bad
<i>ngér</i>	write	<i>ànkýégh</i>	a fowl	<i>hwééng</i>	deep
<i>ngúr</i>	feather	<i>sángè</i>	select	<i>pééng</i>	pale
<i>ngháá</i>	scape	<i>vèngésè</i>	answer	<i>kéng-kéng</i>	necessary
<i>ndér</i>	wake up	<i>vìngír</i>	round	<i>tsúúng</i>	greatly
<i>nzúúl</i>	confuse	<i>dèngé-dèngé</i>	tender	<i>tsóóng</i>	quickly

**Table 9. Syllabic /ŋ/ in Tiv**

Beginning		Middle		Ending	
Words/ Glosses	Transcriptions	Words/ Glosses	Transcriptions	Words/ Glosses	Transcriptions
<i>mém</i>	/ɲ-mẽm/	<i>bòmnger</i>	/bõ-ɲ-ŋge:/	<i>nám</i>	/nã-ɲ/

“rest”		“bad water”		“give me”	
<i>máar</i>	/m̩-ma:/	<i>kpámkwase</i>	/kpã-m̩-kwásé/	<i>ngóm</i>	/ŋgɔ̃-m̩/
“birth”		“rich lady”		“my mother”	
<i>mtém</i>	/m̩-tém/	<i>kpèmn̩ger</i>	/kpe-m̩-ŋge:/	<i>kosóm</i>	/ko-sɔ̃-m̩/
“pots”		“river bank”		“protect me”	
<i>mmóúgh</i>	/m̩-moo/	<i>ikpámkor</i>	/i-kpã-m̩-ko:/	<i>tóvóm</i>	/tɔ̃-vɔ̃-m̩/
“rising”		“trumpet”		“persecute me”	
<i>mpásé</i>	/m̩-pã-sé/	<i>nómkyegh</i>	/nɔ̃-m̩-kjé:/	<i>wasém</i>	/wæ-sɛ̃-m̩/
“revelation”		“cock”		“help me”	

Table 10. Syllabic /m/ and /n/ in Tiv

Words	Phonemic Transcription	Phonetic Transcription	Glosses
<i>ivérēn</i>	/ivjeren/	[ivjɛrɛn]	blessing
<i>mkúrēm</i>	/m̩kurem/	[m̩kɔ̃rɛm]	oil/cream
<i>mngérēm</i>	/m̩ŋgerem/	[m̩ŋgɛrɛm]	water
<i>mngùnéngēn</i>	/m̩ŋgunenɛn/	[m̩ŋgɔ̃nɛŋɛn]	I am seeing
<i>ngùvérēn</i>	/ŋgɔ̃veren/	[ŋgɔ̃vɛrɛn]	I am seeing
<i>msén</i>	/m̩sɛn/	[m̩sɛn]	prayer

Table 11. Distribution of Nasalised Vowels in the Tiv Phonology

Nasalised Vowels	Words	Transcriptions	Glosses
[ɔ̃]	<i>kon</i>	[kɔ̃n]	tree
	<i>tom</i>	[tɔ̃m]	work
[ɔ̃:]	<i>boon</i>	[bɔ̃:n]	stare
	<i>doon</i>	[dɔ̃:n]	good
[ɔ̃]	<i>góngol</i>	[gɔ̃ŋgɔl]	gullet
	<i>imóndo</i>	[imɔ̃:ndò]	anthill
[ɔ̃:]	<i>nóón</i>	[nɔ̃:]	raining
	<i>kóóm</i>	[kɔ̃:m]	correct
[æ̃]	<i>bam</i>	[bã̃m]	provoke
	<i>wan</i>	[wã̃n]	child
[ã̃:]	<i>haan</i>	[hã̃:n]	wearing
	<i>maan</i>	[mã̃:n]	building
[ĩ]	<i>pine</i>	[p <sup>h</sup> ĩnè]	ask
	<i>kine</i>	[k <sup>h</sup> ĩnè]	groan

[ĩ:]	<i>iin</i>	[ĩ:n]	burying/stealing
	<i>diim</i>	[dĩ:m]	loud sound
[õ]	<i>kyum</i>	[kjõm]	bosom
	<i>gum</i>	[gõm]	young
[ũ:]	<i>puun</i>	[pũ:n]	criticizing
	<i>ishughun</i>	[ɪʃũ:n]	greeting
[ē]	<i>hen</i>	[hēn]	think
	<i>keng</i>	[kēŋ]	necessary
[ē:]	<i>abeen</i>	[æbē:n]	clouds
	<i>been</i>	[bē:n]	finishing

**Table 12. Distinction between Nasalised Vowels and Oral Vowels**

Nasalised Vowels	Oral Vowels
Oral cavity is the mode of production	Nasal cavity is the mode of production
Presence of a tilde on the nasalized vowels	Absence of a tilde on oral vowels
Vowels before nasals results in nasalized vowels	Vowels before and after other consonant sounds can result in oral vowels
Presence of nasalization in nasal vowels	Absence of nasalization in oral vowels
Nasalized vowels appear mostly in closed syllable, e.g., <i>fam</i> /fãm/ “know me”.	Oral vowels can occur in opened and closed syllables, e.g., <i>apu</i> “vulture” and <i>fa</i> “know”

**Table 13. Examples of Oral and Nasal Vowels**

Oral Vowels			Nasal Vowels		
Word	Transcription	Gloss	Word	Transcription	Gloss
<i>béé</i>	/be:/	finished	<i>bém</i>	[bēm]	peace
<i>dàà</i>	/da:/	push	<i>dááng</i>	[dã:ŋ]	bad
<i>dóó</i>	/do:/	good	<i>dóóm</i>	[do:m]	good me
<i>máá</i>	/ma:/	built	<i>máán</i>	[mã:n]	building
<i>váá</i>	/va:/	wept	<i>váán</i>	[vã:n]	weeping

## 4. Discussion

### 4.1 Description of Nasal Consonants in the Tiv Phonology

The number of phonemes varies from one language to another. Most languages have three nasal sounds such as voiced bilabial nasal /m/, voiced alveolar nasal /n/ and voiced velar nasal /ŋ/. The phonology of Tiv has five nasals such as bilabial /m/, labio-dental /m̥/, alveolar /n/, palatal nasal /ɲ/ and velar nasal

/ŋ/. These nasals have been carefully described with ample examples. Table 4 describes the voiced bilabial nasal /m/. Its primary place of articulation is when the two lips come together in the production of /m/. /m/ appears at the beginning, middle and ending of Tiv words. Also, table 5 discusses the voiced labio-dental fricative /ɱ/. ɱ/ is found in a personal pronoun *m* (meaning *I* or *me*) and words that have the following combinations: *mb, mc, mf, mh, mk, ml, mm, mn, mng, mp, mr, ms, mt, mv, mw, my* and *mz*. In addition, table 6 describes the voiced alveolar fricative /n/. It occurs at the beginning, middle and end of words. Words that have letter *n* belong to /n/. However, if *n, g, k, z* precede *n*, such words are pronounced with /ŋ/ sound. Also, the diagraph *ny* /ɲ/ is not pronounced as *n*.

Furthermore, Table 7 is the description of the voiced palatal nasal /ɲ/. Ashby (2011) avers that the production of /ɲ/ sound causes the tip of the tongue to be lowered behind the lower front teeth whereas the front of the tongue goes up. It contains a diagraph *ny* as its orthographic origin. It appears at the beginning and middle of words in the Tiv language. It does not come at the word-final position. Lastly, table 8 describes the voiced velar nasal consonant /ŋ/. Its primary spelling origins are: *nd, nz, ng* and *nk*. In Tiv, /ŋ/ can be placed at the beginning of words and can appear in the middle and at the end of words.

4.2 Syllabic Nasal Consonants

Crystal (2005) defines a syllable as a pronounceable unit that is more than a single sound and less than a word. A syllable commonly consists of an onset, vocalic peak or nucleus and may be followed by a coda. The obligatory element of a syllable is a vowel and other Tone-Bearing-Units such as nasals, liquid and lateral while optional elements of a syllable are onset and coda. When a consonant sound acts as nucleus, it is called syllabic consonant. Tiv phonology has nasal consonants such as /m, n, ɱ, ŋ/ as syllabic sounds. The phenomenon of syllabic nasal is also found in English and other languages. The commonest syllabic consonant in Tiv is /ɱ/. It appears at the beginning, middle and at the end of words. The only orthographic origin of /ɱ/ is *m*. /ɱ/ is the only nasal that is also a word in Tiv. Table 9 shows that /ɱ/ precedes (appears before) *m, p, s,* and *t* consonants. In the middle words, it can be seen that /ɱ/ can come before *ng, k, b* and the /ɱ/ words in the ending portion refer to “my” and “me”.

Apart from syllabic nasal /ɱ/ we have syllabic /ŋ/. There are syllables that are formed by *eng* /ŋ/ syllabic consonant. The diagraph *ng* is the primary spelling for this sound. Few examples of this sound are seen in the following Tiv words: *nghaa* /ŋ-ga:/ meaning “to scrape” and *ng’wenee* /ŋ-gwẽ-né:/ which means “bow together” or “bend over” or “bend double.” Syllabic [ɱ] and syllabic [ŋ] are very hard to get in the phonology of Tiv but they are seen where “e” is deleted as in “mngerem” /ɱŋgerem/ and /ɱŋgerm/. Dairo (2003:31) asserts that nasals become syllabic (they function as centres of syllable) when they occur in word-final positions.

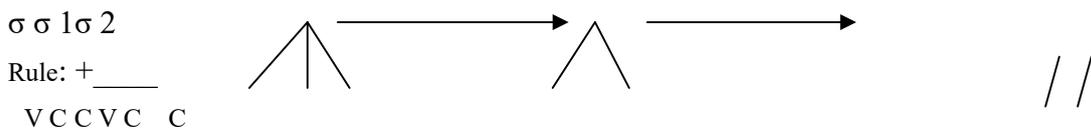


Figure 3. Syllabification of the Final Nasals

The rule in Figure 3 can be effective in some Tiv words. Words such as *iveren*, *mkurem*, *Nguveren*, *msen* and *mngerem* may be good examples of syllabic [m] and [n] in the phonology of Tiv. It is unarguably clear that the penultimate *e* in table 10 is susceptible to be elided. The elision of an *e* in *iveren*, *mkurem*, *Nguveren*, *msen*, and *mngerem* results in the cluster of *rn*, *rm*, *gn* and *sn*. Other vowels that are susceptible to such a phenomenon are *i*, *o* and *ó*.

4.3 Nasalised Vowels in the Tiv Phonology

Table 11 shows the distribution of nasalised vowels in the Tiv phonology. A nasal vowel is a vowel that is produced with a lowering of the soft palate so that air manages to escape through the nose. Conversely, oral vowels are articulated with lowering of the velum and air through the mouth. Lyle (1998, p. 41) maintains that “in nasalisation, vowels often become nasalised in the environment of nasal consonants.” Trask (1996) defines a nasalised vowel as a vowel that is pronounced with the lowering of the velum and it is being followed by nasal resonance. Those vowels that come before nasal consonants are said to be nasalised. In nasal (or nasalised) vowels, air escapes through the nose and mouth simultaneously; the vowels are transcribed with a tilde [~] above the vowel as in [ã], [õ], [ĩ], [ũ], [ã:], [ũ:], [ĩ:], [õ:], [ẽ], [ẽ:]. Nasal vowels are opposed to oral vowels in a language, as in French and Portuguese.

Tiv language has no distinct nasal vowels, but nasalisation is often heard on Tiv vowels, when they display the articulatory influence of an adjacent nasal consonant, as in *mar* “delivered of” or *man* “and.” Clark, Yallop and Fletcher (2007, p. 133) state “a vowel is nasalised before a word-final nasal segment.” This has been schematized below:

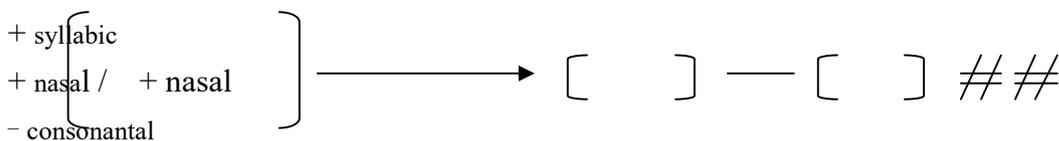


Figure 4. Nasalisation of vowel before Word-Final Nasal

Similarly, McMahon (2002, p. 86) also states that that “vowels become nasalised immediately before consonants; the velum lowers in anticipation of the forthcoming nasal as well as the oral cavity during the production of the vowel”. McMahon states this rule the Figure 5 below:



Figure 5. Nasalisation of Vowel Immediately before Consonants

There is no doubt that Tiv phonology is laced with multitudinous instances of nasalised vowels. Any vowel that comes before a nasal consonant is susceptible to nasalisation. For instance, the *o* in *kon* and *tom* can be nasalised before *n* and *m* as [kõn] and [tõm], respectively.

#### 4.4 Comparison between Nasalised Vowels and Oral Vowels

A vowel that is pronounced without nasalisation is said to be oral vowels. Oral vowels are written without a tilde [˜], a diacritic mark placed on vowels to show nasalisation. Thus, the following Tiv vowels are oral vowels: /i:/, /ɪ/, /e/, /æ/, /a:/, /ɒ/, /o:/, /ɔ/, /ɔ:/, /ʊ/, /u:/, /e:/, /eɪ/, /aɪ/, /ɔɪ/, /oʊ/, /oʊ/, /eʊ/, /œ/. Contrastively, a vowel that is written with a diacritic mark called *tilde* is said to be a nasalised vowel. Nasalised vowels are [ĩ], [iː], [ẽ], [ẽː], [ã], [ãː], [õ], [õː], [õ], [õː], [õ], [ü:], [ẽĩ], [ãĩ], [õĩ], [ĩã], [ẽõ], [õõ], [õã], [õẽ]. Tiv language does not differentiate oral and nasal vowels orthographically like French. For instance, these two Tiv words *nam* (give me) and *naagh* (sacrifice) contain same vowel: one is nasalised and the other not. The nasalisation of *nam* [nãɪŋ] is because *a* comes before a labio-dental nasal /ŋ/ and there is a non-nasalisation of *a* in *naagh* /na:ɣ/ because of a lack of a nasal coda (final nasal consonant – /m, n, ŋ, ŋ/). Table 12 contrasts nasalized vowels from the oral ones. This distinction is based on their mode of production, position of the vowel, use of diacritic and binarity. Table 13 shows that oral vowels do not have codas therefore they have open syllables but nasal vowel have codas and they are said to have closed syllables.

The studies on nasals, nasalised vowels, syllabic consonants and nasalisation in Tiv are still in their embryonic stage. Tiv language has both oral and nasal sounds like other languages. However, oral sounds have received much scholarly attention at the expense of their nasal counterpart. The foregoing discourse looked at the nature of nasalisation by describing nasals, discussing syllabic nasals, nasalised vowels and distinguishing between oral and nasal sounds. Nasalisation takes place when in the course of speaking, the velum is lowered and the vocal cavity blocked then the air passes through the nasal cavity. This study has clearly stated that Tiv language has five nasal consonants: /m/, /n/, /ŋ/, /p/ and /ɲ/. Apart from /p/, other nasal – /m/, /n/, /ŋ/ and /ɲ/ – may appear at the word-initial, medial and final positions of Tiv words. It can thus be concluded that nasals can act as syllables, words, form plurals, form clitics, form allophone and are sonorous in the Tiv phonology.

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