DECLARATION

I, Nzanmongi Z Ezung, hereby declare that the subject matter of my dissertation entitled A Phonology of Lotha is the bonafide recorded work done by me under the supervision of Dr. Imlienla Imchen and that the content of the dissertation did not form the basis of the award of any previous degree to me or to the best of my knowledge to anybody else, and that the dissertation or any part of it, has not been submitted by me for other research degree, fellowship, associateship, etc., in any other University or Institute. This is being submitted to the Nagaland University for the degree of Master of Philosophy in Linguistics.

13th August 2021 **Nzanmongi Z Ezung**

Registration No. 84/2019

Countersigned by:

Supervisor **Head**

NAGALAND UNIVERSITY
(A Central University Established by the Act of Parliament No.35 of 1989)
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Centre for Naga Tribal Language Studies (CNTLS)

CERTIFICATE

This is to certify that the dissertation entitled A *Phonology of Lotha* is a bonafide record of research work done by Miss. Nzanmongi Z Ezung, Registration No. 84/2019, of Centre for Naga Tribal Studies, Nagaland University, Kohima Campus, Meriema during 2019-21. Submitted to the Nagaland University in partial fulfilment of the requirements for award of the degree of Master of Philosophy in Linguistics, this dissertation has not been previously formed the basis for the award of any degree, diploma, associateship, fellowship or other title and that the dissertation represents independent and original work on the part of the scholar under my supervision. This is again certified that the research has been under taken as per UGC Regulations May 2016 (amended) and the scholar has fulfilled the criteria mentioned in the University Ordinance for submission of the dissertation. Plagiarism test of the dissertation has been conducted and 0% of similarity has been detected (ID D111539539) which is permissible under the UGC regulations 2018.

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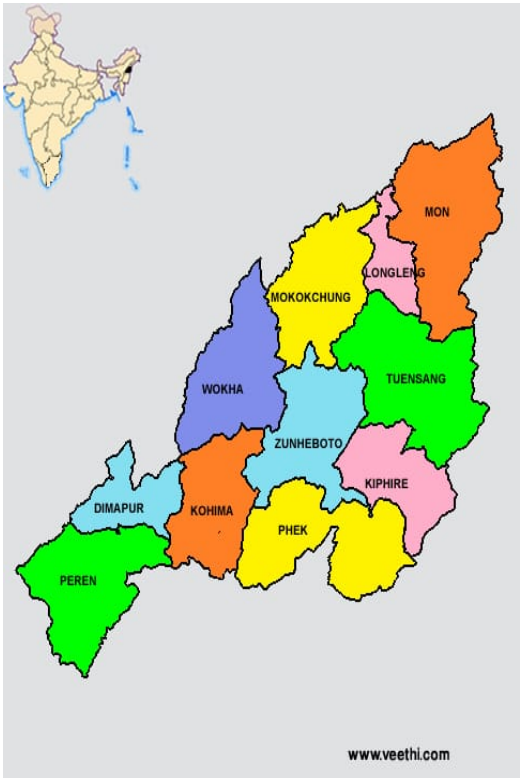
Dated: (Nzanmongi Z Ezung)

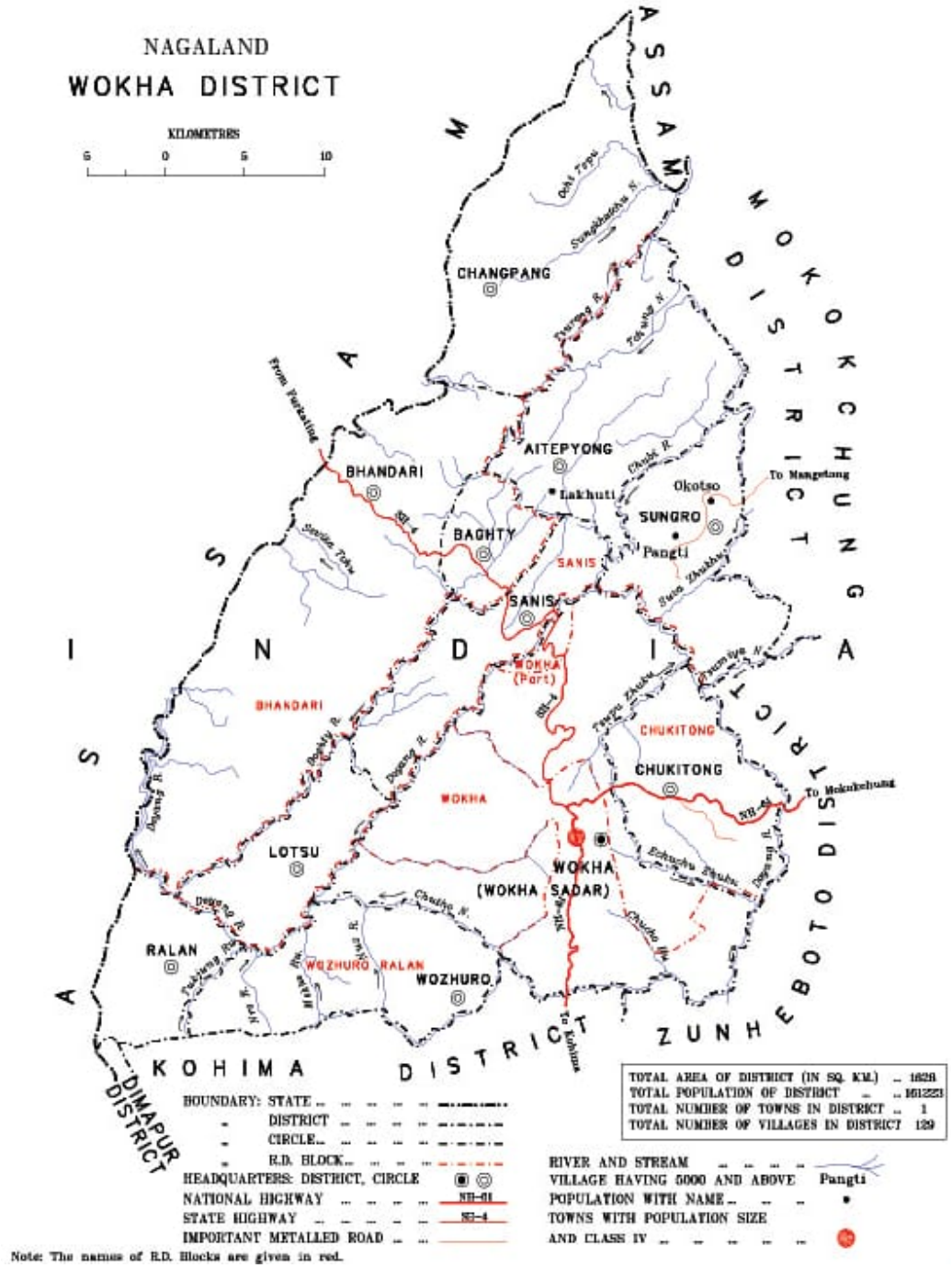
Place: Kohima, Nagaland

v

Map of India



Map of Nagaland


NAGALAND
WOKHA DISTRICT
KILOMETRES
5 0 5 10
ASSAM
MOKOKCHUNG DISTRICT
CHANGPANG
AITEPYONG
BHANDARI
Takhuti
Okotso
To Mangetong
SUNGRO
Pangti
BAGHTY
SANIS
WOKHA (Part)
INDIA
BHANDARI
CHUKITONG
To Mokokchung
WOKHA
LOTSU
WOKHA (WOKHA SADAR)
RALAN
WOZHURO
To Kohima
ZUNHEBOTO DISTRICT
KOHIMA DISTRICT
DIMAPUR DISTRICT
TOTAL AREA OF DISTRICT (IN SQ. KM.) .. 1628
TOTAL POPULATION OF DISTRICT .. 161223
TOTAL NUMBER OF TOWNS IN DISTRICT .. 1
TOTAL NUMBER OF VILLAGES IN DISTRICT 129
BOUNDARY: STATE
DISTRICT
CIRCLE
R.D. BLOCK
HEADQUARTERS: DISTRICT, CIRCLE
NATIONAL HIGHWAY NH-61
STATE HIGHWAY SH-4
IMPORTANT METALLED ROAD
RIVER AND STREAM
VILLAGE HAVING 5000 AND ABOVE POPULATION WITH NAME Pangti
TOWNS WITH POPULATION SIZE AND CLASS IV
Note: The names of R.D. Blocks are given in red.

Map of Wokha

CONTENTS

Declaration	i
Certificate	ii
Acknowledgment	iii
Map of India	v
Map of Nagaland	v
Map of Wokha	vi
Contents	vii
List of the tables and Figure	x
CHAPTER 1: SOCIOLINGUISTICS PROFILE OF THE LOTHA	**1-20**
1.1. Introduction:	1
1.2. A brief history of the Lotha Naga:	1
1.3. Population of the Lothas:	3
1.4. Social practices and customs:	4
1.4.1. Marriage practices:	4
1.4.2. Dress and ornaments:	4
1.4.3. Festival:	8
1.4.4. Economy:	8
1.4.5. Patriarchal society:	8
1.5. Genetic Classification:	9
1.5.1. The Sino-Tibetan language family:	9
1.5.2. Grieson's classification (1901) :	11
1.5.3. Marrison's Classification (1967):	15
1.6. Typological Characteristics of Lotha:	15
a. Word Order.	15
b. Subject precedes the object.	16
c. Genitive marker.	16
d. Numeral marker.	16
e. Postposition.	17

1.7. Domains of language use: 17
1.8. Aims and Objectives: 18
1.9. Delimitation of the study: 18
1.10. Research Methodology: 19
1.11. Methodology: 19
1.12. Organisation of the Dissertation: 20

CHAPTER 2: LITERATURE REVIEW 21-31
2.1. Overview of the Literature: 21
2.2. Phonetics and Phonology: 21
2.3. Voiceless nasal: 23
2.4. Tone: 24
2.4.1. Types of tone: 25
2.5. Phonological processes: 26
2.5.1. Types of Phonology Processes: 26
2.6. Previous Works Lotha: 28

CHAPTER 3: SEGMENTAL PHONOLOGY 31-61
3.1. Consonant in Lotha: 31
3.1.1 Description, Classification and Distribution of Consonants in Lotha: 33
3.1.2. Phonemic Distribution of Consonants: 46
3.1.3. Minimal pairs in consonant: 47
3.1.4. Consonant Cluster in Lotha: 50
3.1.5. Consonant Sequence: 51
3.1.6. Geminate Consonant: 53
3.2. Vowels: 53
3.2.1. Monopthongs: 53
3.2.2. Articulatory Description of the six Monopthongs Vowel sounds: 54
3.2.3. Description, Classification and distribution of monopthongs

in Lotha Language: 54
3.2.4. Minimal pairs of monopthongs: 57
3.2.5. Diphthongs: 58
3.2.6. Minimal sets: 61

CHAPTER 4: SUPRASEGMENTAL 62-84
4.1 Introduction: 62
4.2. Syllable and Syllable Structure: 62
4.2.1 Types of Syllable: 67
4.3 Tone: 74
4.3.1 Types of tone in Lotha: 74
4.3.2. Tone Bearing Unit (TBU): 76
4.3.3. Distribution of tones in segments: 77
4.3.4. Tone Sandhi: 81
4.3.5. Tone Sandhi in Nominal Compounds: 82
4.3.6. Tonemes: 84
4.3.7. Tonally unspecified prefixes: 84
4.3.8. Nominal Prefixes in Lotha: 85

CHAPTER 5: PHONOLOGICAL PROCESS OF LOTHA 87-105
5.1. Introduction: 87
5.2. Meaning of phonological process: 87
5.2.1 Types of Phonology Processes: 89
1. Assimilation: 89
2. Insertion: 97
3. Deletion: 98
4. Epenthesis: 102
5. Elision: 103

CHAPTER 6: FINDINGS AND CONCLUSION 106-112
REFERENCES 113-120

LIST OF THE TABLES

Table no. 1.1 Populations 3
Table no. 3.1 Consonant of Lotha Language 32
Table no. 3.2 Distribution of Consonants at the syllable level 47
Table no. 3.3 Distribution of Vowels 57
Table no. 4.1 Phonotactic distribution of syllable constituents in Lotha 63
Table no. 4.2 Open Syllable Monosyllabic words 68
Table no. 4.3 Closed Syllable Monosyllabic words 68
Table no. 4.4 Open Syllable Disyllabic words 68
Table no. 4.5 Closed Syllable Disyllabic words 69
Table no. 4.6 Open Syllable Trisyllabic words 70
Table no. 4.7 Closed Syllable Trisyllabic words 70
Table no. 4.8 Open Syllable Tetra Syllable words 71
Table no. 4.9 Closed Syllable Tetra Syllable words 71
Table no. 4.10 Distribution of tone in Stops 78
Table no. 4.11 Distribution of tone in fricatives and affricatives 79
Table no. 4.12 Distribution of tone in nasal, literal and trill 80
Table no. 4.13 Distribution of Vowels 81
Table no. 4.14 Possessive prefix paradigm for monosyllablic and Sesquisyllabic noun root. 86
Table no. 6.1 Open Syllable 109
Table no. 6.2 Closed Syllable 109

LIST OF THE FIGURES

Figure no. 1.1 Lotha man with full traditional attire 5
Figure no. 1.2 Shawl Nungpensü 5
Figure no. 1.3 Shawl Panrüp 6
Figure no. 1.4 Shawl Süse 6
Figure no. 1.5 Lotha women with full traditional attire 7
Figure no. 1.6 Opvüramsü mpemo 7
Figure no. 1.7 Etsoksü mpemo 7
Figure no.1.8 Based on Benedict's Classification on Sino-Tibetan (1972) 10
Figure no. 1.9 Based on Shaffer Sino-Tibeto Classification (1955) 11
Figure no. 1.10 Grieson's Classification of Naga Language (1901) 12
Figure no. 1.11 Based on Burling's Genetic Classification (2003) 13
Figure no. 1.12 Based on the classification of Robbins Burling (1998) 15
Figure no. 1.13 Language Use in Urban 17
Figure no. 1.14 Language Use in Rural 18
Figure no. 3.1 Vowel Chart of Lotha 54
Figure no. 4.1 Structure of Syllable 64
Figure no. 4.2 Open syllable in English 65
Figure no. 4.3 Closed Syllable in English 66
Figure no. 4.4 Open Syllable in Lotha 66
Figure no. 4.5 Closed Syllable in Lotha 67
Figure no. 4.6 Light syllable 72
Figure no. 4.7 Light syllable 72
Figure no. 4.8 Heavy syllable 73
Figure no. 4.9 Heavy syllable 74
Figure no. 5.1 Phonological process 89

CHAPTER 1
SOCIOLINGUISTICS PROFILE OF THE LOTHA

1.1. Introduction:

Nagaland is located in the far North-Eastern part of India, surrounded by lush valleys, mountains, forest and rivers covering an approximate area of 16,579 sq km with a population of 19,78502 as per the Census of India 2011[1]. The state borders Arunachal Pradesh and part of Assam in the North, Burma in the East, Assam in the West and Manipur in the South.

Nagas belong to the **Indo-mongoloid** group of tribal people who are distinctive with rich tradition and culture. The state has 14 major tribes and numerous other sub-tribes spread across 12 districts viz. Angami, Ao, Chakhesang, Chang, Khiamniungan, Konyak, Lotha, Phom, Pochury, Rengma, Sangtam, Sumi, Yimchunger and Zeliang. Each tribe holds uniqueness in their character, tradition, culture, attire, language and oral tradition which have been practiced and passed down for generations.

Nagaland is also known as a 'Land of Festivals'. The festivals of the Nagas are rich and unique are celebrated all throughout the year. These festivals reflect and explore the beauty of one's culture and tradition. Aptly called and known as the 'Land of Festivals' in modern times, the people of Nagaland colorfully celebrates a variety of festivals throughout the year. Kick starting with *suhkruhnye* festival of the Chakhesang tribe in January to the popular Hornbill Festival in December. Initiated by the state government since the year 2000, the Hornbill festival is normally celebrated in the state capital Kohima for ten days, where all Naga tribes come together and showcase their rich culture and traditions. The state is throng with both local and foreign tourists during this celebration.

1.2. A brief history of the Lotha Naga:

The Lotha Nagas also known as the *Kyong* are one among the major tribes inhibiting Wokha district of Nagaland. The district was officially recognized by

[1] Census of India 2011 Nagaland Series- 14 PART xii-B District Census Handbook Wokha

the state government in 19th December 1973. Popularly referred as the *'Land of Plenty'* or *'Census'*, the district shares borders with Mokokchung district in the North, Zunheboto district in the East, Assam state in the West and Kohima district in the South; occupying an approximate area of 1628 sq km. Wokha district is broadly divided into three ranges - upper, middle and lower with 153 villages out of which 151 is inhabited and 2 is uninhabited, according to Census of India 2011[2].

The genesis of Lotha Naga is based on oral transmission by the elders to the younger generation. The technique of oral transmission has been used by the tribe to record and pass down its history from generation to generation. According to its oral history like other Nagas, the Lothas belong to the Mongolian race from China, who believed to have migrated towards South Burma, present day Myanmar and from there they reached *Khezhakenoma* currently under Phek District. They reached a placed called *'phitssonlong',* a stone believed to have some magical power as the quantity of the paddy doubles when it is dried on it.

From *'phitssonlong'* the Lotha marched towards *Khayima (Kohima)* which in Lotha language literary mean '*unable to count or countless'* as the leaders of the Lotha could not count the head of his people due to the increase in its population. In the course of migration, the Lotha travelled towards *'Honohoyuton'* Mountain in Rengma area under Tseminyu sub-division, which can still be seen from Longsa village under Wokha district. It is believed that some people settled somewhere nearby, some moved towards South and while others marched towards '*Mount Tiyi'* and settled town in '*Tiyilongchum'* for many years. And from this place the Lotha assembled in a place and counted the total population and hence named that area as '*Wokha'* - *'Wo'* means 'number of people' and *'kha'* means 'counting the numbers'. So the Lotha ancestors considered and believed that some people settled down in Wokha, while others spread in different directions to build their own villages; some of these villages are Longsa, Longsachung, Longidang, etc.

Another oral transmission on the origin of Lotha believe that there are history of Lotha sojourners from *Kezakenoma (Keshur)*, and also the immigration from the

[2] Census of India 2011 Nagaland Series- 14 PART xii-B District Census Handbook Wokha (Pg- 11)

South among the Lothas of an origin from the *Himalayas* and the plains of *Assam* as connected with north bank of the *Brahmaputra,* or with the *Singphos* noted by J.P Mill (1922). The legend of the Lothas says that their ancestors emerged through a hole which reaches Mount Tyi and from there they tried to settle down to different parts of the areas in Wokha. This narration is in a nutshell, the migratory route of the Lotha tribe in Nagaland.

1.3. Population of the Lothas:

Wokha town is the headquarters of the tribe, which is situated 80 km away from the state capital. According to population Census of India 2011, the district is recorded to have a total population of 166,343[3].

Sl.	Details for Wokha Dist	Total	Rural	Urban	Percentage
1	Population and Decadal Change (2011)	166,343	131,339	35,004	3.2
2	Density of Population per sq. kms (2011)	102 per sq. kms	-	-	-
3	Proportion of Rural and Urban population 2011 (in %)	-	79.0 %	21.0%	-
4	Scheduled tribe population by Residence: 2011 (person)	156,621	125,051	31,570	-

Table no. 1.1 Populations

[3] Census of India 2011 Nagaland Series- 14 PART xii-B District Census Handbook Wokha (Pg- 13)

1.4. Social practices and customs

1.4.1. Marriage practices:

Marriage is a needful institution and is considered as one of the most important events of the Lotha tradition. In olden days, marriage was initiated when a boy had acquired maturity to set up or prepared to raise a family; he was permitted/ was eligible to marry a girl of his choice or the choice of his family. On the other hand, it is also a duty of the parents and the elders of the family to choose a partner for the boy. With the help of a matchmaker, a man was to choose his bride at his prime age and the girl will be chosen with the knowledge and consent of the boy.

In the olden days, most of the marriage had been done in the evening with lots of merry making and songs. With the help of the family and friends, the groom's family with some youth carried a traditional torch lid up with bamboo or wood, with the young boys and girls of the village following the bride and groom. While following the bride and the groom, they sang the song called 'Lori soa kalo' which means 'carrying a girl'; this practice was followed by the Longsa village during early times.

During the marriage event the groom's family gives meat and rice to the bride's family as a kind of respect and compensation. The money which is paid by the husband for his wife is collectively known as '*oman'* which implies for *Marriage-price*, but is divided into a number of items as noted by J.P Mills (1921; 155). This practice varies from village to village depending on their customs and traditions.

In the present time with the coming of Christianity and advancement in the community, the Lothas have abandoned most of their old traditions and practices; people have become more flexible in their traditional practices and in all walks of life. Some of the traditions and customs are no longer practiced while some still continue to co-exist along side with modern culture.

1.4.2. Dress and ornaments:

The dress code has been passed down by the great grandparent '*kyimtsümotsüi' or 'pyimtsümotsüi'* from generation to generation. In Olden days the Lotha men wore a small woven piece of cloth that covers their private parts called '*rüve'* (a piece of

cloth to cover the private part), '*dongkho'* (headgear) with '*rhüjüng voro emhi'* (hornbill feathers) attached on the headgear. Men also wore '*khoro'*(armlet) made of elephant trunk, '*otsso'*(spear) on their hand, '*lejup'* along with '*lipok'* (machete) on their back of the body. There is also a woven cloth with yellow, red, white and blue color hung down from shoulder to the body with cross style known as '*rütssen'*. They also wore '*jorüm'* (leg guard) on both legs (**see figure no. 1.1**). These dresses and ornaments are not a common wear in present time. It is used only during festivals and on important occasions or events by selected group of men. The men wore three types of shawls i.e., *nungpensü, panrüp and süse.* The shawls '*nungpensü'* (blue shawl) made with a combination of blue, black, red and yellow trade (**see figure no.2**). A woven '*panrüp'* (red shawl) is also worn by men's which is beautifully woven mostly with red, black and white color trade with the design of a cross spear (**see figure no.1.3**). There is also another shawl called '*süse'* (white shawl) which is woven with black and white color (**see figure no.1.4**).

Figure no. 1.1 Lotha man with full Traditional attire

Figure no. 1.2 Shawl Nungpensü

Figure no. 1.3 Shawl Panrüp

Figure no. 1.4 Shawl Süse

The Lotha women wore '*sürüm'* (mekhala) covering the lower part of the body like the other Naga tribes. This sürüm is of varied designs. The common sürüm is '*opvüram sürüm'* (**see figure no. 1.6**) which is woven with black, blue in the middle, red and yellow color are visible which is worn along with shawls *'opvüramsü'* or '*etsoksü'*. This design is popular among the modern generation. In olden day, Women from affluent family wore '*tsürolakup'* (necklace) against the chest, covering the upper part of the body, earring on the earlobe made by a special *'voro emhi or kenshung'* (bird feathers). Women also wore '*senthan yoko'* (important traditional necklace), '*thevü'* (armlet) on the hand with six silver color bangles called '*rümbüm'* on each hand. However in the present time all the traditions attire is used only by the selected women folk on festivals, jubilee or specific occasions (**see figure no. 1.5**). While *'opvüram sürüm'* (mekhala), *'opvüramsü'* (**see figure no 1.6**) and *'etsoksü'* (**see figure no.7**) shawls are used as a formal wear in all events especially in the rural areas.

Figure no 1.5 Lotha women with full traditional attire

Figure no. 1.6 Opvüramsü mpemo

Figure no. 1.7 Etsoksü mpemo

1.4.3. Festival:

Like the rest of the Nagas, the Lotha Naga also celebrates *'Tokhvü Emong'* as one of the main festival. The festival is celebrated from 1st – 7th November every year, where 1st – 6th November is considered as preparation of the upcoming festival and the main celebration is held on 7th of November. '*Tokhvü Emong*' is a post-harvest festival, where the Lothas come together and give thanks to their Creator, the Almighty God for the abundant Blessing throughout the year. It also marked as a time of forgiveness and a celebration of unity and peace amongst the Lothas and beyond. During this festive season, people exchange their food, drinks, etc. with their neighbors to enjoy each other's style of richness and also accepting happiness and feeling of oneness and togetherness.

At the present time, the traditional celebration of this festival incorporates entertaining features such as music, dance, fashion etc, bringing the young mind to preserve and admire the culture and traditions of the past.

1.4.4. Economy:

Nagaland belongs to agricultural sector. Agriculture is considered as the chief occupation for the Lothas as well the rest of the Nagas. People have been practicing agriculture from generation to generations and have become more independent, hardworking, creative and adaptive in nature. They practice both terrace and jhum cultivation which is the main source of their livelihood. Apart from cultivation people are also engaged in other source of livelihood such as carpentry, weaving and quarrying.

1.4.5. Patriarchal society:

Patriarchal is a very common practice followed by every Naga tribes living in Nagaland. It is a socially accepted norm where, men are considered as the head of the family. The Lothas also follow the patriarchal social system. In this system, man holds all the possible position or power of the family. The inheritance of property and title is owned by the father and it is passed down to the male lineage.

It is a practice passed down from history that the assets of the parents will be distributed among the brothers through mutual understanding.

In the absence of the father, the eldest son has to bear all the responsibilities of the family more or less like a duty. It is a practice that the youngest son inherits the family or parents' house, where he and his family will look after the parents until their death.

As a patriarchal system the men folk owed their clans name called *'chipvü'*. The Lotha tribes consist of 21 important *'chipvü'* (clans). They are: Enni, Erui, Ezung, Humtsoe, Jami, Khuvung, Kikon, Kithan, Kinghen, Lapon, Merry, Mozhü, Murry, Ngullie, Odyuo, Ovung, Patton, Ranthang, Shitiri, Tsopoe, and Yanthan. These clans have been a part of the Lotha community since time immemorial, which spreads all throughout Lotha inhabited areas.

1.5. Genetic Classification:

A language family is a group of languages related through descent from a common ancestor, called the proto-language of the family. The term 'family' reflects the tree model of languages to people in a biological family tree, or in a subsequent modification, to species in a polygenetic tree of evolutionary taxonomy. The language of the Lotha is called *Lotha Yi/ Kyong Yi* where *'kyong'* refers to 'Lotha people' and '*Yi'* refers to language.

The history of language classification is to trace back the early languages assuming that the languages share a common ancestor. However, it is also assumed that all natural languages of the world have history which is related to one another. The relationship of the language families is observed by those observable common features and characteristics, similarities and differences in the biological representation.

1.5.1. The Sino-Tibetan language family:

Sino-Tibetan (ST) is one of the largest language families in the world. The term Sino-Tibetan seems to have been first used by R. Shaffer (1939, 1966), who conceived of it as a tripartite linguistic stock comprising Chinese, Tibeto-Burman

(TB) and Tai (= “Daic”). Where Tibeto-Burman Languages is the regarded as the much of the area in which TB languages are spoken is still virtually inaccessible (NE India, Burma, Yunnan, Sichuan, Tibet, and Loas, Vietnam).

Robert Shaffer (1995) and Benedict (1972) made the classification of Sino-Tibetan languages into two branches, i.e. Sinitic and Tibeto-Karen. Where further Tibeto-Karen is further divided into Karen and Tibeto-Burman as shown in the figure below;

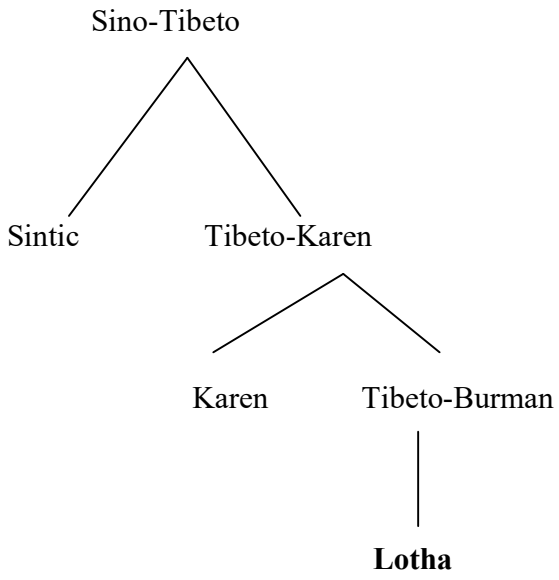


Figure no.1.8. Based on Benedict’s Classification on Sino-Tibetan (1972)

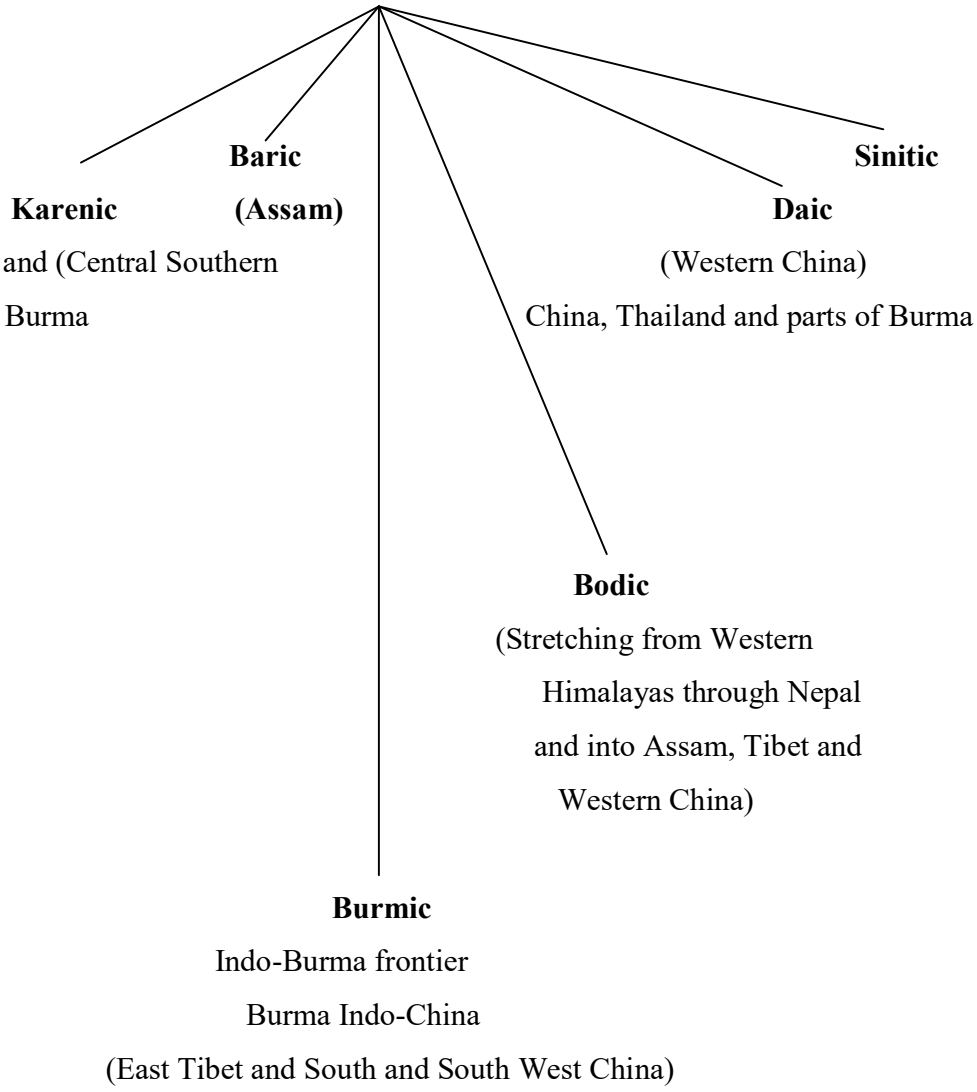


Figure no. 1.9. Based on Shaffer Sino-Tibeto Classification (1955)

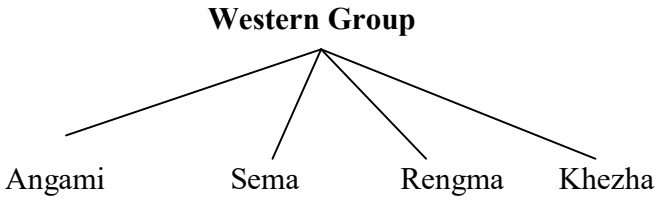
1.5.2. Grierson in 1901 classified the Naga group of languages into divided into three groups, He placed Lotha with the central group but this was more of a geographical grouping:

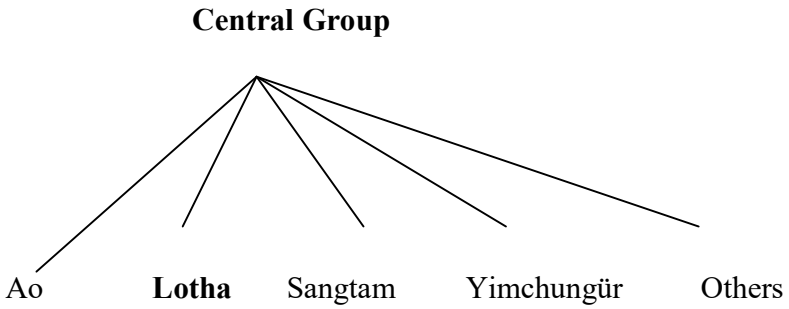
a) Western Group

b) Central Group

c) Eastern Group

The figure given below indicates that the Lotha language belong to Central Group of Naga Language.





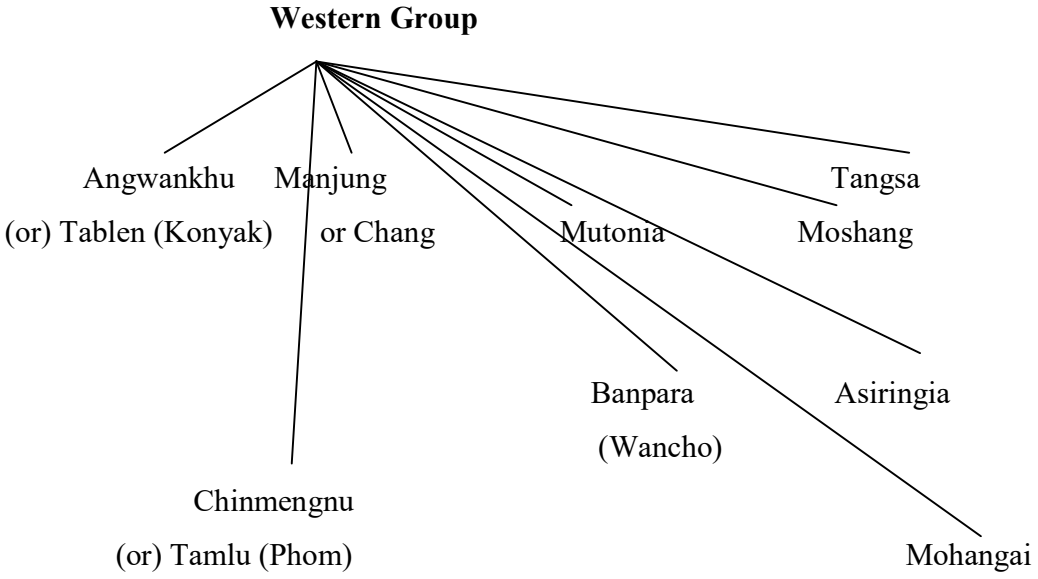


Figure no.1.10. Grieson's Classification of Naga Language (1901)

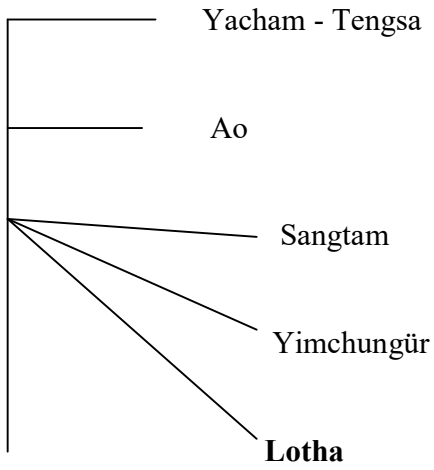


Figure no. 1.11. Based on Burling's Genetic Classification (2003)

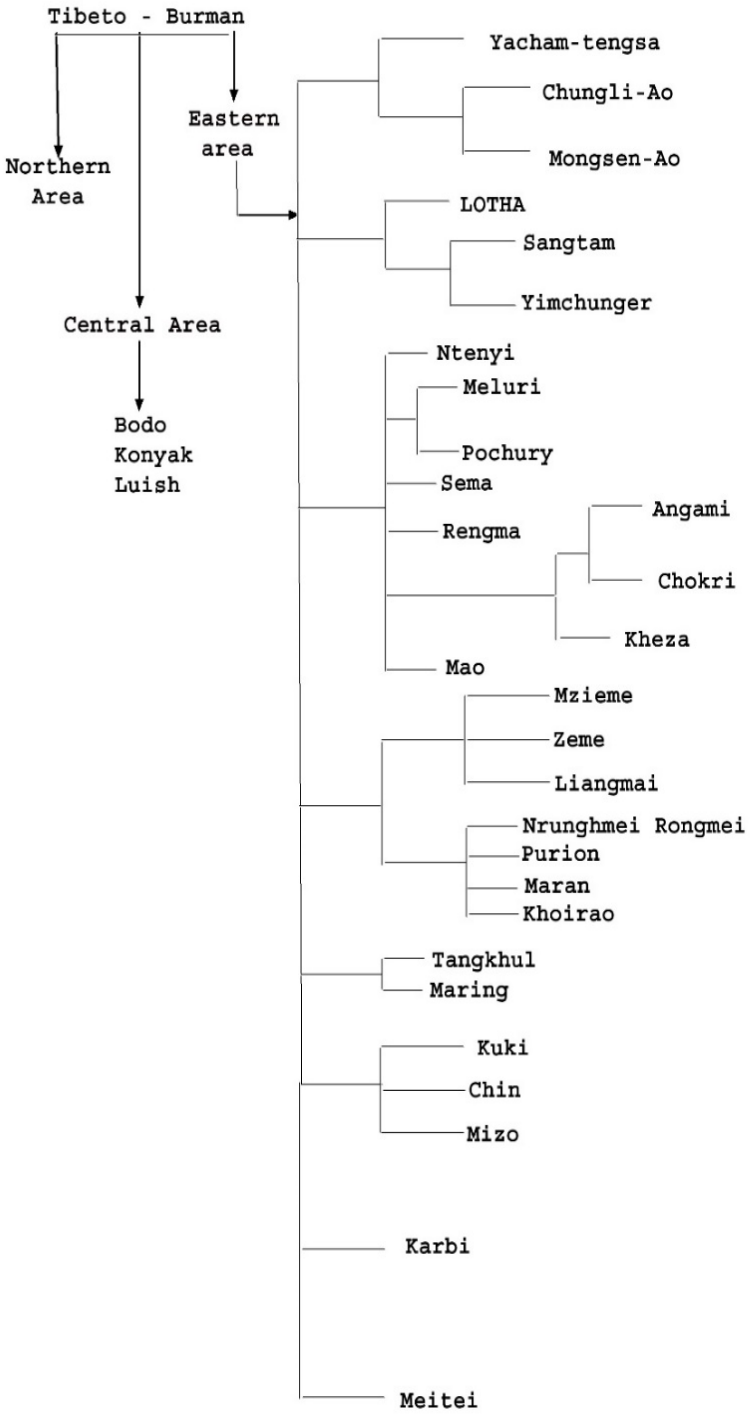

Tibeto - Burman
Northern Area
Eastern area
Central Area
Bodo
Konyak
Luish
Yacham-tengsa
Chungli-Ao
Mongsen-Ao
LOTHA
Sangtam
Yimchunger
Ntenyi
Meluri
Pochury
Sema
Rengma
Angami
Chokri
Kheza
Mao
Mzieme
Zeme
Liangmai
Nrunghmei Rongmei
Purion
Maran
Khoirao
Tangkhul
Maring
Kuki
Chin
Mizo
Karbi
Meitei

Figure no.1.12. Based on the classification of Robbins Burling (1998)

1.5.3. Marrison's Classification (1967):

According to **Marrison (1967**), the Naga language classification can be illustrated on basis of types that are the typological comparisons at the level of phonology, morphology and syntax. In Marrison's classification, Lotha language is placed in **TYPE B 2**. The following are the divisions of Naga language:

TYPE A 1: It consists of Tangsen (yogli), Tangsa (Moshang) Nocte and Wancho. The language is spoken in the part of Arunachal Pradesh, Nagaland in Tuensang and in Lakhimpur of Assam in India.

TYPE A 2: It consists of Konyak, Phom and Chang Speaker in the northern part of Tuensang.

TYPE B 1: It consists of Yacham-Tangsa, Ao (Chungli), Ao (Mongsen) and Sangtam Spoken in Mokokchung and parts of Tuensang.

TYPE B 2: It consists of **Lotha**, Yimchunger, Ntenyi and Meluri, spoken in Mokokchung and Tuensang and in the south-east part of Kohima and now is Wokha district.

TYPE B 3: It consists of Tangkhul and Marring speaker, spoken in Manipur.

TYPE C 1: It consists of Sema, Angami (Kohima), Angami (Khonoma), Chokri, Kezhama and Moa speaker, spoken in parts of Mokokchung, Kohima and Manipur.

TYPE C 2: It consists of Rengma, Maram, Khoira, Mzieme, Zeme, Liangmai, Puiron and Nruanghmei. It is spoken in parts of Kohima, Dimapur in Nagaland and in Manipur.

1.6. Typological Characteristics of Lotha: The following are some of the typological characteristics of Lotha language;

a. Word Order:

Basic word order: One of the most common ways of classifying languages is by the most typical order of the subject (s), verb (v) and object (o) in sentences such

as ‘The dog eats the bone’. Mostly Tibetan-Burman Language (TBL) has verb final language word order (SOV). Like the rest of the Naga languages, Lotha also belong to Tibetan-Burman Language (TBL) in which follows the Verb final word order. The sentence given below is an example in Lotha

à	-nà	ōtsə́	tsō	-ʧ͡õ
Sub	NOM	OBJ	V	PST

‘I ate rice’

Note:

S → Subject
O → Object
V → Verb

b. In Lotha the Subject precedes the object

Nzano jo oso tsoala.

nzano-ʧo		oso	tsoa	-la
SUB	Ind.	OBJ	V	PRES

‘Nzan eats meat’

c. Genitive marker: The genitive precedes the governing nouns

Zotoro Shijo apoechi

zotoro	ʃiʧo	a	-po	-eʧi
SUB	DET	1ST PR. SG	Father	GEN

‘This is my father’s car’

d. Numeral marker: Numeral follows the head Noun.

Oki shilo kyong motsünga vanala.

oki	ʃilo	kʲõ	motsəŋa	vana	-la
SUB	DET	OBJ	NUM	V	PRESCONT

‘One person is living in this house’

e. Postposition:

Postposition is a word that shows the relation of a noun or pronoun with the object in a sentence. Lotha like the other Tibeto-Burman languages is a postpositional language;

Nzan-na	kakojaing-ji	kakovapheni	ekhachi	vacho.
nzan -na	kako -jiang -ji	kakovapheni	ekʰaʧi	va -ʧo
N NOM	book PL Post.P OBJ		place	V PST

'Nzan left the books on the table'

1.7. Domains of language use:

Wokha district is divided into three ranges- lower, middle and upper. Within all three, the Lotha community speaks and shares one common language. However, a slight variation is in tones can be sun from village to village and from range to range. The young children are advised to acquire their mother tongue and hence intergenerational transmission of mother tongue is practiced. Apart from Lotha language the younger generations are also exposed to language like English (E) - which is the official language of Nagaland, Nagamese (N) and Hindi (H). The dominance of languages used by the Lothas is given in figure below;

Language Use in Urban

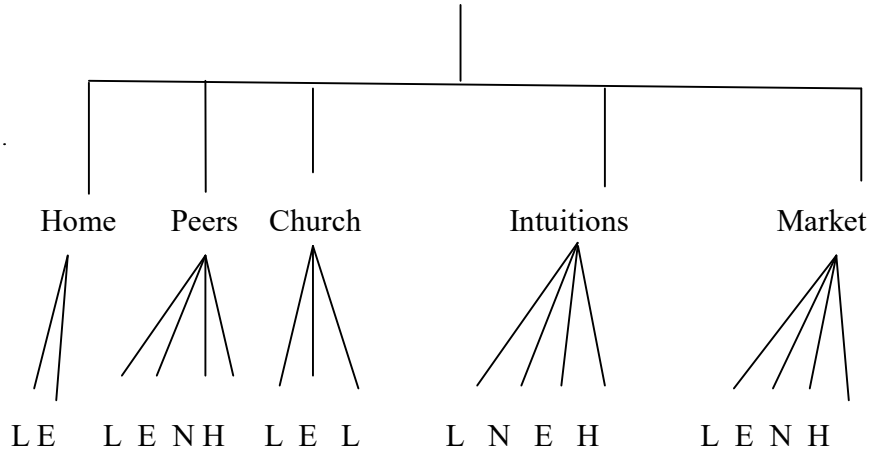


Figure no. 1.13

Language Use in Rural

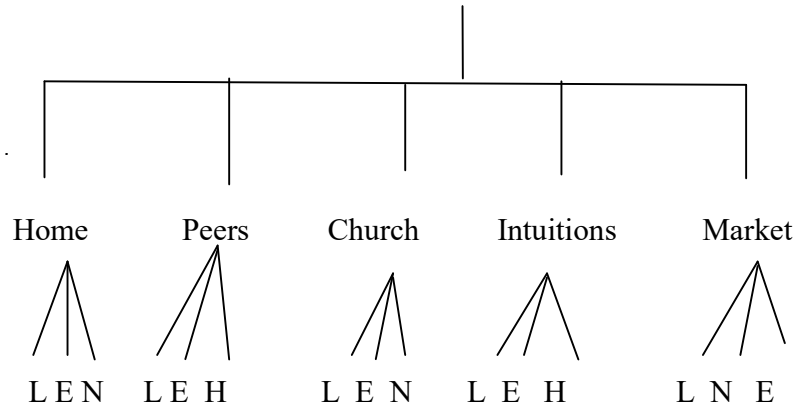


Figure no. 1.14

Lotha language follows the Roman script. The Lotha language is taught in schools in both private and government schools in Wokha, Dimapur and Kohima. At present the Lotha subject is taught till higher secondary school level in an around Nagaland. The Wokha Government higher secondary school and Dimapur Eden Higher Secondary school provides Lotha subject till classes 12.

1.8. Aims and Objectives:

The main objectives of the present Study are as follows:

1. To analyse, describe and classify the consonants of Lotha
2. To analyse, describe and classify the vowels of Lotha
3. To look into the canonical structure of syllable, tone, tonemes and tone sandhi in Lotha
4. To analyze the phonological process and study the sound change in Lotha.

1.9. Delimitation of the study:

Wokha is the home for the Lothas, which consists of more than 130 villages, with three ranges; Upper range, Middle range and Lower range. The Wokha headquarter is located in the Upper Range known as Wokha Town. The present study is limited to the Lotha speakers of Upper Range and Wokha town. The

Upper Range of Wokha district covers Longsa Village, Mungya Village, Tsungiki Village, and Pongitong Village.

1.10. Research Methodology:

Meaning:

Research Methodology is one of the core procedures or techniques used in examining and analysing a specific topic. The general phenomenon of a researcher is to study present and past so as to dig out the roots of unknown knowledge. 'Research in a common parlance refers to a search for knowledge' Kothari C.R (2004). It is a scientific and systematic search for pertinent information on a specific topic to discover the answers of the questions. In fact, it is also an art of scientific investigation or explorations.

Methodology is an important component to explore and identify the property of obtaining the unknown knowledge through systematic understanding. It is a way of discovering facts and highlighting reality to the present time. Methodology is one of the most important components of a research study.

1.11. Methodology:

The linguistic fieldwork methodology was adopted for this study. The data collected for this study were from the native speakers of Upper range and Wokha town. Informants include speakers of various age group, gender and occupation.

The Primary source includes interview and interaction with native speakers of the community varying in gender, age and occupation. The tools used for eliciting data were interview, word and sentence lists, storytelling and audio recorder.

Secondary mode of data collection were from books, journals, articles, official documents, School text books, Bible, Hymn book and other related literature written on the tribe.

1.12. Organisation of the Dissertation:

CHAPTER-I: INTRODUCTION

This chapter gives and introduction of the Lotha tribe; its origin, history, geography, flora and fauna, culture, religion and the economy. It also gives the genetic classification of the Lothas.

CHAPTER- II: LITERATURE REVIEW

This chapter provides a literature review of the earlier works done in Lotha and related literature.

CHAPTER-III: SEGMENTAL PHONOLOGY

This chapter discusses the vowel and consonant inventories, allophones, consonant clusters, consonant sequences and geminates are discussed

CHAPTER-IV: SUPRASEGMENTAL PHONOLOGY

This chapter discusses syllable and its structure, tones, tone sandhi and tonemes.

CHAPTER-V: PHONOLOGICAL PROCESSES

This unit discus the phonological processes types of the process which are found in Lotha, such as; assimilation; palatalization, labialization and nasalization, insertion, deletion; aphaeresis and syncope, epenthesis and elision.

CHAPTER-VI: FINDINGS AND CONCLUSION

The chapter gives the summary and conclusion of the study.

CHAPTER 2
LITERATURE REVIEW

2.1. Overview of the Literature:

Any investigation into the Phonetics and Phonology of a language without consideration of theoretical issues is impossible. Laver (1994:3), points out that to collect and describe data without any theoretical support is to 'misunderstand the fundamental relationship between data and theory'. Clark and Yallop (1990), states that 'In Phonetics and Phonology we analyze what goes on in everyday speaking, resolving the integrated complexity into its different aspects, breaking down the overall activity into its component details, explaining how the descriptive simplicity of the everyday is achieved. The analysis is neither better nor worse than the activity itself; it attempts to explain and explore'.

2.2. Phonetics and Phonology:

The fundamental requirement for the study of speech sound in a human language is concern by phonetics and Phonology. Phonetics deals with properties of speech or speech organs and acoustics while phonology deals with the organization of speech pattern across languages.

Phonology is the study of grouping or patterning of sound systems. It is often concerned with the functional classification of the sounds of a particular language. To understand phonology, it is needed to understand the production of speech by a human activity. 'An understanding of the speech production process helps us to see the relations between the speech sounds occurring in human languages, and enables us to categorize them on the basis of their articulation' proposed by Gussenhoven and Jacobs (1998).

Clark and Yallop (2nd edt. 1995; 1-3) on Phonetics and Phonology stated that 'Phonetics and Phonology are concerned with speech, where the ability of functioning depends on body system'. The production of speech sound involves

‘airstream mechanism; the two mechanisms (outward and inward lung air) are often referred Egressive Pulmonic and Ingressive Pulmonic Clark and Yallop (2nd edt. 1995; 16-17).’ As a result the movement of air flows generates the speech sounds in a language.

In 2013, Carr and Montreul enlighten ‘Phonology’ on the revision of phonetics, describing on consonant with three descriptive parameters: voicing state, place of articulation and manners of articulation. The parameters are very much relevant to this work, where it is use as a basic foundation of this language (**Table no.3.1).** The ability is to understand the bodily functioning of the human sounds.

‘Phonetics deals with speech sounds themselves, how they are made (articulatory phonetics) how they are perceived (auditory phonetics) and the physics involved (acoustic phonetics)’ noted by Davenport and Hannahs (2005), these are the sources to identify an individual speech sound in a language. Davenport and Hannahs (ibid) further explains that although ‘phonetics and phonology works differ in certain point on the other hand in certain respect, this two are similar since both have to do with the sounds of human language’.

‘Phonology is concerned with the linguistic patterning of sounds in human languages’ as states by Spencer (2002). He then elaborate that the phonology concerned with mental, psychological, or in contemporary terms, cognitive. The term ‘Phonology’ is often associated with the study of ‘higher level of speech organization’ and is concerned with ‘organization of speech within specific languages, or with the systems and patterns of sounds that occur in particular language’ (Clark, Yallop, Fletcher, 2007).

Phonetics is the study of speech sounds in human languages using scientific methods. It deals with physical phenomena of the smallest sounds units of human languages. Traditionally, phonetics is concerned with the characteristics of sound waves as well. Spencer (1996; 2), defines “phonetics is essentially the study of the

physical aspects of speech" he further states "phonology is concerned with the linguistic patterning of sounds in human languages". Furthermore, he defines 'phonology is concerned with the linguistic patterning of sounds in human languages'. Accordingly, phonetics is divided into three branches as follows;

a) Articulatory Phonetics: It deals with the emission of sounds in human language.

b) Acoustics Phonetics: It deals with the transmission of sounds.

c) Auditive Phonetics: It deals with perception and reception of sounds.

Gussenhoven and Jacobs (ibid) states that 'An understanding of the speech production process helps us to see the relations between the speech sounds occurring in human languages, and enables us to categorize them on the basis of their articulation'.

2.3. Voiceless Nasal:

In 1991 Bhaskararao and Ladefoged noted that 'many languages in South East Asia have voiceless nasal consonants that contrast with their counter parts'. In 'Voiceless nasal sounds in three Tibeto-Burman languages' by Katia Chirkova et al. (2019), stated that 'voiceless nasal consonants are mostly found in Tibeto-Burman language (Tibeto-Burman, Hmong-Mien, Tai-Kadai, Mon-Khmer) and they appear to be particularly widely represented in Tibeto-Burman languages". Looking into the phonetics studies on voiceless nasals in Tibeto Burman languages on Burmese by Ladefoged (1971:11; Dantsuji 1984, 1986) and on Mizo and (Khonoma) Angami (Bhaskararao and Ladefoged 1991; Blakenship et al. 1993; Blakenship 1994), Katia Chirkova et al. (ibid) suggested that voiceless nasal typically consists of two parts;

(a) a period characterized by both nasal and airflow, and

(b) a period characterized only by nasal airflow'.

The study found that Lotha language has a voiced nasal /m, n, ɲ, ŋ/ which is correspond to voiceless nasal /m̥, n̥, ɲ̥, ŋ̊/ **(see examples in 3.1.1, II)**. In analyzing the voiceless nasals of Lotha /m̥/,/n̥/, /ŋ̊/ and /ɲ̥/, in its production, the air flows seems to follow the same pattern as described by Bhaskararao and Ladefoged

(ibid) for (Khonoma) Angami, where in the production of these voiceless nasals there is continuous nasal airflow which persists into the following vowel. But this study did not use any sound tools for investigating into the sounds acoustically. More detailed acoustic studies can be taken up to investigate into these voiceless nasal sounds in Lotha language.

Coup (2007; 32) indicate voiceless nasal in Ao (Mongsen) which correspond to voiced nasal 'stops for place of articulation; bilabial, dental and alveolar'. He further mentions that voiceless nasal in Mongsen occurs 'much less frequently in the data than the voiced series'. Mongsen Ao is a Tibeto-Burman language that has many similarities with the Lotha.

2.4. Tone:

Tones are change in pitch sound of a language. It comes in higher and supra segmental level. 'The difference in pitch will make the phrase mean different thing' (Ladefoged 2001; 9). The changes of word meaning are depending on the affect of the pitch pattern of a speaker.

According to Yip (2002; 1) defines' tonal language as if the pitch of the word can change the meaning of a word'. Yip (2002; 1, 17) says that '60-70% of the world's languages are tonal and is an area feature found in most of the Southeast Asian Languages'. Lotha language is a tonal language where the effect of tones changes the meaning of the word (**see examples on 4.3.6**) or and are tonemes. The mention of register tone of the Naga Languages are found in the works of Bruhn Daniel Waye (2014, PhD dissertation), Teo (2014; 44) on Sumi, and in Coupe (2007; 57) on Ao a Central Naga group language. Witter (1888; 12) interestingly remarks that the Lotha 'sentences are sometimes spoken in waves of a sound, beautifully balanced, and not unmusical' that the Lotha is a tonal language like the other Tibeto-Burman Languages.

2.4.1. Types of tone:

Phonetically, in a tonal language there are two types of tones; register and contour tones. Tone can be in a phonetic or phonemic level, in a phonemic level the different pitch level affects the word of a meaning as change in pitch changes the meaning of the word but at the phonetic level it does not change any meaning of the word. Level/register tones which 'require the syllable to reach a certain pitch height, and those that also have counter tones, which require the syllable to be said with a pitch movement' (Gussenhoven, 2004; 26).

Register tone language use tones that are level, which they are relatively steady-state pitched, which differ with regard to being relatively higher or lower. It is commonly indicated the tone assignment of High, Mid and Low tones respectively. The symbol use for High (ˊ), Mid (¯) and Low (ˋ) .
The pitch is an auditory property and the pitch pattern in a sentence is known as intonation noted by Ladefoged and Johnson (2012).

Contour tone languages can be described as the pitch movement. The movement assign highest tone 5-point scale 1-point to the lowest, which means that the tones are assign from the lowest point =1 to the highest point =5. Typically contour tone in language are "even" (flat), "rising" or "falling". Some of the languages have a combination like "rising-falling' or 'falling-rising' and sometimes dipping. In a contour tone, the exact height of the tones is not relevant (https://www.quora.com>...). The tone can be indicated by (¯), (ˊ), (ˋ), (ˊˋ) and (ˋˊ).

Michaud and Vaissière (2015) introduced the notion of tones as 'level tone' and 'counter tone'. It also broadly stated that 'level tone' refers to a tone that is defined simply by a discrete level of relative pitch. Additionally both defined that the level-tone systems have two to five levels of relative pitch.

Gussenhoven (2004; 22) states that 'Languages use pitch variation contrastively for the expression of discourse meaning and for making phrases'. The variation in pitch ie, High, Mid and Low tone changes the meaning of a word in tone languages. It is also associated with the Tone Bearing Unit (TBU) (**see examples in 4.3.2**) where the adjacent vowels in a word changes the tone change to meaning of a word; LM, LH, etc.

2.5. Phonological processes:

Phonological processes are rules that exhibit in an individual pronunciation of a word or words in a language/ languages. It is a process in which a segment or feature of a sound changes, or a segment is modified in various phonetic environments.

Lass (1984; 169) defines "phonological process with a concept like 'velarilization', 'palatalization' etc".

2.5.1. Types of Phonology Processes: Various types of phonological processes which make a segment or feature of a sound change are seen to be present in Lotha. The different types of these phonological processes are discussed below;

1. Assimilation:

According to Lass (1984; 171) states that 'in assimilation one segment becomes more like (or identical to) another (or to become more like each other)'. It is a process where the vowel or consonant features acquires sounds from the neighboring segment, this kind of processes is found in palatalization, labialization and nasalization. In other word it is also called progressive assimilation.

The assimilating influence may work either to the right or to the left. Traditionally, progressive assimilation is an influence from left-to-right or forward segment whereas regressive assimilation determines from right-to-left or backward segment. Following are some examples of assimilation cited from Lass (1984; 171);

i) Progressive assimilation examples;

(a)	(i)	/əupən/	[əupm̥]	‘open’
(b)	(ii)	/sɛvən/	[sɛvm̥]	‘seven’

ii) Regressive assimilation examples;

(a)	(i)	/aɪm kʰʌmɪŋ/	[aɪŋ kʰʌmɪŋ]	‘I’ am coming’
(b)	(ii)	/aɪ nɒt/	[aɪn nɒt]	‘I’ am not’

a) Palatalization

It is a process where a non palatal segment changes to palatal sounds or acquire secondary articulation by triggering the neighboring palatal segment. The change in primary articulation to palatal is triggered by the phonological environment noted by Maria Willis in her dissertation (2007). Palatalization happens when the surrounding segment gets triggered to the following segment. In the works of Amos Teo (2009; 45), he states that Sumi has palatalized sounds where the /i/ and /e/ gets palatalized preceding (regressive process) labio-dental fricative or alveolar sonorant.

The study also found the presence of palatalized sounds in Lotha. It is seen that the stop consonants [p, t, k] gets palatalized when it is followed by glide/approximants /j/. The three stops sound /p/, /k/ and /t/ gets palatalized to /pʲ/, /kʲ/ and /tʲ/ (**see examples 5.2.1, (1), a**).

b) Labialization

According to Clark and Yallop (1995; 63), Labialization is the ‘rounding or protrusion is most evident at the end of the main articulation as part of the transmission the next segment’. It is a phonological process where the production of a sound is involves the lips to produce another sound.

In Lotha, Labialization is occurs in /t/ and /l/ which gets labialized /t^w / and / l^w / (**see examples in 5.2.1, (1), b**).

c) Nasalization

It is a process whereby an oral segment acquires nasality from the neighboring/following segments. A nasalized vowel is produced when the soft palate is lowered to allow the air to pass through the mouth. Nasalization is not phonemic but the occurrences of nasal /n/ sound preceding the vowel become nasalized. Sometimes it is also considered as a kind of vowels modification.

This study found that nasalization of vowel sound is a common feature (**see examples in 5.2.1, (1), c**).

2.6. Previous Works in Lotha:

Many scholars like Robert Shaffer (1995) and Benedict (1942) who made the classification of Sino-Tibetan languages, represented the Lotha language under the Tibeto Burman language group spoken in North-East India.

Grieson's classification (1901) classified the Naga group of language into three groups, but this grouping is based on geographical grouping based on shared vocabulary and syntactic feature. Lotha is placed under the central group, along with Ao, Sangtam and Yimchungrü (**see Figure no 1.10**.).

In Burling's Genetic Classification (2003), (1998) Lotha language is classified under the Tibeto Burma Language family (**Figure no.1.11 and 1.12**).

Marrison (1967) classification of the Naga language can be illustrated on basis of types that are based on typological comparisons at the level of phonology, morphology and syntax. In Marrison's classification, Lotha language is placed in TYPE B 2. The Lotha language follows verb final language (SOV) (**see example no. 1.5.3**.).

Among the earlier works done on Lotha tribe and language, Rev. W. E. Witter (1888) work on "Outline Grammar of the Lotha Naga Language; with A Vocabulary and Illustrative Sentences" is a monograph and a beginner in every aspects of Lotha works. However, this work lack detailed linguistic description and in-depth analysis in this language.

J.P Mill's 'The Lotha Nagas' (1922) also stands out as the most detailed and serious study. In his monograph, he portrays in ethnographic detail the different aspects of Lotha folk life, and towards the end of his book, provides an inch deep study of the Lotha language encapsulating phonological, morphological and syntactic structures from an anthropological point of view.

In Matisoff A. James (1996; 228-230) work on 'Phonological Inventories of Tibeto-Burman Language' with data source from Acharya's (1975) and Marrison's (1967) works, it is seen that Acharya listed 33 phoneme and 6 vowels and Marrison listed 30 consonant and 6 vowels. This study however found the presence of 37 consonants and 6 vowels as opposed to the previous works done by Acharya and Marrison. The phonemes /ɹ, ɻ̥, kv, kf/ are absent in Acharya's work and the phonemes /ɹ, ɻ̥, pv, kv, kf, ŋ/ are not mentioned in Marrison's phonemic inventory. In both the phonemic inventory of Marrison and Acharya gave aspirated nasal sound. In the phonemics inventory of Marrison, he included /mh, nh, nhy, ngy, lh, rh and hy/ and in Acharya /mʰ, nʰ, ñʰ and ŋʰ/. These sounds are also found in Ezung, Mimi's work on 'A Preliminary investigation of the speech sound of the Naga Lotha Language' (2016), she has mentioned the presence of the aspirated nasal sounds /mh, ŋh, ŋh/ in Lotha language. This study however did not find the presence of aspirated nasal sound; instead it was found that Lotha has voiceless nasals sound; /m̥, n̥, ɲ̥, ŋ̊/. Also, in Ezung's (ibid) did not find voiceless alveolar nasal /n̥/. She further included the back vowel /ɔ/ in her inventory but the study did not find the presence of the back vowel in Lotha.

Furthermore, Marrison (1967), Acharya (1975) and Ezung (2016) included voiced aspirated trill /rʰ or rh/ and voiced aspirated lateral /lʰ or lh/ in their works. This study however found that Lotha has voiceless trill /r̥/ and voiceless lateral /l̥/ and did not find the aspirated trill, aspirated lateral in the analysis of the data. Ezung (ibid) also indicated the presence of the aspirated voiced alveolar approximant /ɹh/ but the study did not find this sound instead it was found that Lotha has voiceless alveolar approximant /ɹ̥/. The phonemic inventory of Marrison (ibid) and Acharya (ibid) does not indicate the presence of voiceless alveolar approximant /ɹ̥/ in Lotha.

Marrison further indicates the presence of the aspirated approximant /hy/ but this study did not find the presence of this sound. Also, in both phonemic inventory of Marrison and Acharya approximant voiceless trill /ɹ̥/ is not included. But in the analysis of the data it is found that Lotha also has approximant voiceless trill /ɹ̥/.
With regard to the analysis of tones in the Lotha Language, it is found that it has three register tones which are also seen in the works of Acharya (1975) and Marrison (1967), Bruhn (2014) and Ezung (2016).
Ezung (ibid) listed six diphthongs; /ue, ua, ui, ia, əa, əi/ in her phonemic inventory, while this study found eight diphthongs; /ai, əi, ui, ao, oa, əa, ia, ua/. Ezung indicated /ue/ and /ua/ as separate diphthongs but the study found that /ua/ and /ue/ are allophone (**see examples 3.2.5**). Also she did not include the diphthongs /ai/ /ao/ and /oa/ in her work.

Bruhn Daniel Waye, in his PhD dissertation 'A Phonological Reconstruction of Proto-Central Naga' (2014) worked on the Centre Naga Languages; Ao, Lotha, Sangtam and Yimchungrü. He gives a preliminary sketch on the phonology of Lotha. His inventory is based on the data collected from his consultant from Tsungiki village, in Upper range under Wokha district (2014; 26). He listed 30 consonantal phonemes and 6 vowel sounds. In his work, he did not include the phonemes /n̥, ɻ̥, ɹ, pf, pv, kf, kv, w/ while; the 6 vowels are similar to this study. Additionally, he did not indicate the diphthongs. Bruhn further indicates the presence of the glottal /ʔ/ and approximant voiceless /j̊/ in Lotha language but this study did not find the presence of these sounds.
Bruhn (ibid) also discusses the presence of nasalization in Lotha. He then mentions the presence of the nasalized vowel /ẽ/ and indicated its occurrence limiting to the final position alone. However, the study found that vowel nasality is a common feature in Lotha language and its occurrence is limited not just at the final position but it can also occur in the medial position. Along with the nasalized vowel /ẽ/ identified by Bruhn, the study also found the presence of nasalized vowels / ã and õ/ (**see examples in 5.2.1, (1), c**) in Lotha.

CHAPTER 3
SEGMENTAL PHONOLOGY

3.1. Consonant in Lotha:

The study of phonological typology is based primarily on the way in which sounds are organized within languages into a phonological hierarchy and suitable structure (Robins, 1998). According to Crystal (2003) consonant can be defined in terms of both 'phonetics and phonology'. This chapter will discuss about Articulatory Phonetics which is a study on the production of speech sounds involving physical movement of a human body through voicing, place of articulation and manner of articulation.

In this dissertation, Lotha has 37 consonantal phonemes as presented in chart below. In the place of articulation there are bilabial, labiodentals, alveolar, post-alveolar, palatal, velar and glottal. On the basis of manner of articulation there are plosives, nasal, trill, fricative, affricate, lateral and approximants;

		Bilabial	Labiodental	Alveolar	Post Alveolar	Palatal	velar	Glottal
Plosive	Unaspirated	p		t			k	
	Aspirated	p^h		t^h			k^h	
Nasal		m̥ m		n̥ n		ɲ̥ ɲ	ŋ̊ ŋ	
Trill				r̥ r				
Fricative			f v	s z	ʃ ʒ			h
Affricate	Unaspirated		pf pv kf kv	ts	ʧ			
	aspirated			ts^h	$ʧ^h$			
Lateral				l̥ l				
Approximant				ɹ̥ ɹ		j	w	

Table 3.1 Consonants of Lotha Language

(IPA symbols for Pulmonic consonant based on IPA 1993, revised 2005)

3.1.1 Description, Classification and Distribution of Consonants in Lotha:

I) Stops:

In the production of stops or plosives, the articulator involved in the production of stop sounds are brought close together thereby completely blocking the flow of the air. Air pressure is build up behind the constriction and then followed by a release leading to sudden explosion of air. The following are the stops sounds in Lotha; /p, p^h, t, t^h, k, k^h/.

Lotha Language has 6 stops. There are 3 voiceless stops /p/, /t/ and /k/, three aspirated voiceless stops /p^h/, /t^h/ and /k^h/. The examples are given below respectively;

/p/ is a voiceless bilabial stop; it is always realized as [p]. /p/ in Lotha occurs in all the word positions.

Initial		**Medial**		**Final**	
/pò.nī/	'couple'	/vɜ̃.pɛ̃/	'seat'	/ō.lūp/	'grave'
/pā.nā/	'dismantle'	/ò.pə̀ŋ/	'mouth'	/mí.tə̄p/	'lung'
/pō.tsō/	'God'	/è.ʧ͡ūm.pō.rō/	'out group'	/jīŋ.kīp/	'nail'
/pī.lā.nā/	'repays'	/pī.pō/	'outfit'	/ts^{h}ák.ʃə̄p/	'hive'

/p^h/ is a voiceless aspirated stop and it is always realized [p^h]. /p^h/ occurs only in the word initial and medial positions.

Initial		**Medial**	
/p^hóŋ.lɜ́/	'mountain'	/k^hā.p^hɛ́/	'school'
/p^há.rə̄/	'garden'	/há.p^hoē/	'outdoor'
/p^hà.nā/	'fallow'	/tòŋ.p^hì/	'change'
/p^há.tā/	'to add'	/ts^{h}ó.jɜ́.p^hɛ̃́/	'kitchen'

/t/ is a voiceless alveolar stop; it is always realized as [t]. It occurs in the word initial and medial positions.

Initial		**Medial**	
/tá.rā/	‘abit’	/tòŋ.tāō/	‘switch’
/tòŋ.pī/	‘change’	/è.mà.tà.tā/	‘happy’
/tèk.kī/	‘chest’	/tā.tí/	‘original’
/té.lōk/	‘batch’	/jú.tā/	‘time’

/t^h/ is a voiceless alveolar aspirated stop and is always realized as [t^h]. It can occur in word initial and medial positions.

Initial		**Medial**	
/t^hē.tā/	‘to score’	/é.mə̀ŋ.já̋.t^hāv/	‘Marvelous’
/t^há.nā/	‘offer’	/jī.t^hē̃/	‘message’
/t^hé.rā/	‘flower’	/è.t^hə̄k/	‘breath’
/t^hé.nā/	‘sour’	/lì.ʃāk.t^hì/	‘Cucumber’

/k/ is a voiceless velar stop; it is always realized as [k]. It can occur in all the three positions.

Initial		**Medial**		**Final**	
/kónā/	‘far’	/kàtā/	‘infected’	/káŋ.kōk/	‘hip’
/ká.ná/	‘million’	/ò.kōk/	‘container’	/è.lōk/	‘cloud’
/kā.tā/	‘infected’	/zé̋.kā/	‘zeal’	/kì.ʧō̃k/	‘brain’
/kì.kūm.mō/	‘husband’	/à.ká/	‘my sister’	/n.tsā.ʧ^{h}āk/	‘promise’

/k^h/ is a voiceless aspirated velar stop and is always realized as [k^h]. It can occur only in word initial and medial positions.

Initial		Medial	
/kʰà.rā/	‘blocker’	/è.kʰō/	‘steps’
/kʰētā/	‘to sweep’	/ò.kʰō/	‘group’
/kʰì.rōk/	‘thyroid’	/hə̀̃.kʰōk/	‘capacity’
/kʰá.pʰɛ̄̃/	‘school’	/kʰə́̃.kʰə̄̃/	‘door’

II) Nasal:

In the articulation of the nasal sounds, the soft palate is lowered thereby blocking the oral passage of air, therefore the air from the lungs escapes through the nasal passage. In Lotha there are eight nasal sounds, where both voiced and voiceless nasals corresponds to the stops for the place of articulation; bilabial, alveolar, palatal and velar.

‘Many languages in South East Asia have voiceless nasal consonants that contrast with their counter parts’ Bhaskararao and Ladefoged (1991). Chirkova et al. (2019) noted that ‘voiceless nasal is very much uncommon in the world’s languages and is found in Tibeto-Burman language’. They noted that voiceless nasals have distinct voicelessness with 'two subtypes and then which is characterized by (a) a period characterized by both nasal and airflow, and (b) a period characterized only by nasal airflow’. This shows that the voiceless nasal has continues airflow after the nasal release. This subtype of voiceless nasal is present in Angami Chirkova et al. (ibid). Analyzing the voiceless nasals; in the production of /m̥/, /n̥/, /ŋ̊/ and /ɲ̥/ which has a counterpart voiced nasal /m/, /n/, /ŋ/ and ɲ/ are presence in Lotha. These sounds can be acoustically analyzed PRAAT for more detailed analysis.

The study found that there are 8 nasal sounds in Lotha; /m̥/, /m/, /n̥/, /n/, /ŋ/, /ŋ̊/, /ɲ/ and /ɲ̥/ are given below with examples;

/m̥/ is a voiceless bilabial nasal stops; it is always realized as [m̥]. It can occur in initial, medial and finial positions.

Initial		Medial		Final	
/m̥má/	‘to blow’	/ò.m̥ā/	‘face’	/ò.m̥/	‘powder’
/m̥è.tā/	‘rube’	/lí.m̥á.ʦə́/	‘nation’	/mɛ́̃.m̥/	‘beard’
/m̥é.lì.tʰī/	‘melon’	/è.m̥ī/	‘tail’	/ʧə́.m̥/	‘muddy water’
/m̥ő.kī/	‘roof’	/m.m̥ò.rə̀/	‘tiger’	/è.m̥/	‘whiteness’

/m/ is a voiced bilabial nasal stop; it is always realized as [m]. It can occur in initial, medial and final positions.

Initial		Medial		Final	
/má.ʧĩ/	‘chilly’	/è.lə̀m.tōŋ/	‘alder tree’	/ò.kə̄m/	‘season’
/mē.tā/	‘place’	/ō.mī/	‘fire’	/n.ʧū̃m/	‘pure’
/máŋsə̄/	‘cow’	/ò.mò.tsə̀/	‘grandfather’	/è.jīm/	‘numb’
/mɛ́̃.sē/	‘smile’	/hà.má/	‘confuse’	/è.lə̄m/	‘many’

/n̥/ is a voiceless alveolar nasal; it is always realized as [n̥]. /n̥/ occurs in word initial and medial positions.

Initial		Medial	
/n̥ā.kā/	‘to wait’	/è.n̥í.kā/	‘depend’
/n̥ő.tsē/	‘mixed together’	/n.n̥ā/	‘stuck’
/n̥á.kʦə̄.kā/	‘anticipate’	/è.n̥í.tōk.ʧĩā/	‘to push out’

/n/ is a voiced alveolar nasal; it is always realized as [n]. It can occur in word initial and medial position.

Initial		Medial	
/n.rə̀/	‘snake’	/è.lá.nā/	‘correct’
/ní.nī/	‘both’	/rà.nā/	‘to mature’
/nò.ʧó.nò.r̥ə̀/	‘sickness’	/vé.nā/	‘confident’

/nà.nā/	‘attach’	/bè.nō/	‘fly’

/ɲ̥/ is a voiceless palatal nasal; it is always realized as [ɲ̥]. It can occur in word initial and medial position.

Initial		**Medial**	
/ɲ̥ā/	‘dry fry’	/jǎ.ɲ̥ā/	‘include someone on search’
/ɲ̥rōā/	‘extreme heat’	/vá.ɲ̥á/	‘present of mind’
/ɲ̥è.sōā/	‘to smash with leg’	/só.ɲ̥ā/	‘to include on someone’
/ɲ̥è.nā/	‘to remove death cells in body’	/tʰé.ɲ̥à/	‘include’

/ɲ/ is a voiced palatal nasal; it is always realized as [ɲ]. It can occur in word initial and medial position.

Initial		**Medial**	
/ɲá.zɔ́.ŋì/	‘dawn’	/ɲá.ɲā/	‘goat’
/ɲá.nā/	‘chant’	/ɲá.ɲá.sō/	‘mutton’
/ɲā/	‘early’	/é.tsɔ́.ɲŋà/	‘noisy sound’
/ɲà.niŋ/	‘a kind of cicada’	/n.ɲá/	‘revenge’

/ŋ̊/ is a voiceless velar nasal; it is always realized as [ŋ̊]. It occurs in word initial and medial positions.

Initial		**Medial**	
/ŋ̊.ŋa/	‘observable’	/n.zē.ŋ̊tā/	‘odium’
/ŋ̊.ɣʰō/	‘saw’	/nò.ŋ̊ó.rə̄/	‘child’
/ŋ̊.nɻa/	‘visible’	/è.ŋ̊ō.è.rà/	‘flu and fever’
/ŋ̊.kà.tā/	‘to imagine’	/è.ŋ̊ó.ká.tā/	‘to lean on’

/ŋ/ is a voiced velar nasal; it is always realized as [ŋ]. It can occur in word initial, medial and final positions.

Initial		Medial		Final	
/ŋō.ɹəm/	'fisherman'	/kʰīŋ.rōē/	'bachelor'	/má.tsəŋ/	'salty'
/ŋá.rō/	'child'	/è.nəŋ.və̄/	'sweet'	/tì.j̀īŋ/	'seven'
/ŋá.ɹə̄/	'dizzy'	/lóŋ.rə̃̄/	'chippings'	/ráŋ.ʦəŋ/	'coin'
/ŋā.sə̄/	'dry fish'	/è.pīŋ.è.lī/	'wealth'	/ò.mʲ̀īŋ/	'name'

III) Fricatives:

In the articulation of fricative consonants, the articulators involved are brought very close together making a narrow gap between the two articulators. The air is forced through the narrow gap causing turbulence and making a friction noise. The seven fricatives consonant in Lotha are /f, v, s, z, ʃ, ʒ, h/.

/f/ is a voiceless labiodental fricative; it is always realized as [f]. It occur word initially and medially.

Initial		Medial	
/fə̀.rō/	'dog'	/rə̏̃.fə̀/	'wolf'
/fə́.ró.rō/	'puppy'	/ʃì.fə̀/	'tortoise'
/fə̄ā/	'to weight'	/fə́.fó/	'cowry'
/fə̀.pʰīā/	'hover'	/è.fə́/	'balance'

/v/ is a voiced labiodental fricative; it is always realized as [v]. It can occur in initial, medial and final positions.

Initial		Medial		Final	
/və̏̃.pʰē̄/	'seat'	/và.vəŋ/	'stable'	/té.rīv/	'tiny'
/vəŋ.pʰə̋̃kī/	'jail'	/sè.və̀̃/	'bear'	/zə̀.zəv/	'snail'
/vè.lōŋə̄/	'owl'	/è.vā/	'leach'	/è.ʧ̀īv/	'thick'

/vɔ́.ŋ́/ ‘green pigeon’ /ò.vɔ̃̄/ ‘sound’ /è.tʰēv/ ‘needs’

/s/ is a voiceless alveolar fricative; it is always realized as [s]. /s/ occurs in initial and medial positions.

Initial		**Medial**	
/sō.tsə̀/	‘elephant’	/sē.sē/	‘very smooth’
/sà.kī/	‘balcony’	/bō.ksō/	‘bomb’
/sɔ́.já.nō/	‘deer’	/kīp.sāŋ/	‘dandruff’
/sā.kā/	‘shave’	/sō.sō.rō/	‘bat’

/z/ is a voiced alveolar fricative; it is always realized as [z]. It can occur in initial and medial positions.

Initial		**Medial**	
/zō.tō.rō/	‘vehicle’	/zūm.zūm/	‘descent’
/zē.tā/	‘to look’	/zɔ̃̄.zɔ̃̄/	‘shabby’
/zā.rúŋ/	‘determine’	/zāk.zāk/	‘quickly’
/zāk.tō/	‘imitate’	/jì.zɛ̃̄/	‘effective/core summery’

/ʃ/ is a voiceless post alveolar fricative; it is always realized as [ʃ]. It occurs in word initial and medial positions.

Initial		**Medial**	
/ʃè.ɹə̀/	‘ice’	/kʰó.ʃ̃ā/	‘plenty’
/ʃɔ́ŋ.ɹō/	‘cricket’	/tsāk.ʃ̃ə/	‘naked’
/ʃá.vō/	‘palm leave’	/lòŋ.ʃ̃ì/	‘joy’
/ʃà.nā/	‘to dig/ to make hole’	/è.ʃ̃ā/	‘comb’

/ʒ/ is a voiced post alveolar fricative; it is always realized as [ʒ]. It occurs in word initial and medial positions.

Initial		**Medial**	
/ʒə.ʒə/	‘buffalo’	/è.ʒə.rō/	‘breeze’
/ʒɔ́.rō/	‘rat’	/mò.ʒə/	‘medicine’
/ʒə.vāī/	‘mad’	/kʰùm.ʒəā/	‘over shadow’
/ʒə.rō.è.nō/	‘honey mushroom’	/è.ʒɔ́.m.pōŋ/	‘storm, wind’

/h/ is a voiceless glottal fricative; it is always realized as [h]. It occur word initially and medially.

Initial		**Medial**	
/hà.kfə̀/	‘yellow’	/hà.tõ̀.hà.rə̀/	‘estimate’
/hà.ʧàŋ/	‘sand’	/ò.hò/	‘teeth’
/há.pvɔ́rō/	‘crab’	/hā.hə̃́/	‘carrier’
/hò.nō/	‘hen’	/ò.hā/	‘burden’

IV) Affricates

An affricate is produced with a complete closure, but the articulators are separated slowly so that some friction is heard. The friction in the articulation of affricate is of shorter duration than that of fricatives. The eight affricate sounds in Lotha are as follows /pf, pv, kf, kv, ts, tsʰ, ʧ, ʧʰ/

/pf/ is voiceless labiodental affricate; it is always realized as [pf]. It occurs in word initial and medial positions.

Initial		**Medial**	
/pfə́á/	‘pull out’	/tsɔ́.pfə̀/	‘cooking utensils’
/pfɔ́.ṃè/	‘charcoal powder’	/è.pfə̀/	‘companion’
/pfə̀.bɔ́m/	‘buds’	/ʧʰõ̀.pfə̀/	‘earthen pot’

/pfə́.kī/ ‘attic space’ /ʧə̋́.pfə́/ ‘a gape of years for the cultivator’

/pv/ is voiced labiodental affricate; it is always realized as [pv]. It occurs in word initial and medial positions.

Initial		**Medial**	
/pvə̄.tso.pà.tsà/	‘siblings’	/ò.pvə̄/	‘mother’
/pvə̀/	‘something to carry’	/é.pvə̀.tā/	‘crawling’
/pvə́.ká.ʧī/	‘swollen’	/vókó.pvə̄/	‘sow’
/pvə̀.tí/	‘priest’	/tó.pvə̄/	‘all’

/kf/ is voiceless labiodental affricate; it is always realized as [kf]. It occurs in word initial and medial positions.

Initial		**Medial**	
/kfə̄ā	‘sing’	/ʒə̀.kfə́/	‘river’
/kfə́,sōā/	‘to break’	/ò.kfə̀/	‘fishing hook’
/kfə́.rō/	‘creeper plant’	/mo.kfə/	‘wound or scare’
/kfə̀.pùŋ/	‘traditional instrument use with mouth’	/pì.kfə̄/	‘gate’

/kv/ is voiced labiodental affricate; it is always realized as [kv]. It occurs in word initial and medial positions.

Initial		**Medial**	
/kvəā/	‘flip’	/lōŋ.kvə̄/	‘cave’
/kvə̀.tā.la’	‘how much’	/è.kvə́/	‘to cook’
/kvə́.lò/	‘where’	/o.kvə̄/	‘hole’
/kvə̀.zūp.pā/	‘narrow’	/mí.kvə̄/	‘source of fire’

/ts/ is voiceless alveolar affricate; it is always realized as [ts]. It occurs in word initial and medial positions.

Initial		**Medial**	
/tsōā/	‘eat’	/è.tsəŋ.ŋā/	‘count’
/tsā.tā/	‘coming’	/kʰō.lōk.tsə̀/	‘a crowd of people’
/ʦō.ʧʰẽ̄/	‘offspring’	/n.ʦək.pʰẽ̄/	‘scissor’
/tsə.nā/	‘go away’	/ò.ʦək.ō.sō/	‘body’

/tsʰ/ is an aspirated voiceless alveolar affricate; it is always realized as [tsʰ]. It occurs in word initial and medial positions.

Initial		**Medial**	
/tsʰō.tī.mō.rə̄/	‘talent’	/ō.ʦʰaī/	‘offside’
/tsʰō.kʰōk.kā/	‘may be’	/ō.tsʰə̄k/	‘bee’
/tsʰō.tsəā/	‘add’	/ò.tsʰəŋ.ō.tōŋ/	‘plants’
/ʦʰō.ʧʰō.pẽ̄.tāō/	‘opportunity’	/lā̃.tsʰā/	‘roadside’

/ʧ/ is a voiceless palato- alveolar affricate; it is always realized as [ʧ]. It occurs in word initial and medial positions. It has an allophonic variation /dʒ/ which occurs only in the initial position of second syllable before the central vowel /ə/.

Initial		**Medial**	
/ʧò.pfə̄/	‘earthen pot’	/ʧə̄k.ʧà/	‘broom’
/ʧé.rū/	‘spinal’	/ò.ʧì.nīō/	‘brother’
/ʧùm.pō/	‘morung’	/n.zē.ʧàmō/	‘negligence’
/ʧə̄k.ʧō/	‘marrow’	/ʧō̃.ʧīā/	‘open’

The affricates voiced /dʒ/ found to be an allophone. /dʒ/ can occurs in the environment of central vowel /ə/. The examples are given below;

/dʒ/

/ō.dʒə̀/	‘water’
/è.dʒə̀m.ma/	‘to hold’
/mō.dʒə̄/	‘seedling’

/ʧʰ/ is an aspirated voiceless palato- alveolar affricate; it is always realized as [ʧʰ]. It occurs in word initial and medial positions.

Initial		**Medial**	
/ʧʰó.rō/	‘moon’	/sə́.n.kí.ʧʰō/	‘abandoned’
/ʧʰȭ.ʧʰī.pʰẽ̄/	‘opener’	/tə́ŋò.ʧʰəā/	‘careful’
/ʧʰà.nā/	‘view’	/pfə́.ʧʰō/	‘umbrella’
/ʧʰè̀.roā/	‘pound’	/lòŋ.ʧʰə̀/	‘middle / centre’

V) Lateral:

A lateral consonant is produced when the centre of the tongue is placed against the alveolar ridge, allowing the air to escape along the sides of the tongue. The study found the presence of two lateral sounds. The voiceless and voiced alveolar laterals i.e., /l̥, l/ will be discussed in examples below;

/l̥/ is a voiceless alveolar lateral; it is always realized as [l̥]. It occurs in word initial and medial positions.

Initial		**Medial**	
/l̥à.sā/	‘careless’	/è.l̥í.ŋō/	‘task’
/l̥ā.l̥ā/	‘weak’	/è.ʤà.nè.l̥ī/	‘duty’
/l̥í.ʃə̃p/	‘office’	/è.l̥í.ʦō.tō.kā/	‘employ’
/l̥oa/	‘pick/pluck’	/è.l̥ó/	‘to be pluck’

/l/ is a voiced alveolar lateral consonant; it is always realized as [l]. It occurs in word initially and medially.

Initial		Medial	
/lé.pōk/	‘machete’	/n.lā́/	‘sin’
/lì.kʲā/	‘orchid’	/ó.lī/	‘field’
/lí.mɔ̄́/	‘leaf’	/è.lá.nā/	‘true’
/lì.vā/	‘ash’	/hò.lā.nā/	‘reclaim’

VI) Trill:

In the production of trill sound, the tip of the tongue makes a firm contact with the alveolar ridge. There is rapid tapping or rolling between the tip of the tongue and alveolar ridge and the air escape through the mouth without any friction. During the articulation the vocal cords vibrates to produce a voiced and if not voiceless. There are two trill sounds in Lotha; the voiceless alveolar trill [r̥] and the voiced alveolar trill [r].

/r̥/ is a voiceless alveolar trill; it is always realized as [r̥]. It can occur in word initial and medial positions.

Initial		Medial	
/r̥ə̀m.pʰī/	‘to roam’	/ò.r̥ōŋ/	‘boat’
/r̥ə́.mà.tā/	‘captures/hold’	/sə̀̃.r̥ù.kì/	‘hall’
/r̥í.jí.tā/	‘come in’	/ʦə́ŋ.r̥ām/	‘satan’
/r̥í.jí.lə̃̄/	‘income’	/r̥əm.r̥əm/	‘at the same time’

/r/ is a voiced alveolar trill; it is always realized as [r]. It occurs in an initial and medial position.

Initial		Medial	
/rā.kiə/	‘red’	/rà.rà.kʰəm/	‘basil’
/rà.sə̃̄/	‘soldier’	/kʰē.rō/	‘branches’
/rà.tʰá.tā/	‘sick’	/hò.nó.rō /	‘chicken’
/rə́.tsə́/	‘cannon’	/ò.rə́ó/	‘nephew’

VII) Approximant:

It is articulation of approximants the articulators are held with an open approximation allowing the air to pass between them smoothly. There are four approximants in Lotha; /j/, /w/. /ɻ̥/ and /ɹ/.

/j/ is a voiceless palatal approximant; it is always realized as [j]. It occur word initially and medially.

Initial		**Medial**	
/jē.tʰē̃/	'news'	/lì.kʲà/	'orchid'
/jāk.sō/	'monkey'	/sá.já.tā/	'govern'
/jó.tī/	'banana'	/è.pá.já.lō/	'nowadays'
/jǎ̀.kʰō/	'colony'	/ʧǐ.jí.lā̃/	'outlet'

/w/ is a voiceless velar approximant; it is always realized as [w]. It occurs in word initial and medial positions.

Initial		**Medial**	
/wó.ná.lā/	'bighting'	/n.wó.ʧʰēō/	'inaccessible'
/wōā/	'go'	/pó.tsò.wī/	'heavenly'
/wǒ.ʧǐ.pə̄.ŋō/	'dawn'	/ɻ̥ò.wōā/	'enter'
/wó.sóā/	'cut into two or more as in firewood'	/jǎ́.pí.wí/	'bride'

/ɻ̥/ is a voiceless alveolar approximant; it is always realized as [ɻ̥]. It can occur in the word initial and medial positions.

Initial		**Medial**	
/ɻ̥á.ʧoá/	'to overtake'	/è.ɻ̥é.tā/	'to snore'
/ɻ̥ā.ná/	'same category'	/è.ɻ̥ə̄p.pā/	'to beat'

/ɻà.tā/ ‘fall or catch’ /è.ɻáō/ ‘to cut/slice’

/ɹ/ is a voiceless alveolar approximant; it is always realized as [ɹ]. It can occur in the word initial and medial positions.

Initial		**Medial**	
/ɹáŋ.sə́.kʰə́v/	‘purse’	/è.jíŋ..ɹoā/	‘clam’
/ɹē.nī/	‘to arrange’	rà.sə̀..ɹoē/	‘cadet’
/ɹē.tā/	‘remove feathers’	/jíŋ..ɹə̄m/	‘ring’
/ɹè.ʧõā/	‘causing trouble and stealing’	/è.pié..ɹà/	‘greed’

3.1.2. Phonemic Distribution of Consonants:

The distribution of 38 consonantal sounds in lotha language.

Consonant	**Initial**	**Medial**	**Final**
p	+	+	+
pʰ	+	+	-
t	+	+	-
tʰ	+	+	-
k	+	+	+
kʰ	+	+	-
m	+	+	+
m̥	+	+	+
n	+	+	-
n̥	+	+	-
ɲ	+	+	-
ɲ̥	+	+	-
ŋ	+	+	+
ŋ̊	+	+	-
r	+	+	-
r̥	+	+	-

f	+	+	-
v	+	+	+
s	+	+	-
z	+	+	-
ʃ	+	+	-
ʒ	+	+	-
h	+	+	-
pf	+	+	-
pv	+	+	-
kf	+	+	-
kv	+	+	-
ts	+	+	-
ts^h	+	+	-
ʧ	+	+	-
$ʧ^h$	+	+	-
l	+	+	-
l̥	+	+	-
j	+	+	-
w	+	+	-
ɹ	+	+	-
ɹ̥	+	+	-

Table no. 3.2. Distribution of Consonants at the syllable level

3.1.3. Minimal pairs in consonant:

A minimal pairs is a pair of words that differ only in one single sound unit. It determines whether the sounds are distinctive or not. They are environmentally contrastive because their difference lies within the specific environment (word) occurrences. The given examples are the evidence in Lotha language.

/p/ and /pʰ/

/pánā/	‘dismantle’	/pʰànā/	‘chase’
/pà̰kā/	‘far beyond’	/pʰà̰kā/	‘influence or fallow up’

/k/ and /kʰ/

/kā.tā/	‘infected’	/kʰā.tā/	‘to study or count’
/kā.kā/	‘sister’	/kʰā.kā/	‘did you study or count’

/t/ and /tʰ/

/térā/	‘few’	/tʰérā/	‘flower’
/tàlà/	‘half’	/tʰálā/	‘passive’
/tə́ŋā/	‘announce’	/tʰə́ŋā/	‘praise’

/m/ and /n/

/má.nā/	‘profit’	/ná.nā/	‘to an extreme attachment’
/ò.mò/	‘uncle’	/ò.nò/	‘aunty’
/ómí/	‘fire’	/óní/	‘both’

/m̰/ and /m/

/m̰étā/	‘to rub/off’	/métā/	‘place’
/m̰ánā/	‘challenge’	/mánā/	‘profit’
/m̰ò.nā/	‘good’	/mó.nā/	‘to lost’

/n̰/ and /n/

/èn̰íkā/	‘depend’	/èníkā/	‘exact two’
/n̰ítà/	‘fry or dry’	/nítà/	‘your elder brother/s or sister/s’
/n̰ó.nā/	‘mixed together’	/nò.nā/	‘cut/ chop’

/s/ and /z/

/səā/ or /sə̀.jā/	‘throw away’	/zəa/ or /zə̀jā/	‘breast feeding’
/soā/	‘involve’	/zoā/	‘hear’

/sānālā/	‘movement of a group’	/zānālā/	‘winnowing’

/f/ and /v/

/ò.fə̄/	‘skin’	/ò.və̄/	‘frog’
/fá/	‘to weight’	/vá/	‘to stitch’
/á.fā/	‘bold’	/á.vā/	‘kind of a plant’

ʃ/ and /ʒ/

/ʃà/	‘kind of bad luck’	/ʒà/	‘not’
/ʃá/	‘expressing regret’	/ʒá/	‘dripping’
/ʃə̄ʃə̄/	‘a kind of busy hardworking’	/ʒə̄ʒə̄/	‘buffalo’

/ɽ/ and /r/

/ɽà.tā/	‘in capture’	/rà.tā/	‘match/ suitable’
/ɽá.tà/	‘dispute’	/rà.tā/	‘a good shape of stone'
/ɽà/	‘allergic’	/rà/	‘having fever’
/ɽá/	‘to stay in a strict manner’	/rá/	‘to burn’

/pf/ and /pv/

/pfə́/	‘pull out’	/pvə̀/	‘carry’
/pfə̀.kā.ʧì/	‘floating above’	/pvā.kā.ʧì/	‘swollen’
/ò.pfə̄/	‘pot’	/ò.pvə̄/	‘axe’

/kf/ and /kv/

/kfə́á/	‘to break’	/kvə̀à/	‘flip’
/ó.kfə́/	‘kidney’	/ó.kvə́/	‘hole’
/è.kfə̀/	‘cough’	/è.kvə̀/	‘flip’

/ts/ and /tsʰ/

/tsènā/	‘kneel’	/tsʰènā/	‘squeeze'
/tsākātā/	‘pick up’	/tsʰākātā/	‘princely’
/tsānā/	‘go away’	/tsʰānā/	‘cut/ chop’
/òtsāk/	‘body’	/òtsʰāk/	‘bee’

/ʧ/ and /ʧʰ/

/ʧ̀ākā/	‘break’	/ʧʰákā/	‘shortcut’
/ʧ́úmpó/	‘different’	/ʧʰùmpō/	‘morung’
/ʧ̀əmkātā/	‘making pond’	/ʧʰəmkàtā/	‘join’

/ɲ̥/ and /ɲ/

/èɲ̥ō/	‘source’	/è.ɲā/	‘dawn’
/è.ɲ̥í.kā/	‘responsibility’	/è.ní.kā/	‘in both/two’
/ɲ̥à.nā/	‘exfoliating’	/ɲá.nā/	‘singing in a traditional way’

/ŋ̊/ and /ŋ/

/è.ŋ̊ōkā/	‘to lean on’	/è.ŋōkā/	‘to noon time’
/è.ŋ̊á/	‘to smell’	/è.ŋā/	‘to doze’
/ŋ̊à.tā/	‘to dry up’	/ŋā.tā/	‘to stand on motion’

/l/ and /l̥/

/l̥ō.l̥ō/	‘very weak’	/lō.lō/	‘an act of suffusion’
/ēl̥ō/	‘phlegm’	/ēlō/	‘to pay’
/l̥ā/	‘an act of making fire’	/lā/	‘vomit’

3.1.4. Consonant Cluster in Lotha:

Consonant cluster is defined as a group of two or more consonant in a sequence within the same syllable. If a consonant cluster is at the beginning of a word or a syllable, it is said to be in the initial position; if it comes at the end of a word, it is

said to be in the final position (Roach: 2002). Consonant cluster are found within syllabic boundary with no intervening vowels where each consonant sound has its own explosion.

In the case of Lotha, consonant cluster are found only in onomatopoeic word. Onomatopoeia is a process of creating a word that phonetically imitates or resembles or suggests the sound that it describes. The examples are given below in Lotha;

/pʰr pʰr/	‘sounds of a flying bird’
/ɻŋ ɻŋ/	‘sounds of a vehicle’
/kraŋ kraŋ/	‘sounds of a utensils’
/tr tr/	‘shivering sound’
/fr fr/ or /vr vr/	‘sounds of a wind’
/r r/ or /kr kr/	‘calling the chicken to feed’

3.1.5. Consonant Sequence:

Consonants clusters as mentioned are very limited in Lotha and are found in limited situations but a good number of consonant sequence are present in this language. Consonant Sequence is in which the sequence of consonants occur across syllable boundaries without an intervening vowels in them. The consonant sequence in Lotha is seen to occur only in word initial and medial positions.

Stop + Fricatives

/-ps-/	/kīp.sāŋ/	‘dandruff’
/-ps-/	/tūp.sòà/	‘cut off’
/-ks-/	/pōk.sòà/	‘burst’

Stop + Stop

/-pt-/	/zūp.tā.là/	‘plastering’
/-pk-/	/tūp.kā.tā/	‘left out’,
/-pt-/	/ʃūp.tā/	‘very close or nearby’

/-kt-/	/ʃūk.tā.lā/	‘questioning

Stop + Aspirated

/-pp^{h}-/	/n.tsəp.p^{h}ḗ/	‘clip’
/-kp^{h}-/	/hūk.p^{h}ḗ/	‘hook’
/-pt^{h}-/	/kūp.t^{h}ē/	‘folding’
/-kp^{h}-/	/è.vāk.p^{h}īā/	‘ripple’
/-kt^{h}-/	/t^{h}āk.t^{h}ak/	‘smart’

Stop + palatalized literal + literal

/-pl^{j}-/	/lūp.l^{w}ū/	‘cockroach’
/-pl-/	/kūp.lā/	‘mood swing’

Nasal + Stop

/-nt-//nta/	‘furious’	
/-mt-/	/è.tūm.tā/	‘enquiry’
/-mk-/	/tùm.kā/	‘aim or goal’
/-mp-/	/mpā.tā/	‘there is’

Nasal + Affricatives

Initial

/-nts-/	/n.tsā/	‘truth’
/-nts-/	/n.tè.n.tsə̄/	‘don’t know you’
/-nts-/	/n.tsō/	‘do not eat’

Medial

/-ŋʧ-/	/sə̄ŋ.ʧo͡/	‘chord’
/-ŋts-/	/lōŋ.tsə̄/	‘faith’
/-mts-/	/lūm.tsūk/	‘marsupial’
/-mʧ-/	/lūm.ʧo͡/	‘heartfelt’

3.1.6. Geminate Consonant:

A geminate consonant is also called consonant lengthening. It is the occurrence of two identical consonant adjacent to one another within a phonological word. A geminate consonant are little longer form of the corresponding simple consonant or a double consonant. The examples of geminate consonant in Lotha are listed below:

Nasal + nasal

/mmúŋõʧə/	'urine'	/túmmā/	'slap'
/mmẽ/	'dirty'	/zùmmā/	'ambush'

/nnànā/	'smelly'
/nníjā/	'revenge'

Stop + Stop

/è.tsə́ppā/	'tug'
/n.tsə́ppā/	'kiss'
/ʧʰə́kkā/	'question'
/kəkkā/	'creak'

3.2. Vowels:

The vowels sounds are based on IPA symbols for transcription (reversion 2005). The vowels sounds are articulate in the middle of the tongue along with different tongue positions. The sounds are produce from the front, central and back of the tongue which involves the high, mid and low, rounded and unrounded or spread vowels sounds. In this study, it is found that there are six monopthong vowels and eight diphthong vowel sounds.

3.2.1. Monopthongs:

As mentioned above this study found six monopthongs in Lotha occurring in front, central and back position of the mouth at different tongue height. Both rounded

and unrounded vowels are present in Lotha with three front high vowels /i/, /e/ and /a/, two back high vowels /u/, /o/, one central vowel /ə/. All the vowels sounds in Lotha are voiced. As shown in Fig. no. 3.1 is basically the structure of the mouth with the relation and position of the tongue and its articulation of the jaws.

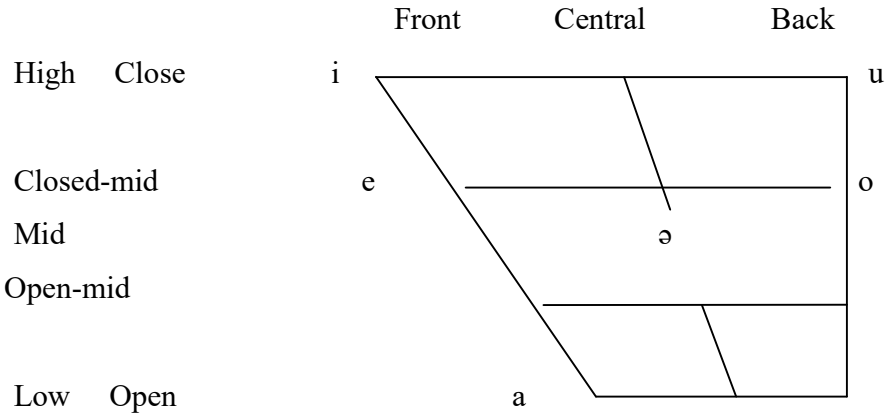


Figure no. 3.1. Vowel Chart of Lotha
(IPA symbols for vowels based on IPA 1993, revised 2005)

3.2.2. Articulatory Description of the six Monopthongs Vowel sounds:

The articulatory description of the six vowels in Lotha is give below;

/i/ high front unrounded vowel

/e/ mid front unrounded vowel

/ə/ mid central unrounded vowel

/a/ mid-low central unrounded vowel

/u/ high, back rounded vowel

/o/ mid back rounded vowel

3.2.3. Description, Classification and distribution of monopthongs in Lotha Language:

[i]; is an extreme front unrounded vowel. It is articulated by raising the front of the tongue towards roof of the mouth behind the alveolar ridge. It is unrounded vowel

because during the production of this sound both upper and lower lips are widely spread. It can occur in initial, medial and final position.

Initial		**Medial**		**Final**	
/í.zà/	‘bamboo’	/mī.tūp/	‘lung’	/ʃi/	‘it’
/í.ʧĩ.rō/	‘sparrow’	/kīsə̄/	‘photo’	/n.ɲī/	‘tongue’
/í.zūm/	‘wood pecker’	/tī.pʲoa/	‘don’t say’	/hà.jī/	‘plain’
/í.pʰī/	‘black bird’	/mī.hə̃̄/	‘charcoal’	/ò.mī/	‘fire’

[e]; /e/ is a mid - high or close - mid front unrounded vowel. It is articulated between the mid and close position of the mouth. /e/ is same as /i/ where the lips are spread. It can occur in the initial and medial position.

Initial		**Medial**	
/è.bo.rō.rō/	‘boy’	/cé.ná/	‘lofa’
/è.lōk/	‘cloud’	/té.pfə̄/	‘accompany’
/è.tʰō/	‘strength’	/lé.nā/	‘pack’
/è.rà.mō/	‘elder’	/kʰè.nō/	‘nose’

[a]; It is low front central unrounded vowel. It is articulated between the half open and the open position but more on half open position. /a/ occurs in all the three positions ie initial, medial and final positions.

Initial		**Medial**		**Final**	
/à.pvə̄/	‘mother’	/è.lá.nā/	‘right’	/kó.nā/	‘far’
/à.pō/	‘father’	/kà.kō/	‘book’	/tú.mā/	‘slap’
/à.mō/	‘uncle’	/bə̌̄.kā.də̃̄/	‘beginning’	/tʰé.nā/	‘sour’
/à.tā/	‘aunty’	/jā.nā/	‘search’	/má.nā/	‘worth’

[o]; It is high back rounded vowel. It is articulated between back mid close and close position but more slightly on half close vowel. It is a rounded vowel because there is no spread of lips during production of sound. /o/ occurs in all the positions.

Initial		**Medial**		**Final**	
/ò.fə/	‘skin’	/mò.tsə/	‘story’	/ʧʰó.rō/	‘month’
/ò.mī/	‘fire’	/só.lǻ/	‘organs’	/ò.sō/	‘meat’
/ò.m̩á/	‘face’	/lók.sā/	‘basket’	/pè.nó/	‘fly’
/ò.fə́/	‘skin’	/lò.rǻ̀/	‘spinster’	/hò.ró/	‘dioscora alata’

[u]; It is in the extreme high back rounded vowel. /u/ is articulated in back close vowel. It can occur only in the word medial position.

Medial	
/túm.mā/	‘slap’
/è.l̩ūp/	‘cover’
/ò.lūŋ/	‘stone’
/mí.tūp/	‘lungs’

[ə]; /ə/ is a mid central vowel. It is articulated between the half open an open position. It can occur in the middle and final positions.

Medial		**Final**	
/è.kəm/	‘life’	/à.mò.tsə̄/	‘my grandfather’
/ʧʰə̄k.ʧʰō/	‘bone marrow’	/à.tsə̄/	‘my grandmother’
/ò.tsə̄k/	‘body’	/lòŋ.zə̄/	‘monolith’
/è.məŋ/	‘darkness’	/jīŋ.pvə̄/	‘thumb’

Vowels	Initial	Medial	Final
i	+	+	+
e	+	+	-
a	+	+	+
ə	-	+	+
o	+	+	+
u	-	+	-

Table no. 3.3. Distribution of Vowels

3.2.4. Minimal pairs of monopthongs:

The sound that appears in the same environment causing a change in the meaning is a contrastive distribution. Some of the examples of monopthongs are given below;

Front High + Front Mid-High

/i/		**/a/**	
/kʰí.tí/	'same'	/kʰá.tá/	'to study/read'
/pī.tā/	'to give'	/pā.tā/	'to throw something on trees or roof'
/è.jí.tā/	'to match/ roll'	/è.já.tā/	'wrestling'

Front Mid-High + Low Front

/e/		**/a/**	
/dè.nā/	'sing'	/dā.nā/	'cut'
/vè.nā/	'fan it'	/vā.nā/	'there is'
/ʧé.nā/	'to soak'	/ʧà.nā/	'reach'

Close –mid front + Mid-close back

/a/		**/o/**	
/và.nā/	‘is there’	/và.nō/	‘to winnow’
/è.tʰā/	‘repair hold’	/è.tʰō/	‘strength’
/ò.rá/	‘insect’	/ò.ró/	‘infant’

High back + Mid-close back

/u/		**/o/**	
/è.jú/	‘tallness’	/è.jó/	‘to make a hole’
/è.jù/	‘to drink’	/è.jò/	‘checks’

Central + Mid-close back

/ə/		**/o/**	
/tə̄k.ka/	‘to weave’	/tōk.ka/	‘to dig’
/è.kə̄k/	‘to make a path’	/è.kōk/	‘narrow’

Mid- high Front + Central

/e/		**/ə/**	
/tē.kā.tā/	‘to light’	/tə̄.kā.tā/	‘to an extreme continues hot’
/zē.tā.lā/	‘looking after’	/zə̄.tā.lā/	‘breast feeding’
/tʰé.nā/	‘bitter’	/tʰə́.nā/	‘to offer’

Close –mid front + Central

/a/		**/ə/**	
/tʰā.ŋà/	‘to block’	/tʰə̄.ŋà/	‘to praise’
/tsá.kā/	‘coming’	/tsə́.kā/	‘one / single person’

3.2.5. Diphthongs:

Diphthong is a vowel sound with a combination of two vowels to produce one single sound within the same syllable. This allows that the combination of sounds is produce with an adjacent vowel.

Ezung, Mimi in her work on 'A Preliminary investigation of the speech sound of the Naga Lotha Language' (2016) gave six diphthongs. However, this study found seven diphthongs; /ai, əi, ui, əa, oa, ao, ia, ua/. In Ezung's work (ibid) she mentioned /ue/ and /ua/ as separate diphthongs but in this study, it is found that /ua/ and /ui/ are allophone. The examples are given below:

[ua] or [ui]:

/è.ʧúá/	or	/è.ʧúí/	'to compare'
/ʃúá/	or	/ʃúí/	'to search'
/è.kʲūā/	or	/ē.kʲūí/	'to kick'
/júá/	or	/júí/	'to wrap'

[ai]

Final

/è.kʰaī/	'student'
/pʰá.ʧaī/	'servant'
/ʒə̀.vaī/	'fool'
/ʧə̋.ʧʰí.è.ŋaī/	'disciple'

[ao]

Final

/n.ʧʰō.kaō/	'odious'
/à.kaō/	'green pigeon'
/mē.saō/	'king'
/è.jí.ló.kaō/	'trust'

[əa]

Final

/è.rə́.tsəā/	'twist'
/màŋ.ʒəā/	'gloom'
/ŋa.rəā/	'dizzy'

/n.rə́á / ‘to climb’

[əi]

Final

/á.pvə̀ī/ ‘my landlord’

/è.tsə̄í/ ‘sir’

/ē.tsʰə̄ī/ ‘to keep something on a rain to wash off’

/zə̄ī/ ‘to calculate’

[ia]

Final

/tā.ʧʰiā/ ‘to hit’

/pʲiā/ ‘to give’

/ʃiā/ ‘to buy’

/ʧõ̃.ʧiā/ ‘to please’

[oa]

Final

/è.rə́.ʧoā/ ‘to raining’

/kì.noā/ ‘to drunk’

/è.və̄p.roā/ ‘to smash’

/hoā/ ‘to claim’

[ui]

Final

/jã̄.puī/ ‘guest’

/tʰā́.puī/ ‘away’

/è.kʰʲuī/ ‘champion’

/kʰì.ʧuī/ ‘receiver’

3.2.6. Minimal sets:

/ao/		**/oa/**	
/nsāō/	‘straight’	/nsōā/	‘to lend’
/tsāō/	‘to walk/call/come’	/tsōā/	‘to eat’
/sāō/	‘to beat’	/sōā/	‘to drip/ include’

/ao/		**/ai/**	
/è.kʰáó/	‘numbering/ read’	/è.kʰáí/	‘student’
/è.kʰàó/	‘one’	/è.kʰàí/	‘a person who completed a kind of work till the end’

/oa/		**/ia/**	
/ʃĭá/	‘to buy’	/pʲóá/	‘sticky/gum’
/pʲ́íá/	‘to give’	/ʃóá/	‘to search/inquiry’

/oa/		**/əa/**	
/tsóá/	‘over flowing/melting iron’	/tsə́á/	‘slice’
/ŋá.róá/	‘too immature’	/ŋá.rə́á/	‘dizzying’

/ei/		**/ui/**	
/kʰì.tʃéí/	‘to take out’	/kʰì.tʃúí/	‘receiver’
/jã̄.péí/	‘to marry (as in woman)’	/jã̄.púí/	‘guest’
/kʰúí/	‘to walk/went’	/kʰéí/	‘to sweep’

/əi/		**/ui/**	
/zə̄ī/	‘to calculate’	/zūī/	‘to wring’
/è.tsə̄í/	‘sir’	/è.tsūí/	‘eaters’
/è.tsə̄í/	‘to measure’	/è.tsūí/	‘to put off fire (water)’

CHAPTER 4
SUPRASEGMENTAL

4.1. Introduction:

This chapter will discuss the syllable structure and the tone system of Lotha. Words are made up vowels and consonants and can assign to be the segment of speech. This segments or words form a syllable is an utterances and together with segments or syllable or utterance are called suprasegmental. Suprasegmental is an addition to the isolated phonemes where segment cannot be solved as an individual segment but they may often extend over more than one segment. Ladefoged and Johnson (2012) consider suprasegmental features are 'those aspects of speech that involves more than single consonants or vowels'. Variations in length are also usually considered to be suprasegmental features. This includes variations in stress (accent), length, pitch (tone and intonation) are significant.

Tone is a pitch level which distinguished meaning by following the distinct level; high, mid and low tones. In tonal languages, the change of pitch level changes the meaning of a word. As mentioned Yip (2002; 1) 'a language is a 'tone language' if the pitch of the word can change the meaning of the word'. This intonations or pitch level distinguishes the meaning of a word depending on an individual speaker.

4.2. Syllable and Syllable Structure:

According to Catford (1987) defined 'as a minimal pulse of initiatory activity bounded by a momentary retardation of the initiator, either self imposed, or more usually, imposed by a consonant type of articulatory stricture'. Another interpretation of syllable can be defined as, 'a unit of pronunciation typically larger than a single sound and smaller than a word' Crystal (1991). However, many researchers have different phonological point of view to describe syllable as the utterance or a word in a speech across the world's languages. In 1996, Spencer stated that 'many languages distinguish two types of syllable';

a. The first type of syllable is the short vowel and no coda. This kind of syllable has CV structure and are called light syllable (**see Figure no. 4.7**).

b. The second type consists of a long vowel or diphthong in the nucleus, or there is coda (or both). Here, the syllables forms are CV, CVV, CVC, CVCV, and CVCC and are called heavy syllable (**see Figure no. 4.8**). These properties (light or heavy syllable) are referred as a syllable weight.

Consonant (C)	Vowel(V)	Tone (T)
p pʰ t tʰ	i u	H
k kʰ	e ə o	M
ts tsʰ ʧ ʧʰ	a	L
m n ɲ ŋ		
m̥ n̥ ɲ̥ ŋ̊		
pv pf kf		
kv f v s z		
ʃ ʒ h		
r r̥		
l l̥		
ɹ ɹ̥ j w		

Table no. 4.1. Phonotactic distribution of syllable constituents in Lotha

The nature of a syllable often consist of consonants and vowels, it can be a single vowel such as ‘a’ or can be a consonant, as in Lotha there is no single consonant (C). Vowels are considered as the nucleus (N) or peak of the syllable. The immediate constitute consonant proceeding or following the nucleus are said to be the syllable onset (O), and those following the nucleus are the syllable coda (C) and the combination of the nucleus and coda from constitute known as the rhyme (R). The syllable is represented with the Greek letter sigma ‘σ’. The example of a syllable structure is given below respectively;

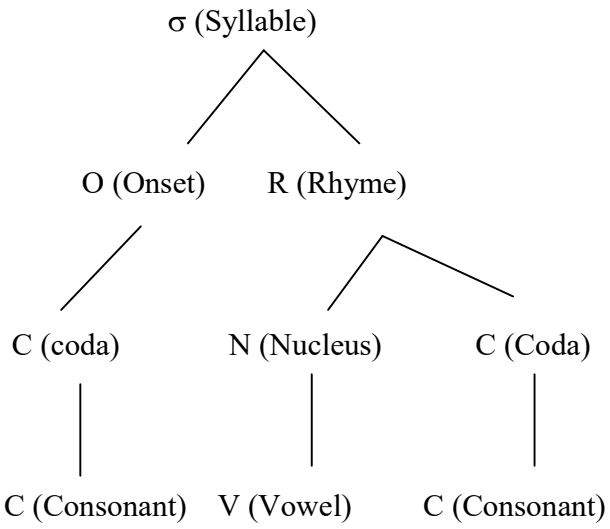


Figure no. 4.1. Structure of Syllable

Notes:

(i)

σ	→	Syllable
O	→	Onset
R	→	Rhyme
N	→	Nucleus
C	→	Coda

(ii)

C	→	Consonant
V	→	Vowel
∅	→	Zero

Generally, the syllable consists of open syllable and closed syllable. In an open syllable, the syllable always ends in a vowel. On the other hand, in a closed syllable the syllable always ends in a consonant or can be a single consonant. In Lotha both open and close syllable are present. Below are some examples in English and Lotha.

(i) **English**

	Onset	Nucleus	Coda
/to/	/t/	/o/	∅
/i/	∅	/i/	∅
/put/	/p/	/u/	/t/

(ii) **Lotha**

	Onset	Nucleus	Coda
/ni/ 'you'	/n/	/i/	∅
/a/ 'I'	∅	/i/	∅
/mek/ 'not true'	/m/	/e/	/k/

The examples of both open and close syllables for English and Lotha language are given below:

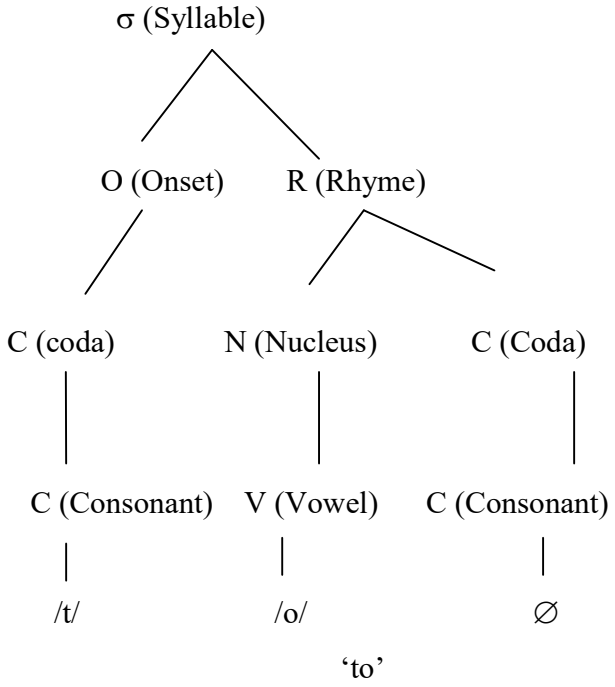


Figure no. 4.2. Open syllable in English

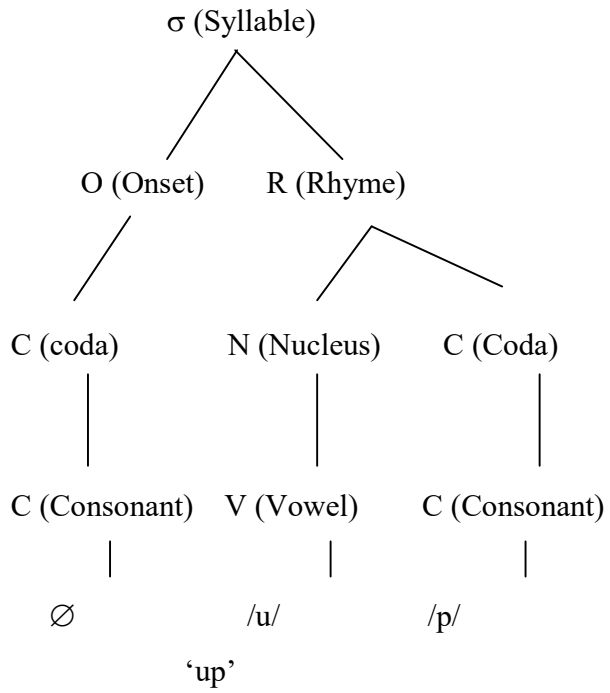


Figure no. 4.3. Closed Syllable in English

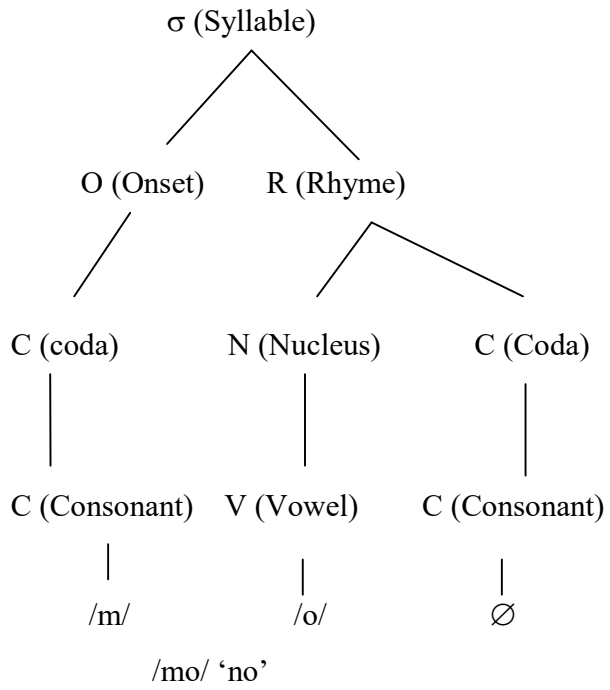


Figure no. 4.4. Open Syllable in Lotha

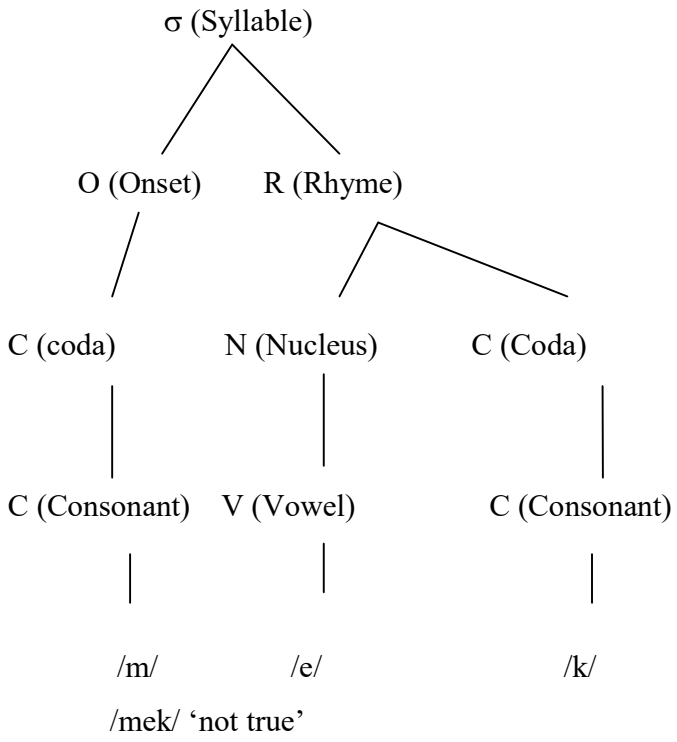


Figure no. 4.5. Closed Syllable in Lotha

4.2.1 Types of Syllable:

It is important to discuss the syllable structure as well as the types of a syllable so as to understand the level of tones in a language. The canonical syllable in Lotha consists of four types of syllables; monosyllabic words, disyllabic words, trisyllabic words and tetra syllable words. This syllable weight can actively participate both in open and close syllables as in (**Figure no. 4.2, 4.3, 4.4, 4.5**).

I. Monosyllabic words:

Monosyllabic consist of a word or utterance consisting of one syllable. In Lotha, the exhibitions of closed monosyllabic words C are not found. The examples are given below respectively;

Open Syllable

Syllable		

V	/ā/	‘i/me’
CV	/nī/	‘you’
CVV	/ʃiá/	‘buy’

Table no. 4.2.

Closed Syllable

VC	/èŋ/	‘sun’
-	/òm̥/	‘powder’
CVC	/kʲōŋ/	‘people’
-	/tāk/	‘to the point’

Table no. 4.3.

II. Disyllabic words:

A syllable which consist more than one or more syllable is known as disyllabic. A disyllabic word in Lotha seems to be more in common than the mono syllabic words.

Open Syllable;

V.CV	/ē.tē/	‘we’
CVC.CV	/túm.mā/	‘slap’
CV.CV	/nī.nī/	‘both of you’

Table no. 4.4

Closed Syllable;

V.CVC	/è.kə̄m/	'life'
C.CVC	/n.ʧǔm/	'pure'
CV.CVC	/mā.tsə̄ŋ/	'salty'
CV.CVC	/mí.tə́p/	'lungs'
CVC.CVC	/zùm.zùm/	'descent'

Table no. 4.5.

Interestingly, this study also found that in disyllabic words geminate consonants in between vowels are commonly found. Spencer (1996; 81) states that the 'geminated consonants in between vowels are fairly commonly found in Japanese' language.

III. Trisyllabic words:

A word comprising three syllables is called a trisyllabic word. In Lotha it is found that in trisyllabic words there is a possibility of six syllabic structures in both open syllable and closed syllable.

Open Syllable

CV.CVC.CV	/kò.lók.tsə̀/	'a crowd of people'
CV.CV.CV	/fē.rō.rō/	'puppy'
C.CV.CVV	/n.tsō.ʧeō/	'not able to eat'

V.CV.CVV	/è.lɔ̃́.ʧɔ̃ā/	‘welcome’
V.CV.CV	/è.rò.rá/	‘explain’

Table no. 4.6.

Closed Syllable;

CV.CV.CVC	/rà.rā.kə̀m/	‘basil’
CV.CV.CVC	/vó.ró.ʃə̄p/	‘bird nest’
C.CV.CVC	/m.m̩̄ɔ̃́.tók/	‘better way’
CV.C.CVC	/sō.n.kōŋ/	‘dry meat’
V.CVC.CVC	/è.lūm.tōŋ/	‘alder tree’
CVC.CV.CVC	/tsə̄ŋ.tʰī.tsə̀ŋ/	‘nut’

Table no. 4.7

IV. Tetra Syllable words:

A syllable containing four or fourth syllable in a word. It is found that the syllabic representation is five in open syllable and seven in closed syllable in the given examples below;

Open syllable

CV.CV.CV.CV	/nō.ʧō.nō.rə̄/	‘sickness’
CVC.CV.CV.CV	/jāk.ʧī.tò.kvə́/	‘pass over’
CV.CV.CVC.CV	/zè.ʧò.tūk.kā/	‘to confirm’
CVC.CV.CV.CV	/kʲìm.tsə̀.mò.tsə́í/	‘grandparents’
V.CVC.CVC.CV	/è.kə̀m.rə̀m.mó/	‘animals’

Table no. 4.8

Close Syllable

C.CV.CV.CVC	/n.və̃́.kʰó.tōk/	‘couldn’t let them stay’
C.CV.V.CVC	/n.zə̀.ō.kúm/	‘annual’
CV.CV.CV.CVC	/sə̃̄.pʰī.sə̃̄.tūŋ/	‘pedestrian'
CV.CV.CVC.CVC	/zə̀.mó.lūŋ.ʧə̀ŋ/	‘mid-night’
CV.CV.CV.CVC	/kvə̀.rə́.té.rív/	‘pony’
V.CVC.V.CVC	/ə̄̃.mōk.è.lūm/	‘worries’
V.CVC.C.CVC	/o.ʈsə̀k.n.ʧə̀ŋ/	‘pregnant’

Table no. 4.9

Light Syllable:

A type of syllable in which the rhyme consists of a single or only nucleus or peak of segment is called light syllable.

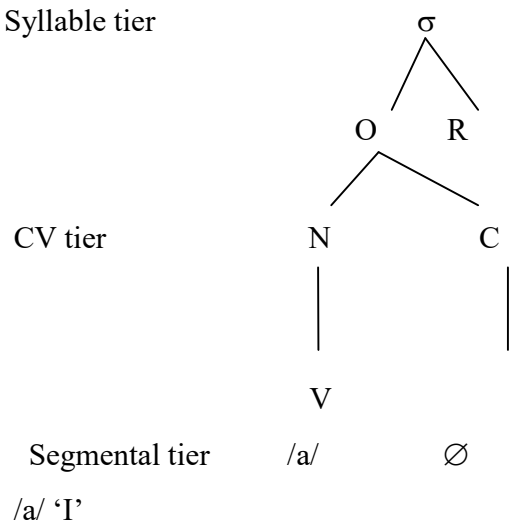


Figure no. 4.6 Light syllable

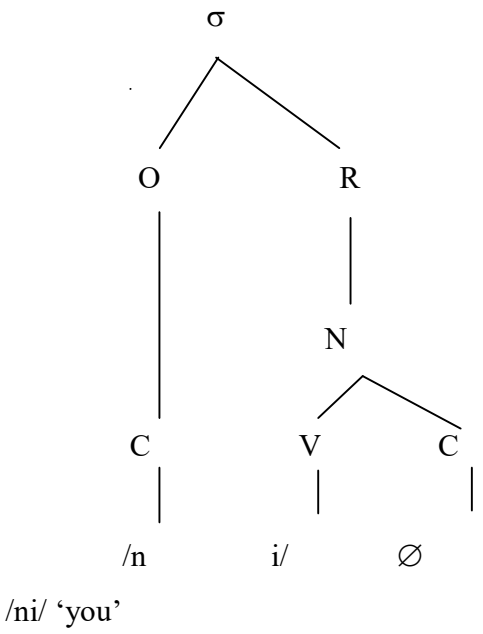
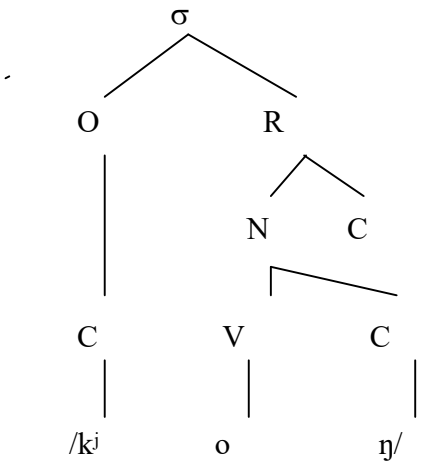


Figure no. 4.7 Light syllable

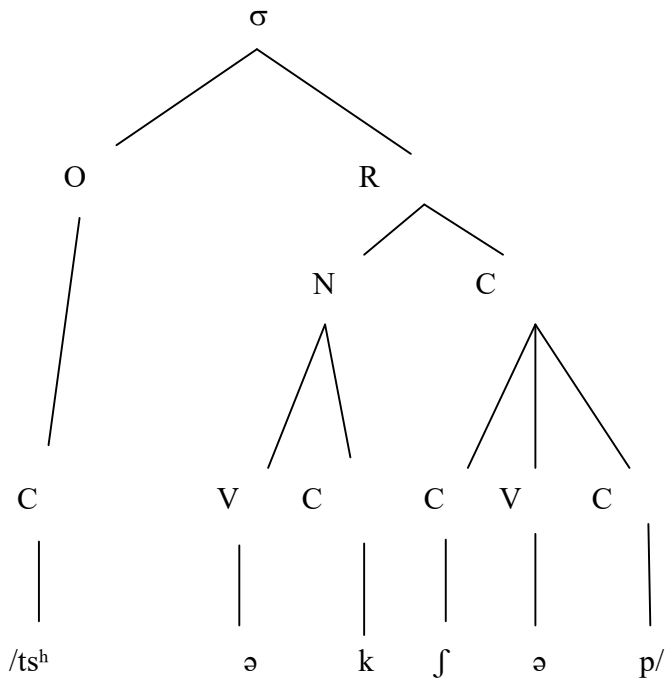
Heavy Syllable:

A type of syllable which the rhyme consist of more than one segment of a nucleus is called heavy syllable. The examples of a heavy syllable structure are given below;



/kʲoŋ/ ‘people’

Figure no. 4.8 Heavy syllable



/tsʰák.ʃə̃p/ ‘hive’

Figure no. 4.9 Heavy syllable

4.3. Tone:

Roach (1983) explain that ‘we will not be interested in all aspects of a speaker’s pitch, but only in those which carry linguistic information’ as in tone. Tones are change in pitch sound of a language. It comes in higher and supra segmental level. According to Ladefoged ‘pitch patterns that affect the meanings of individual words are known as tones.’ The pitch is an auditory property and the pitch pattern in a sentence is known as intonation noted by Ladefoged and Johnson. This intonations or the pitch level depends on an individual. Gussenhoven (2004) stated that tone is a phonological category that distinguishes the meaning of a word or utterances. Languages use pitch variation contrastively for the expression of discoursal meaning and for making phrases as in Gussenhoven (2004; 22).

K.L Pike (1949) defines tone language as ‘a language having lexically significant, contrastive but relative pitch on each syllable’. Tone is a feature of the syllable and is one of the most significant features in Tibeto-Burman languages. Yip (2002; 1 and 17) says that 60-70% of the world’s languages are tonal and is an areal feature found in most of the Southeast Asian Languages. Language in which the meaning of words is distinguished by pitch level that is the low, high or mid ranges are called tonal language. It is also found that the occurrences of tone levels in Lotha are across with all types of syllables (**see Table no. 4.1**).

4.3.1 Types of tone in Lotha:

The types of tone in a language are register tones and contour tones in a phonetic or phonemic level. In a phonemic level the different pitch level affects the word of a meaning as change in pitch changes the meaning of the word but at the phonetic level it does not change any meaning of the word. In tonal languages, there are two types on tone namely; register and contour tones. Register tone have a certain height within the pitch range of the speaker i.e., the high (˝), low (˵) and mid tones

(¯). On the other hand, counter tones involve a movement from one pitch level to another level i.e., 'rising-falling' or 'falling-rising' tones.

Michaud and Vaissière (2015) introduced the notion of tones as 'level tone' and 'counter tone'. It also broadly stated that 'level tone' refers to a tone that is defined simply by a discrete level of relative pitch. Additionally both defined that the level-tone systems have two to five levels of relative pitch. Clark et al. (1990) presents the responsibility of Pike for a distinction between Register (level-pitch) systems and Contour (or gilding-pitch) systems. In 2004, Gussenhoven also stated that the tone languages caries register tone languages and counter tone languages. It correlates with Lotha language that carries a tonal language which falls under register (level-pitch) systems with three relative pitch or levels ie, High, Mid and Low tones.

Like the Tibeto-Burman languages and other Naga languages as noted by Amos Teo (2014) confirms 'three contrastive level tones in Sumi'. As in the works of Coupe (2007) it is found that Mongsen Ao too bears three-level lexical tone system contrasting high, mid and low tones.While analyzing tones in Lotha Language, it was found that it has three register tones which are also seen in the works of Acharya (1975) and Marrison (1967), Bruhn (2014) and Ezung (2016). Likewise, Lotha language is also a tonal language and exhibit three tones; High, Mid and Low and the tones are phonemic in nature where the different pitch level or tone changes the meaning of a word. High tone is marked as (ˊ), Mid tone is marked as (¯) and Low tone is marked as (ˋ) as shown in examples below;

High	**Mid**	**Low**
/ʃɪ́.ló/ 'to buy'	/ʃɪ̄.lō/ 'slate'	/ʃɪ̀.lò/ 'here'
/pʲíá/ 'destroy'	/pʲīā/ 'feeding animals'	/pʲìà/ 'dry'
/máná/ 'same price'	/mānā/ 'profit'	/mànà/ 'munching'
/ó.kfə́/ 'kidney'	/ō.kfə̄/ 'wound'	/ò.kfə̀/ 'fishing hook'
/é.fə́/ 'to weight'	/ē.fə̄/ 'to steal'	/è.fə̀/ 'indirect'

/ʧə́.pfə́/ ‘water container’ /ʧə̄.pfə̄/ ‘tributary’ /ʧə̀.pfə̀/‘chinese knotweed’

4.3.2. Tone Bearing Unit (TBU):

The ‘Tone Bearing Unit’, or TBU, is the element in the segmental structure to which tone associates Gussenhoven Carlos (2004; 29). The tone-bearing unit (TBU) are the tonal contrast between High, Mid and Low tones exhibited in a syllables. As in the works of Bruhn (2009) also stated that tone-bearing unit is the syllable at the three tone level that is High, Mid and Low tones. It is a contrast of tones (H, M and L) in a syllable within the same word.

In the given examples below, the occurrence of HL and LH in disyllabic words are not present in Lotha where the occurrences are attested in trisyllabic and tetra syllable words (**see Table no.4.6, 4.7, 4.8, and 4.9**). In the case of Mongsen, the combinations L-H and L-M does not occur in disyllabic words and were attested in trisyllabic words stated by Coupe (2007). The examples of tonal contrastive or tone-bearing unit in Lotha are given below respectively:

H	tsona	/tsó.ná/	‘clearing place’
M	tsona	/tsō.nā/	‘(do you want to) eat’
L	tsona	/tsò.nà/	‘increasing something’

H	shi	/ʃĩ/	‘to buy’
L	shi	/ʃì/	‘this is’

Here, the minor syllable contrast with LL, MM, HH, LM and HM in disyllabic words in the given below;

LL	tssana	/ts^{h}à.nà/	‘to cut firewood’
HH	tssana	/ts^{h}á.ná/	‘to go away’

MM	tssoana	/tsʰōā.nā/	‘to an act of entrusting someone to work’
HM	yena	/jé.nā/	‘to fill’
LM	yena	/jè.nā/	‘to sell’
HM	anoa	/á.nōā/	‘(I’ am in) pain’
MM	anoa	/ā.nōā/	‘lend me’
HM	tsena	/tsé.nā/	‘to wrap’
LL	tsena	/tsè.nà/	‘to cut off or to kneel’
HM	pjiala	/pʲíá.lā/	‘kneading’
MM	pjiala	/pʲīālā/	‘giving’

4.3.3. Distribution of tones in segments:

In the works of Amos Teo (2014) on Sumi distribution of tones in segments is relatively unrestricted. Language with a contrast on every syllable is termed as unrestricted tone language stated by Gussenhoven (2004). Based on Teo’s explanation on distribution of tones in Sumi, Lotha tones are also similar with Sumi where the tones in the segments are equally distributed. It exhibits in all three tones level phoneme, vowel phonemic in the syllables. The examples are as follows:

Distribution of tone in Stop

	Low	**Mid**	**High**
/p/	apo /à.pò/ ‘father’	epo /è.pō/ ‘hole’	aporo/à.pó.ró/ ‘paternal uncle younger’
/pʰ/	ophon /ò.pʰõ̀/ ‘fats’	ophi /ò.pʰī/ ‘plate’	ophi /ò.pʰí/ ‘thigh’
/t/	ata /àtà/ ‘elder brother or sister’	ete /è.tē/ ‘we/us’	lanpen/lã̀.pẽ́/ ‘angle’
/tʰ/	ethunga /è.tʰèŋā/ ‘support’	ethunga /è.tʰūŋā/ ‘’ ‘blow up’	ethunga /è.tʰéŋā/ ‘leaking’
/k/	oki /ò.kì/ ‘house’	okok /ò.kōk/ container’	aka /à.ká/ ‘my sister’
/kʰ/	ekha /è.kʰà/ ‘one’	ekho /è.kʰō/ ‘steps’	ekha /é.kʰá/ ‘study’

Table no. 4.10

Distribution of tone in fricatives and affricatives

	Low	Mid	High
/f/	ofü/ò.fə̀/ ‘skin’	efü /è.fə̄/ ‘long cut’	afü/á.fə́/ ‘native/local’
/v/	vüa/və̀à/ ‘walk or move on’	vana /vànā/ ‘fishing with net’	vüa /və́á/ ‘to stitch’

/h/	oha /ò.hà/ ‘charm’	oha /ò.hā/ ‘load’	ohan /ò.hã́/ ‘curry’
/s/	osü /ò.sə̀/ ‘foot print’	esü /è.sə̄/ ‘similarities’	osü /ò.sə́/ ‘cloth’
/z/	zana /zà.nà/ ‘limited’	zena /zè.nā/ ‘extreme cold’	ezüm /è.zə́m/ ‘handful’
/ʃ/	shana /ʃà.nā/ ‘make a hole’	shakata /ʃà.kā.tā/ ‘pull up’	shanjopvüi /ʃə̀̃.ʧō.pfə́í/ ‘savior’
/ʒ/	ezhü /è.ʒə̀/ ‘deep shallow pond’	ezhü /è.ʒə̄/ ‘breeze or air’	ozhü /ò.ʒə́/ ‘rope’
/ʧ/	choa /ʧòà/ ‘go down’		choa /ʧóá/ ‘discolor’
/ʧʰ/	ochon /òʧʰṍ/ ‘mud’	echak /è.ʧʰāk/ ‘shortcut’	echan /è.ʧʰẽ́/ ‘backbone’
/ts/	etsü /è.tsə̀/ ‘sir’		etsü /è.tsə́/ ‘walking stick'
/tsʰ/	otssak /ò.tsʰāk/ ‘bee’	otssuk /ò.tsʰūk/ ‘paddy’	otsso /ò.tsʰó/ ‘spear’

Table no 4.11

Distribution of tone in nasal, literal and trill

Phoneme	Low	Mid	High
/m/	omi /ò.mì/ ‘sister-in-law ie brother’s wife’	om /ò.m̄/ ‘virgin or pure’	omo /ò.mí/ ‘fire’
/m̥/	ohüm /òm̥̀/ ‘powder’		ohüm /ōḿ̥/ ‘fine feathers or hair’
/n/	ano /à.nò/ ‘my aunty’	anoa /ā.nōā/ ‘lend me’	anoa /á.nóá/ ‘ pain me’
/ŋ/	eng /èŋ/ ‘sun’	enga /è.ŋā/ ‘one day’	
/n̥/	enha /è.n̥à/ ‘keep on warm’		enha /è.n̥á/ ‘smell it’
/ɲ/	nyanying /ɲà.ɲìŋ/ ‘kind of cicada’	nyana /n.ɲà.nā/ ‘ to celebrate feast’	nyanying /ɲá.ɲíŋ/ ‘disturbances’
/ɲ̊/	sonhya /sõ̀.ɲ̊à/ ‘inclusive’	enhya /è.ɲ̊ā/ ‘gravy’	enhying /ē.ɲ̊áŋ/ ‘guard’
/l/	ola /ò.là/ ‘middle’	ela /ē.lā/ ‘vomit’	olan /ò.lā́/ ‘path or road’
/l̥/	lholho /l̥ò.l̥ò/ ‘very weak’	elhi /è.l̥ī/ ‘work’	elha /è.l̥á/ ‘stylish or show off’
/r/	oron /ò.rõ̀/ ‘ambush’	oro /ò.rō/ ‘baby or young’	orang /ò.ráŋ/ ‘money’
/j/	yena /jè.nà/ ‘sell’		yena /jé.ná/ ‘to fill’

Table no. 4.12

Distribution of Vowels

Phoneme	Low	Mid	High
/i/	oni /ò.nì/ 'glue or cum'	eni /è.nī/ 'two'	echi /è.ʧǐ/ 'thick'
/e/	echüng /è.ʧə̀ŋ/ 'false'	ethena /è.tʰē.nā/ 'to quake or shake'	echei /é.ʧéí/ 'spy'
/a/	vana /và.nà/ 'catching fish with net'	vena /vē.nā/ 'fan it'	vana /vá.ná/ 'there is'
/ə/	ejü /è.ʧə̀/ 'egg'	ejü /è.ʧə̄/ 'horn'	ojü /ò.ʧə́/ 'water'
/o/	otong /ò.tòŋ/ 'tree'	odon /ò.tȭ/ 'luck'	ono /ò.nó/ 'poisonous roots use for fishing'
/u/	eyuo /è.jùò/ 'able to drink'	eyu /è.jū/ 'drink'	eyu /è.jú/ 'tallness of a human and animals'

Table no. 4.13

4.3.4. Tone Sandhi:

Tone Sandhi is an alternation of tone and 'is known to occurs in Tibeto-Burman languages in north-east India/Burma region' Coupe (2007; 67). Burquest (2001) defines tone sandhi, as a change of tone that occurs when different tones come together in a word or phrase. Tone sandhi is very common in nominal compounding word in Sumi as described by Amos Teo (2014).

Lotha also exhibits tone sandhi. In Lotha, it is found that the Low tone on a noun changes to a High tone when it becomes head noun of a word. In examples given below, the alternations of tones are L to M, M to H, H to M, L to H;

olan /ò.lɜ̃/ ‘road’ + otsi /ò.tsí/ ‘side’ ⟶ /lɜ́.tsí/
‘roadside’

thera /tʰé.rá/ ‘flower’ + oli /òlī/ ‘field’ ⟶ /tʰé.rá.lí/
‘flower garden’

woko /vō.kō/ ‘pig’ + opvü /ò.pvə̄/ ‘mother’ ⟶ /vō.kō.pvə́/
‘piglet’s mother’

a /ā/ ‘I or my’ + oho /ò.hò/ ‘teeth’ ⟶ /á.hò/
‘my teeth’

ojü /ò.ʧə̀/ ‘water’ + elum /è.lə̀m ‘hot/warm’ ⟶ /ʧə́.lə́m/
‘warm water’

ora /ò.rā/ ‘forest’ + eran /è.rɜ̀̃/ ‘mature’ ⟶ /rá.rɜ̀̃/
‘deep forest’

There is a tone sandhi rule which effects rising tone syllable ending with open syllable.

Rule: R ⟶ L/_ F

4.3.5. Tone Sandhi in Nominal Compounds:

In the above example on (**4.3.2**) the Lotha exhibits three levels or pitch which consists of Low, Mid and High tones. From the above examples, it is seen that in Lotha, the occurrences of the three tones are freely exhibited in any of the vowel phoneme as well as in the consonant phonemes. The compounds are also attached in genitive form (**see 4.3.4 example**) which can use simply in one head noun with affixes or it can be even used in two separate words.

The below given examples will discuss briefly on phonological rules or morphological rules and tone sandhi of Lotha based on Amos Teo (2014) interpretation on Sumi tone. Tone sandhi nominal compound is where the two separate words are combining to form a compound noun representing both in a single word and in genitive, it can be also used as a separate word. In this case, when the modifier of a noun is attached to another noun, the prefix (rational or non-rational) of the modifier noun gets deleted forming into a compound noun resulting in a change of tone or in other words there is a tone sandhi alternation. The examples in Lotha are shown below:

mangsü /máŋ.sə̄/ ‘cow’ + oso /ò.sō/ ‘meat’ ⟶ /māŋ.sə̄.sō/ ‘beef’

hono /hō.nó/ ‘hen’ + oro /ò.rō/ ‘baby’ ⟶ /hō.nō.rō/ ‘chicks’

a /á/ ‘i/my’ + otsük /ò.tsə̄k/‘body’ ⟶ /à.tsə̄k/ ‘my body’

a /á/ ‘i/my’ + opo /ò.pō/ ‘fat her’ ⟶ /à.pō/ ‘my father’

amo /à.mò/ ‘my uncle’ + oki /ò.kī/ ‘house’ ⟶ /ā mō.kī/ ‘my uncle’s house’

süyano /sɔ́.jə̃́.nō/ ‘deer’ + oso /òsō/ ‘meat’ ⟶ /sə̄.jə̃̄.nō.sō/ ‘venison’

The above examples show that a segment or word is deleted in the medial position in a compound word following the changes of tones where the L becomes M and H becomes M as well as L.

4.3.6. Tonemes:

A phoneme distinguished from another only by tone. It is a phoneme that carries same words and spelling that provide differences in meaning by changing tones. The below examples are given in Lotha respectively;

mhona	/m̀.m̰ɔ̃̄na/	'good'
mhon	/ḿ.m̰ɔ́/	'not good'
mha	/m̀.m̰à/	'bless/ luck'
mha	/ḿ.m̰á/	'not bless/ luck'
nsa	/ǹ.sà/	'straight'
nsa	/ń.sā/	'not straight'
nso	/ǹ.sō/	'lend/ borrow'
nso	/ń.só/	'not to lend/ borrow'
khanga	/kʰá.ŋā/	'to fast'
khanga	/kʰā.ŋā/	'creak'
khanga	/kʰà.ŋā/	'hard'
omh	/ó.m̰/	'baby hair'
omh	/ò.m̰/	'powder'

4.3.7. Tonally unspecified prefixes:

To demonstrate the tone assignment, the tonally unspecified prefixed in Lotha are totally adjacent specified root in an output tone or pitches. The rational prefix tə́- and non-rational prefix á- as in Ao was collectively termed as nominal prefixes in coupe (2007; 66). Similarly in Lotha, the rational prefix is á- which carries mid and high tone in the root-initial syllable, the prefix a- reflexes kinship and body terms. In this study it is found that in some cases the non-rational do not have prefix o- as in khvürü (head), shantio (star) etc. The following are the examples of Lotha are given below;

Rational prefix a-:

/á-ʧ̰ó/	(RL- leg)	'my leg'
/á.e.lóí/	(RL-wife)	'my wife'

/ā-kā/	(RL-younger sister)	‘my younger sister
/ā-lūm/	(RL-heart)	‘my heart’

Non- Rational prefix o-:

/ó-rá/	(NRL-forest)	‘forest’
/ó-hǻ́/	(NRL-curry)	‘curry’
/ō-ʒə̄/	(NRL-rope)	‘rope’
/ō-sō/	(NRL-meat)	‘meat’

4.3.8. Nominal Prefixes in Lotha:

In Lotha, in the case of nominal prefixes, the prefix (o- and a-) is obligatory with monosyllabic noun roots. This shows that prefix o- is with nouns and proper nouns where prefix o- is dropped in the initial and ‘possessed’ noun root compounded with the ‘possessor’ as in the examples, Rena oho /rena oho/ (Rena’s teeth). And in some cases, the prefix o- do not drop after it become a compound word (Table no.4.14). In Lotha, the tone alternation is illustrating with LL, MM, HH, LM, HM and HL. The given below table no… examples are divided into three groups;

i) Group 1; o- ‘non-relational’ (NRL); a- ‘I and my’ (RL);

ii) Group 2; ompo/mpo- ‘his/him’; ompvə- ‘her’

iii) Group 3; ni- ‘you (SG); ete/e- ‘our’; nte- yours; onte- ‘their’

Possessive prefix paradigm for monosyllablic and sesquisyllabic noun root;

root	gloss	/o-/ ‘NRL’	/a-/ ‘RL or 1SG’	/ni-/ ‘2SG’	/ompo-/ ‘3SG MAS’	/ompvə-/ ‘3SG, FEM’	/ete-/ ‘1PL’	/nte-/ ‘2PL’	/onte-/ ‘3PL’
/opo/	father	/ò.pō/	/à.pō/	/ní.pō/	/ōmpō.òpō/ or /mpō.òpō/	/ōmpvə.òpō/	/étè.ò̩pō/ or /é.òpō/	/ńtè.òpō/	/ónté.òpō/
/ono/	aunty	/ò.nō/	/à.nō/	/ní.nō/	/mpō.ònō/	/ōmpvə.ònō/	/étè.ònō/	/ńtè.ònō/	/ónté.ònō
/ota/	elder brother or sister	/ò.tà/	/à.tà/	/ní.tà/	/mpō.òtà/	/ōmpvə.òtà/	/étè.òtà/	/ńtè.òtà/	/ónté.òtà/
/oho/	teeth	/ò.hò/	/à.hò/	/ní.hò/	/mpō.hò/	/ōmpvə.hò/	/étè.hò/	/ńtè.hò/	/ónté.hò/
/okhe/	hand	/ò.kʰé/	/à.kʰé/	/ní.kʰé/	/mpō. kʰé/	/ōmpvə.kʰé/	/étè.kʰé/	/ntè.kʰé/	/ónté.kʰé/
/oʧə/	water	/ò-ʧə/	/à.ʧə/	/ní.ʧə/	/mpō.ʧə/	/ōmpvə.ʧə/	/étè.ʧə/	/ntè.ʧə/	/ónté.ʧə/
/osə/	cloth	/ò.sə́/	/à.sə́/	/ní.sə́/	/mpō.sə́/	/ōmpvə.sə́/	/étè.sə́/	/ńtè.sə́/	/ónté.sə́/
/oki /	house	/ò.kì/	/à.kì/	/ní.kī/	/mpō.kì/	/ōmpvə.kì/	/étè.kì/	/ntè.kì/	/ónté.kì/

Table no. 4.14

CHAPTER 5
PHONOLOGICAL PROCESS OF LOTHA

5.1. Introduction:

This chapter focuses on the phonological processes that occur in Lotha. Phonological processes are rules that exhibit in an individual pronunciation of a word or words in language/languages. A phonological process is a part of language in communication. To understand phonological process one should know the phoneme and allophone of the given environment or in a neighboring segments. This phonological process or rules is a kind of abstract or mental representation of a speaker, it happens when the speaker actually put (output) it into the action ie, pronunciation.

5.2. Meaning of phonological process:

Phonological process is a process in which a segment or feature of a sound changes or segment that is modified in various phonetic environments. This significant feature may either change in the place of articulation or in the manner of articulation. According to Schane (1973) 'when morphemes are combined to form words, the segments of neighboring morpheme become juxtaposed and sometimes undergo change. Changes also occur in environments other than those in which two morphemes comes together'.

In 1995, Gold Smith definition on phonological rules 'as mappings between two different levels of sound representation as in the abstract underlying level and the surface level, resulting that the phonological rules describe how a speaker goes from the abstract representation stored in their brain, to the actual sound of their articulation (speaks)'. The change of sounds and the conditioning environment or representation of the word can be (**seen in examples 5.2.1**).

() Focus (input) + Context (environment): Structural description

Output: Structural Change

A ⟶ B/ m-n

A becomes B between m and n

{minimal feature specification of segement(s) -undergoing the changes} → {Features that change} / {minimal specification of left-hand / 1st context}

{minimal specification of right-hand / 2nd context}

Radford et al (2008) stated that 'when words are combined with affixes and other words to form larger words and phrases, it is often found that the phonemes of the word taken in isolation undergo changes due to the influence of surrounding phonemes'. They further explains on English examples, as in plurality /s/ may be pronounced as [s] in the word house, [z] as in cabs, or [iz] as in the houses, these are some of the examples where the speaker are actually used in the surface level of pronunciation. The hierarchy of phonological processes is given below in structural form;

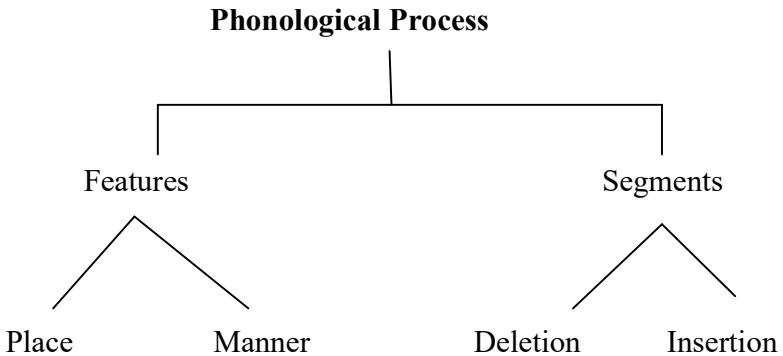


Figure no. 5.1

5.2.1 Types of Phonology Processes:

Various types of phonological processes which make a segment or feature of a sound change are seen to be present in Lotha. The different types of these phonological processes are discussed below;

1. Assimilation:

Assimilation is a phonological process where a segment influences the neighboring segment (Schane, 1973). According to Lass (1984; 171), in assimilation one segment becomes more like (or identical to) another (or to become more like each other). Further, he mentions that assimilation involves direction. The assimilating influence may work either to the right or to the left. Traditionally, progressive assimilation is an influence from left-to-right or forward segment whereas regressive assimilation determines from right-to-left or backward segment. The assimilation examples are given in English cited from Lass (1984; 171);

i) Progressive assimilation examples;

(a)	(i)	/əupən/	[əupm̥]	‘open’
	(ii)	/sɛvən/	[sɛvm̥]	‘seven’

ii) Regressive assimilation examples;

(a)	(i)	/aɪm kʰʌmɪŋ/	[aɪŋ kʰʌmɪŋ]	‘I’ am coming’
(b)	(ii)	/aɪ nɒt/	[aɪn nɒt]	‘I’ am not’

In Lotha, the progressive assimilation is found to be present. This progressive assimilation is usually found in palatalization, nasalization and labialization. The examples are given below;

Progressive assimilation:

Progressive assimilation is when the following sound effects or when a sound is being assimilated or affected by the following sounds. Progressive assimilation is also known as preservative assimilation Lass (2014). This assimilation is said to be

preservative when the features of a phoneme are modified by the features of a neighboring sound. The following examples in Lotha are given below;

a) Palatalization:

Palatalization is the process of softening of a consonant by pushing the middle of the tongue towards the centre of the roof of the mouth ie, towards the palate. In Willis dissertation (2007) noted that 'the change in primary articulation to palatal is triggered by the phonological environment', this happens when the surrounding segment gets triggered to the following segment. Interestingly, in Lotha it is found the stop consonant [p, k] gets palatalized when it is followed by glide/approximants /j/. The two stop sound /p/ and /k/ gets palatalized or assimilated to /pʲ/ and /kʲ/. Thus, in Lotha the approximants /j/ constitutes one phonetic environment with three segments.

[p]

Rule 1

C- [+ bilabial stop] ⟶ C/- [+ palatalized]

/p/ ⟶ /pʲ/-

Initial

pyaka	⟶	/pʲá.kā/	'one rupee'
pyata	⟶	/pʲà.tā/	'mop'
pyala	⟶	/pʲā.lā/	'soft and weak'
pyantsü	⟶	/pʲə̀̃.tsə́/	'circle or flat shape'
pyansüa	⟶	/pʲə́̃.sə̀à/	'oblate spheroid'
pyanga	⟶	/pʲà.ŋā/	'pour over'

Medial

epjaka	⟶	/èpʲāk.kā/	'flat'
wokopja	⟶	/vò.kō.pʲà/	'feeding pig'
tsopyia	⟶	/tsō.pʲà/	'test'

epyaka	⟶	/è.pʲá.kā/	‘flat’
epjaktheta	⟶	/é.pʲāk.tʰé.tā/	‘kneel down’
tssokrapja	⟶	/tsʰōk.rá.pʲà/	‘drying grain’

[k]

Rule 2

C- [+ velar stop] ⟶ C/- [+palatalized]

/k/ ⟶ /kʲ/-

Initial

kjakrana	⟶	/kʲák.rà.nā/	‘cunning’
kjakshia	⟶	/kʲāk.ʃīā/	‘bad intentions which cause troubles’
kjashük	⟶	/kʲā.ʃə̄k/	‘crow’
kja	⟶	/kʲā/	‘cry’
kjakthachi	⟶	/kʲāk.tʰē.ʧī/	‘causing harmful’
kjana	⟶	/kʲá.nā/	‘match’

Medial

ekji	⟶	/è.kʲī/	‘bloom’
okjak	⟶	/ō.kʲāk/	‘talent’
vonkyarak	⟶	/vő.kʲà.rāk/	‘hoarse’
metakyong	⟶	/mé.tá.kʲȭ/	‘citizen’
jokyimtsoa	⟶	/ʧō.kʲīm.tsoā/	‘to accompany’

b) Labialization:

According to Clark and Yallop (1995; 64) ‘labialization is the addition of lip rounding or lip protrusion to any sound which is normally articulated with lips in a neutral or spread position’. It is a ‘rounding or protrusion occur at the end of the main articulation as part of the transmission to the next segment’ Clark and Yallop (1995; 64). In other words, it is the process where consonants sound is replaced with labial without changing the place of articulation and becomes rounded

consonants. Labialization/rounding, the phonemes in a morphemes are affected by rounding vowel segments found in their nearby, especially preceding them Garoma (2012) Academic Journals. In Lotha, [t, l] gets labialized when it is followed by glide/approximants /j/. The alveolar stop /t/ and lateral /l/ gets labialized to /t^{w} / and /l^{w}/. This process occurs when the segment is affected towards the following segment/ segments which cause the change of the following segment (**see rule no. below Rule no. 2**). The two examples in Lotha are given below;

/t^{w}/ is a voiceless labialization alveolar; it is always realized as [t^{w}]. It occurs only in the word initial position. The examples of labialization in Lotha are as follows:

[t^{w}]

Rule 3

C- [+ alveolar stop] ⟶ C/- [+labialized]

/t/ ⟶ / t^{w}/-

tyua	⟶	/t^{w}ūā/	‘oily’
tyuta	⟶	/t^{w}ū.tā/	‘to discus’
tyutasanata	⟶	/t^{w}ū.tā.sā̰.tā/	‘meeting’
tyujü	⟶	/t^{w}ū.ʧə̀/	‘oil’
tyuala	⟶	/t^{w}ūālā/	‘to an extreme close’

[l^{w}]

Rule 4

C- [+ literal] ⟶ C/- [+labialized]

/l/ ⟶ /l^{w}/-

Initial

lysora	⟶	/l^{w}ù.sō.rā/	‘differently able’
lyukata	⟶	/l^{w}ú.kā.tā/	‘pour over’
lyuala	⟶	/l^{w}uá.lā/	‘doing something’

Medial

pfülyuhanlyu	⟶	pfə́.l^{w}ū.hə̀̃.l^{w}ū/	‘suffusion’
langlyua	⟶	làŋ.l^{w}úā/	‘kind of exchange’
chonphalyu	⟶	/ʧȭ.p^{ʰ}ā.l^{w}ù/	‘clay’
sülyuo	⟶	/sə̀.l^{w}uō/	‘reverse’
pvülyuhanlu	⟶	/pvə̄.l^{w}ú.hə̀̃.l^{w}ū/	‘abundance’

c) Nasalization:

Nasalization is a process where an oral segment acquires nasality from the neighboring nasal segment. It makes the neighboring segments more alike by duplicating with a phonetic property. In the production of nasalized vowel, the air is escaped through the oral passage as well as the nasal passage while following the nasal sound.

According to C. Bickford and Floyed (1981) ‘Nasalized sounds have air flow and resonance in both the oral and nasal cavities.’ A nasalized vowel is produced when the soft palate is lowered to allow the air to pass through the mouth. They further explain that vowels nasalization is typically the result of the influence of surrounding nasal stops around the vowels.

The study found that the nasalized vowels in Lotha are not phonemic. The presence of the alveolar nasal /n/ following the vowel [e], [a] and [o] undergoes progressive assimilation **(see examples in 5.2.1, 1.c**), thereby affecting the airflow to pass through the nasal passage thus, making it a nasalized vowel. In Ladefoged and Johnson (2012; 231) ‘The “tilde” diacritic [˜] above the vowel indicates that it is nasalized’.

The nasalized vowels in Lotha are /ẽ/, /ã/ and /õ/. This study found that nasalization of vowels occurrence is not just in the final position but also in the medial position. Analysis of the sounds of more than three thousand words could not establish the occurrence or the nasalization of the vowels at the initial position.

It is found that nasalization of vowel sounds in Lotha is very common. The three vowels sounds are the mid-high unrounded vowel /e/, low front vowel /a/ and mid-high rounded vowel /o/ which gets nasalized to / ẽ/, /ã/and /õ/. These vowels get

nasalized when the adjacent nasals occur within the same syllable. As in the examples mentioned vowel sounds; the alveolar nasal /n/. The given examples of the Lotha are shown below respectively;

Rule 5

V- [+ closed mid front] ⟶ V/- [+ nasalized]

/e/ ⟶ /ẽ/-

/e/ changes to /ẽ/

/ẽ/

Medial

thenphen	⟶	/tʰé̃.pʰẽ̄/	‘alter’
benchoa	⟶	/pé̃.ʧōā/	‘unload’
nbenrü	⟶	/n.bé̃.rə̄/	‘abnormal’
mphensü	⟶	/m.pʰé̃.sə̄/	‘cloths’
chenrü	⟶	/ʧʰé̃.rə̄/	‘spinal cord’
ekhenthav	⟶	/é.kʰè̃.tʰāv/	‘horrible’
shenka	⟶	/ʃé̃.káē/	‘affiliate’
chenchak	⟶	/ʧé̃.ʧāk/	‘break in between of something’
zenka	⟶	/zé̃.ka/	‘determination’
vena	⟶	/vé̃.nā/	‘matched’

Final

elhitssophen	⟶	/è.l̥ī.tsʰōpʰẽ̄/	‘work place’
tsüyanphen	⟶	/tsɔ́.já̃.pʰẽ̄/	‘kitchen or cooking place’
othen	⟶	/ò.tʰẽ̄/	‘offering’
ethen	⟶	/è.tʰẽ̄/	‘new’
otssen	⟶	/ò.tsʰé̃/	‘cost’
nzan	⟶	/n.zã/	‘love’

emen	→	/ē.mẽ́/	‘mouth’
yiphen	→	/jíp.pʰẽ́/	‘bedroom’
ekhen	→	/è.kʰè̃/	‘afraid’
men	→	/m.mẽ́/	‘dirt/sin’

Rule 6

V- [+ low front] → V/- [+ nasalized]

/a/ → /ã/-

/a/ changes to /ã/

/ã/

Medial

ethelanlia	→	/è.tʰélã́.līā/	‘necessarily’
vansaphen	→	/vã́.sá,pʰẽ́/	‘seat’
lanchia	→	/lã̀.ʧĩā/	‘release’
pankawoe	→	/pã̀.kā.wūē/	‘beyond’
ranki	→	/rã̀.kī/	‘small hut/house’
valanchi	→	/vá.lã́.ʧĩ/	‘leaving aside’
rantsü	→	/rã́.tsɔ́/	‘cannon’
yankho	→	/jã́.kʰō/	‘colony’
lansoe	→	/lã́.sōī/	‘leader’
tsankata	→	/tsã́.kātā/	‘exceed’
hanpong	→	/hã̀.pōŋ/	‘cock’

Final

loran	→	/lo.rã́/	‘spinster’
olan	→	/o.lã́/	‘path’
kyiman	→	/kʲa.mã́/	‘free’
mihan	→	/mi.hã́/	‘charcoal’
otsan	→	/ò.tsẽ̄/	‘hair’
lankhan	→	/lã́.kʰã̄/	‘difficulty’

othan	→	/ō.tʰǎ/	‘offering’
solan	→	/só.lã̄/	‘organs’
eran	→	/è.rã̄/	‘mature/ older’
eyiechan	→	/ē.jī.è.ʧã̄/	‘position’

Rule 7

V- [+ back rounded] → V/- [+ nasalized]

/o/ → /õ/-

/õ/

Medial

/o/ changes to /õ/

eshonkata	→	/è.ʃő.kā.tā/	‘stand on’
mhonki	→	/m̩ő.kí/	‘roof’
monjüng	→	/mò̩.ʧə̀ŋ/	‘zero’
montoka	→	/mő.tōk.kā/	‘to be loss’
montssoka	→	/mő́tsʰō.kā/	‘thankful’
wopan	→	/wó.pǎ/	‘family’
tonphen	→	/tò̩.pʰế/	‘cross’
zonkata	→	/zò̩.kā.tā/	‘lean’
ponchan	→	/pő.ʧà̃/	‘outlook’
somonekum	→	/ó.mő.e.kūm/	‘soul’
onpvüro	→	/sò̩.pvə́.rō/	‘aged woman’

Final

ovon	→	/ó.vȭ/	‘sound’
odon	→	/ò.tȭ/	‘forehead’
eson	→	/è.sȭ/	‘old’
olanolon	→	/olǎ.olǎ/	‘verities’
lankon	→	/lǎ.kő/	‘traveler’
nkümshon	→	/n.kəm.ʃȭ/	‘economic’

evon	→	/è.vɔ̃̄/	‘arm’
lipon	→	/lí.pɔ́̃/	‘terrain’
oson	→	/ō.sɔ́̃/	‘barn’
pvütsson	→	/pvə̀.ts^{h}ɔ̀̃/	‘glory’

2. Insertion:

It is an addition of a word in a given morpheme. Insertion is a phonological process in which a vowel, glide or a consonant is added to a morpheme or word. The insertion of the sounds can be either in the initial or medial positions. It is also in the form of geminate. The examples are provided in Lotha respectively:

Consonant Insertion in Lotha:

a) Insertion of the bilabial nasal /m/

mhona	→	/m.m̥ò.nā/	‘good’
mhon	→	/m.m̥ɔ́̃/	‘not good’
mha	→	/m̀.m̥ā/	‘blessing’
mha	→	/ḿ.m̥à/	‘not bless’
men	→	/m̀.mɛ̄̃/	‘dirt’
men	→	/ḿ.mɛ́̃/	‘not dirty’
me	→	/ḿ.mè/	‘ok’
mha	→	/m.mā/	‘stomach’

b) Insertion of the velar nasal /n/

nana	→	/ǹ.nà.nā/	‘smelly’
na	→	/ń.ná/	‘not smelly’
noa	→	/n.nōā/	‘a rope or trade that combine together’
nok	→	/n.nōk/	‘massage’
nona	→	/n.nó.nā/	‘mess up’
no	→	/ń.nó/	‘not in pain’
na	→	/n.nà/	‘you (SG)’

c) Insertion of the voiceless bilabial plosive /p/

yipa	→	/jīppā/	'to sleep'
okupi	→	/òkúppì/	'under/ down'
etsüpa	→	/è.tsə́p.pā/	'to tug'
ntsüpa	→	/n.tsə́p.pā/	'to kiss'
echüpa	→	/è.ʧə́p.pā/	'to print'
zuppa	→	/zə́p.pā/	'to plaster'
eyipa	→	/è.jīp.pā/	'to bend'
chüpa	→	/ʧə́p.pā/	'to support'
tupa	→	/tə̄p.pa/	'to split '

d) Insertion of the voiceless velar plosive /k/

chukka	→	/ʧʰə́k.kā/	'question'
tssüka	→	/tsʰə́k.kā/	'causing hatred'
eyüka	→	/èjúk.kā/	'a way of wearing or covering something on it'
eyika	→	/è.jīk.kā/	'wearing something on a neck'
chaka	→	/ʧʰāk.kā/	'shortcut'
küka	→	/kə́k.kā/	'to apart'
kaka	→	/kāk.kā/	'creak'
tüka	→	/tə̄k.kā/	'to weave'

3. Deletion:

Deletion is a phonological process where a vowel, glide or a consonant gets deleted. It can be either in the form of losing segment or morpheme in initial, medial or final positions. According to Lass (1984), 'if a segment can emerge from zero, they can also merge with it, i.e., delete'. So the standard format for deletion rules is 'X = Ø.' In this study, Apocope or the loss of final word/ sound were not found in this study. The present of aphaeresis and syncope are given below with examples respectively.

The examples given below are the deletion processes found in Lotha;

(a) Aphaeresis:

It is a phonological process where a segment gets deleted in the initial position is called aphaeresis. The following are examples in Lotha that undergoes aphaeresis; It is found that deletion of the initial vowel sound occurs in colloquial speech and not in the isolation.

Rule 8

V- [+ back rounded] ⟶ V/- [deleted]

/o/ ⟶ ø

We have some example in a sentence given below:

1. 'Shijo oyan ethan'.

/ʃī.ʧō/	**/jã̄/**	/tʰã̄/
This	village	new

'This is a new village.'

2. 'Ni omyingjo kvüto nitsachola'?

/nì/	**/mjīŋ.ʧó/**	/kvə̀.tō nī.tsā.ʧō.lā/
'Your	name	what you'

'What is your name?'

The examples below are in the usage of word in colloquial speech both in formal and informal speech.

ojeni	/ʧè.ni/	'brothers'
oyen	/jé.ní/	'sisters'
omyikhon	/mʲīk.kʰȭ/	'eyelash'
omying	/mʲīŋ/	'name'
oyan	/jã̄/	'village'

In some cases, the deletion of vowel sounds is found in a compound word. It is found that the first word of initial /o/ and second word of initial vowels /o/ and /e/ are dropped in compound words. The deletion of the vowels in compound words is very common in Lotha. The examples are given below in Lotha;

Rule 9

V- [+ back rounded] ⟶ V/- [deleted]

(a) /o/ ⟶ ø

V- [+front high unrounded] ⟶ V/- [deleted]

(b) /e/ ⟶ ø

omha ‘face’	+	orü ‘bone’	⟶	/m̥ā.rū/	‘check bone’
ojo ‘leg’	+	orü ‘bone’	⟶	/ʧo͡.rū/	‘leg bone’
okhe ‘leg’	+	orü ‘bone’	⟶	/kʰē.rū/	‘hand bone’
echan ‘back’	+	orü ‘bone’	⟶	/ʧʰé.rū/	‘back bone
otsan ‘hair’	+	oro ‘baby/young’	⟶	/tsa̋.rō/	‘baby hair’
oyan ‘village’	+	oro ‘baby/young’	⟶	/jà̋.rō/	‘young /new village’
oho ‘teeth’	+	ozü ‘flesh’	⟶	/hò.zə̄/	‘teeth flesh’
ojü ‘water’	+	elum ‘hot/warm’	⟶	/ʧə́.lə́m/	‘warm water’
ora ‘forest’	+	eran ‘mature’	⟶	/rá.rã̀/	‘deep forest’
oli ‘field’	+	ozü ‘flesh	⟶	/lí.zə̀/	‘manure field’

ojü ‘water’ + oli ‘field’ ⟶ /ʧə́.lí/ ‘terrace framing’

oho ‘teeth’ + ozü ‘flesh’ ⟶ /hō.zə̄/ ‘teeth flesh’

oyan ‘village’+ otsai ‘side’ ⟶ /jə̄̃.tsʰáí/ ‘outskirts’

omha ‘face’ + orü ‘bone’ ⟶ /om̥á.rə̄/ ‘check bone’

/o/ is deleted in word initially ie, NRL and RL **(see 4.3.7)** and in compound word /o/ gets deleted first word initially and second word initially. And in RL, some cases the initial word /e/ gets deleted in the second word and it become a compound word.

b) Syncope:

Syncope is a process where a segment or word is deleted in the medial position. In Lotha, this process is found in compound words where /o/ is dropped when it is followed by the plosive velar /k/. This process is very common in Lotha where the second sound or medial sound gets deleted in a compound word.

It is found that the loss of vowel sound is found in a compound word in Lotha, as the vowel /o/ in the middle position is dropped as we see in the given below examples, following the occurrences in /k, r, s, z and l/ environment.

Rule 10

V- [+ back rounded] ⟶ V/- [deleted]

/o/ ⟶ ø [initial]

khaphen ‘study’ + oki ‘house’ ⟶ /kʰā.pʰə́kì/ ‘school’

khumphen ‘worship’+ oki ‘house’ ⟶ /kʰùm.pʰə̄̃.kì/ ‘church’

moʒü ‘medicine’ + oki ‘house’ ⟶ /mò.ʒə̀.kì/ ‘hospital’

ongo ‘fish’ + orü ‘bone’ ⟶ /ōŋō.rə̄/ ‘fish bone’

omha ‘face’	+	orü	‘bone’	⟶	/om̩á.rə̄/	‘check bone’
mangsü ‘cow’	+	oso	‘meat’	⟶	/máŋ.sə́.sō/	‘beef’
woko ‘pig’	+	oso	‘meat’	⟶	/vó.kó.sō/	‘pork’
apo ‘my father’	+	oli	‘field’	⟶	/àpō.lí/	‘my father’s field’

4. Epenthesis:

Carr and Montreuil (2013) stated that epenthesis is when a segment is inserted in a specific environment. The addition of one more sounds to a word is also referred to as epenthesis. The process or change in which successive sound or sounds are separated by an intervening segment either vowel or consonant or sometime sequence of words is called epenthesis. In Lotha, such process is found only in borrowed words, the examples are given below respectively;

flim	⟶	/fī.līm/	‘flim’
drum	⟶	/dò.rām/	‘drum’
slipper	⟶	/sí.lī.pēr/	‘slipper’
bulb	⟶	/bál.fə̀/	‘bulb’
tin	⟶	/tí.jīŋ/	‘tin’
gee	⟶	/gè.və́/	‘gee’
dal	⟶	/dà.lí/	‘dal’
del	⟶	/dé.lī/	‘oil’
kontal	⟶	/kɔ̋.tā.lī/	‘jackfruit’
flask	⟶	/fà.lák.sə̀/	‘flask’
torch	⟶	tó.sə̀.līk/	‘torch’

In the above examples shows, the loan or borrowed words are from Hindi and English where the insertion of consonant and vowels takes place word medially following each of the word.

5. Elision

Carr and Montreuil (2013) defines elision as the change in some segment to another. For example in Polish /i/ in the suffix /ie/ gets elided (is not uttered) in certain cases and is a common phenomenon which a segment is deleted.

Elision is the process by which a vowel at the end of a word is lost or deleted, and On the other hand it is an omission of speech/ sound between syllables or words in the connected speech.

Deletion in an Initial position: The loss of sound from the beginning of a word. In Lotha, elision or deletion of a vowel in the initial position is common. The following are examples in Lotha;

Rule 11

V- [+ back rounded] ⟶ V/- [deleted]

/o/ ⟶ ø

Initial word

ombobo	⟶	/m.pó.pō/	'himself'
ombona	⟶	/m.pō.nā/	'he himself'
ohanlan	⟶	/hǻ.lɜ̃/	'verities of curry'
otsüalan	⟶	/tsə́.lɜ̃/	'verities of rice'
ojolan	⟶	/ʧó.lǻ/	'foot path'
osolan	⟶	/só.lǻ/	'path for wild animals'
oyatsü	⟶	/jə̀̃.tsə̀/	'big village'
odentsü	⟶	/tɛ̀̃.tsə̀/	'group of something living beings'

In Lotha, it is also found that there is deletion of entire word in the initial and final positions. This deletion does not cause any changes in the meaning of the word in fact the word remain meaningful. The examples in Lotha are provided below;

Word initial → ø

a. Initial word deletion:

honohapoŋ	→	/hə̃.póŋ/	‘cock’
wokoro	→	/ò.ró/	‘piglet’
khyingro	→	/jíŋ.rō/	‘finger’
wokopong	→	/ò.póŋ/	‘sow’
honohakyu	→	/hə̀.kʲū/	‘hen’
ngaroro	→	/rō.rō/	‘infant’
ejüeli	→	/è.lí/	‘wealthy’
tsütsayantsai	→	/jə́.tsāí/	‘poor’
mhjolichon	→	/lí.ʧə́/	‘farmers’
ete echi	→	/é.ʧɪ̄/	‘ours’

b. Final word deletion:. The examples are mention below;

word final → ø

oraori	→	/ò.rá/	‘insects’
shalokpenlok	→	ʃà.lōk/	‘mess up’
milonphyon	→	/mí.lə̃/	‘lighting torch’
khumoshumo	→	/kʰūm.mō/	‘friend’
kirohanro	→	/kí.rō/	‘disturbance or restless’
bayingbasü	→	/bà.jīŋ/	‘spider’
tsüngkvürütanki	→	/tsə̀ŋ.kvə́.rə̄/	‘kind of wooden stick’
yonchekyonki	→	/jə̋.ʧɛ̄k/	‘steel or iron’
chüngtanita	→	/ʧə́ŋ.tā/	‘joining/ joint’
terümorü	→	/té.rə̄/	‘small’
osüori	→	/ò.sə̀/	‘clue or footprint’
otssenoyo	→	/ò.tsʰɛ́/	‘price/ cost’
nkokolok	→	/ǹ.kōk/	‘knee’
elhaesü	→	/è.l̥á/	‘stylish’

haphoharüi	⟶	/hā.pʰō/	‘outside or outskirt’
nchüpnlup	⟶	/n.chəp/	‘extra pieces of something’

CHAPTER 6
FINDING AND CONCLUSION

This study has attempted to give a detailed description of the sounds of the Lotha language. The language data is based on Lotha language spoken in the Upper Range of Wokha District covering Longsa Village, Tsungiki Village, Mungya Village, Pongitong Village and Longla Village (wokha). Based on the discussion and analysis the summery and conclusion of the dissertation is presented accordingly;

Chapter 1 gives an introduction about the language and the tribe, its historical background, their origin, migration and its population. The socio-cultural beliefs and practices of the community such as; marriage practices, festival, rituals, religion etc is discussed. Lotha belong to the Tibeto-Burman language family. The different Genetic classifications proposed by Robert Shaffer (1995), Benedict (1942), Burling's (2003 and 1998), Grieson's classification (1901) and Marrison's Classification (1967) is discussed. The typological classification of Lotha is also discussed in this chapter.

Looking at the usage of this particular language, the domains of Lotha is not only used at home but is also used in other domains such as Church, market and within peer groups (**see figure no. 1.13 and 1.14**). The language is use in both formal and informal conversation. It is also found that the language is taught till higher secondary level.

Chapter 2 discusses works on previous works done in Lotha and on related literature. The phonetic and phonological concepts and framework terms are also discussed. Review and comparisons on the previous works done on Lotha by various researchers are discussed. Some of the previous works in Lotha language are; Matisoff A. James (1996; 228-230) works on 'Phonological Inventories of Tibeto-Burman Language' with data source from Acharya (1975) and Marrison's work (1967). Ezung, Mimi (2016) works on 'A Preliminary investigation of the

speech sound of the Naga Lotha Language' gives the basic phonology structure of Lotha limiting it to minimal sets. Bruhn (2014) in his PhD dissertation proposed the preliminary phonemic inventory of Lotha. These works reveals important accounts on the segmental phonology of Lotha and these works has been useful for this study.

Chapter 3 discusses the segmental phonology. The Phonemic inventory of the sound segment, the description of their features and the occurrences of the consonants, vowels and diphthongs are given in detail. In analyzing the consonantal sounds of Lotha, it was found that there are seven places of articulation- bilabial, labiodentals, alveolar, post-alveolar, palatal, velar and glottal and seven manners of articulation- plosives, nasal, trill, fricative, affricate, lateral and approximants. Lotha has 37 consonants, 6 vowels and diphthongs. The 37 consonants comprising 6 plosive/ stop sounds /p, p^h, t, t^h, k and k^h/. This study found that the voiced affricates /dʒ/ occur in allophonic variation. It can occur in the environment of /ə/ but the occurrence of this allophonic variation is rare (**see examples in. 3.1.1**). It has eight nasal sounds which correspond to voiced and voiceless /m̥, m, n̥, n, ɲ̥, ɲ, ŋ̊ and ɲ/, seven fricatives/f, v, s, z, ʃ, ʒ and h/, eight affricate sounds comprising two voiced affricates /pv, kv/, four voiceless affricates /pf, kf, ts, ʧ/ and two aspirated affricates /ts^h, $ʧ^h$/. It has two alveolar laterals /l̥, l/, two trill /r̥, r/ and four approximants /j, w, ɹ̥, ɹ/. The occurrence of the consonant in Lotha is occupied more in the initial position than those of the medial and final positions. It is found that in Lotha only /p, k, m̥, m, ŋ, v/ can occur at the final position.

There are six vowels in Lotha and this are organized with three front vowels /i, e and a/, two back vowels /u and o/ and one central vowel /ə/. The study found eight diphthongs in Lotha /ai, əi, ui, ao, oa, əa, ia, ua/. While analyzing diphthongs in Lotha, it was found that /ua/and /ue/ are allophone (**see examples 3.2.6**).

Consonant cluster in Lotha occur only in onomatopoeic word, making its occurrence to be very limited. Following are some examples of consonant clusters in Lotha:

/fr fr/ or /vr vr/ ‘sounds of a wind’

/r r/ or /kr kr/ ‘calling the chicken to feed’

Though the occurrences of consonant cluster are limited yet, a good number of consonant sequences across syllable boundary were identified in this language. The examples are given below;

/ns-/	/n.sə́p.pā/	‘fearful/ someone who is easily scared’
/mʃ-/	/n.kūm.ʃȭ/	‘economic’
/ŋʒ-/	/māŋ.ʒə̄v/	‘dark’
/kp-/	/ʃō̄k.pē̄/	‘brush’
/pʰ-/	/kūp.tʰē̄/	‘folding’

Chapter 4 discusses the suprasegmental phonology in Lotha. The canonical syllable structure of Lotha consists of light and heavy syllables, open and closed syllable. A light syllables is a syllable which have only one syllable, examples are V, CV, CVV, VC, CVC structure. While a heavy syllable comprise of more than one syllable or mora, examples are CVC.CV, CV.CV, CVC.CVC, CV.CCV.CV, CV.CV.CVC, CVC.CV.CV.CV, and etc structure. Both open and closed syllable are present in Lotha but has more open syllables than the close ones. Syllables ranging up to four syllables were found in Lotha. Some examples are cited below;

Open Syllable

Syllable		
V	/ā/	‘i/me’
CV.CV	/nī.nī/	‘both’
CV.CV.CV	/hā.pfə̄.rō/	‘crab’

CV.CV.CV.CV	/tsó.tí.mó.rə̄/	‘talent’

Table no 6.1

Close Syllable

Syllable		
VC	/ōḿ̨/	‘baby hair’
C.CVC	/n.ʃə̄m/	‘twice’
C.CV.CVC	/m.m̨ṍ.tók/	‘to be a better way’
V.CVC.V.CVC	/ē̃.mōk.è.lūm/	‘worries’

Table no 6.2

Like most of the Tibeto-Burman language, Lotha is a tonal language. It has three register tones; high, mid and low. Tones in Lotha can occur with all possible nuclei in all syllable types and these tones are phonemic. The tonal variation is prevalent among speaker varying from range to range. Following are some examples to indicate the phonemic nature of tone in Lotha;

High	**Mid**	**Low**
() /pʲíá/ ‘destroy’	/pʲīā/ ‘feeding animals’	/pʲìà/ ‘dry’
() /máná/ ‘same price’	/mānā/ ‘profit’	/mànà/ ‘

Being a tonal language, tonemes also observed in Lotha and is found to be a common word. The examples are given below;

mha /m̀.m̨à/ ‘bless/ luck’

mha	/m̀.m̩á/	‘not bless/ luck’
nsa	/ǹ.sà/	‘straight’
nsa	/ǹ.sā/	‘not straight’
shana	/ʃá.nā/	‘to rope’
shana	/ʃà.nā/	‘to boil water’

Lotha also has tone sandhi which occurs during prefixation and compounding. Tone-bearing Unit (TBU) exhibits in Lotha with Rational (RL) and Non-Rational (N-RL). In Lotha, RL is found with the prefix a- and N-RL is found with the prefix o-. The examples are given below;

Rational prefix a-:

/á-fə́/	(RL-skin)	‘my skin’
/á-mo/	(RL-uncle)	‘my uncle’

This RL can be found in body parts of a human and in kinship terms.

Non- Rational prefix o-:

/ó-sə̀/	(NRL-cloth)	‘cloth’
/ó-kə̄m/	(NRL-season)	‘season’

In chapter 5, the phonological processes that occur in Lotha are investigated. It has various phonological processes such as palatalization, labialization and nasalization, deletion, insertion and elision. It is seen that different phonological processes under assimilation is common in Lotha but found the absence of dissimilation process.

Under deletion, this study found two types of deletion; aphaeresis and syncope. Some examples of aphaeresis in Lotha are:

omyikhon	⟶	/m̋ī̃k.kʰȭ/	‘eyelash’
ojochak	⟶	/ʧó.ʧə̄k/	‘broken leg’

In Lotha, Aphaeresis is seen to be common in compound word; where the initial vowel in the first word and the initial vowel in of the second word gets deleted or dropped. The examples are provided below;

oho ‘teeth’ + ozü ‘flesh’ ⟶ /hò.zə̄/ ‘teeth flesh’

ojü ‘water’ + elum ‘hot/warm’ ⟶ /ʧə́.lə́m/ ‘warm water’

Another deletion process found in this study if the process of syncope, where, the vowel sounds is dropped in the middle of a word or a compound word. The examples are given below;

khaphen ‘study’ + oki ‘house’ ⟶ /kʰā.pʰə́kì/ ‘school’

woko ‘pig’ + oso ‘meat’ ⟶ /vó.kó.sō/ ‘pork’

This study did not find the process of Apocope where the final sound gets deleted or dropped. Furthermore, this study did not find the deletion of consonant sound/s. Epenthesis in Lotha is found in borrowed word. The intervention or insertions of sounds are either to be a consonant or vowel. The examples are given below;

car ⟶ /kā.rə̄/ or /kā.rī/ ‘car’

dal ⟶ /dà.lí/ ‘dal’

tin ⟶ /tí.jīŋ/ ‘tin’

In Lotha elision or sound loss or deletion of sound is found to be in a syllable form. The syllable deletion is either in initial or final position. The examples are given below;

Deletion of sounds in initial position

honohakyu ⟶ /hə̀̃.kʲū/ ‘hen’

ejüeli ⟶ /è.lí/ ‘wealthy’

Deletion of sounds in final position

khomongkhosü ⟶ /kʰó.móŋ/ ‘grasshopper’

varavarü ⟶ /và.rà/ ‘pandemic’

Conclusion:

The present work is an attempt to provide a detailed analysis on A Phonology of Lotha, spoken in the upper range of Wokha district. It does not claim to be complete analysis. Much research work is needed to be done in phonology acoustically using speech tools. Further research work is also needed in the fields of morphology and syntax and in other aspects of linguistics in this language. However, the researcher believes this work will help to contribute in the field of linguistics research.

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Orensali Lotha	57	F	Wokha Town (Kohima)	Employed
Zanathung Ezung	56	M	Longsa Village	Employed
W. Chonchibeni	47	F	Tsungiki Village (Kohima)	Language Officer
Lucy Ezung	37	F	Mungya Village (Kohima)	Housewife
Yanpemo R Humtsoe	28	M	Pongidong Village (Wokha)	Student
P Konthunglo Ngullie	25	F	Wokha	Research Scholar

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PHOTOGRAPHERS

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