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North Central Dialect of Bodo Nasal and Fricative Sounds: An Acoustic Analysis

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Abstract:- *B*odo is a Sino- Tibetan Language spoken primarily by the Bodo people of North-East India .It is an official language of the state of Assam and the Bodoland Territorial Region of India. Since 1975 the language has been written using Devanagari Script .The Bodo language has 16 consonants. There are three fricative sounds / s,z,,h/ and three Nasal sounds /m.n.ng/ found in Bodo language. In this topic researcher is trying to analysis the acoustic value of nasal and fricative phoneme of Bodo language.

Keywords*:* Acoustic analysis, Consonant, Fricative, Nasal Sound, Phoneme.

1. Introduction

Bodo is a Sino- Tibetan Language spoken primarily by the Bodo people of North- East India. The Boros are known by different names in some regions of Assam and its few adjacent areas. In this Brahmaputra valley, the Bodo native speakers identity themselves as Boro while the Hindu Asamiya Speakers and speakers of other linguistic communities address them as Kachari or Boro Kachari.

Since 1975 the language has been written using Devanagari Script .The Bodo language has 16 consonants. There are three nasal sounds /m,n,ng/ found in Bodo language and three fricative sounds /s,z,h/ found in the same. Nasal are the speech sounds in the production of which the velum is lowered, so that some air escapes through the nose during the production of the sound by the mouth. The nasal spounds used in the Bodo language are /m, n, ng/ .

2. Aims and Objective

- Acoustic analysis of nasal and fricative sounds of the Bodo language.
- Wave image analysis of nasal sound. Just like

a) Energy -Minimum energy

Maximum energy Mean energy

b) Pitch - Minimum pitch

Maximum pitch

c) Frame length

- Finding F1 and F2 value .

3. Literature

Here , the selected thesis , books and articles are considered for the purpose of view Pratima Brahma, Ph.D. thesis “phonology and Morphology of Bodo and Dimasa : A comparative study (2013)”, here she discusses shortly about Bodo phonological and morphological structure.

Phukan Basumatary , he has published many books on language . Among them “ A Introduction to the Boro Language (2005)”, here he discusses descriptively about Bodo phonology.

Swarna Prabha Chainary , She has published many books on language and literature. Among them Boro Raothanthi(2006), Tibeto- Burman language of North-East India (2014), she discusses shortly about Bodo Language.

4. Methods

- In this research work Descriptive and Acoustic Analysis methods have been applied.
- The data for the proposed study has been collected from both primary and secondary sources.

For Primary data the researcher has visited different places of the Bodo Language speaking dominated areas .

Secondary data has been gathered from various sources like the Bodo texts, lexicons, Bodo Dictionary , monthly and annual magazines , journal etc.

5. Discussion

(a) Acoustic analysis of Nasal sound /m, n, ng/ Phonetic Description

/m/- voiced bi- labial nasal

/n/- voiced alveolar nasal

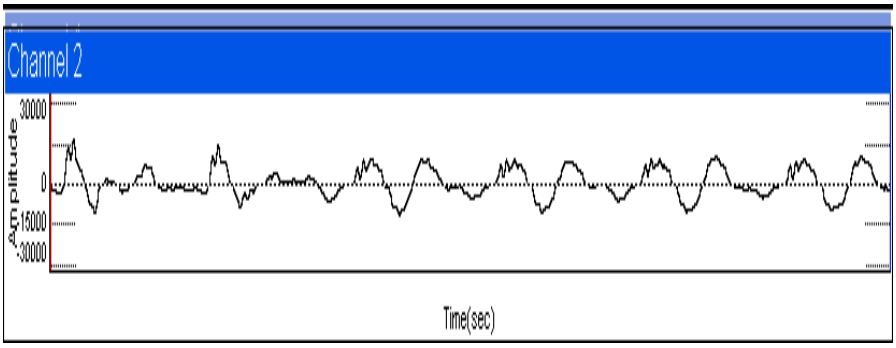
/ng/- voiced velar nasal

/m,n,ng/ nasal phonemes have Initial, Medial and Final position of

Word. Example are as follows:

Initial	Medial	Final
/m/ ma(what)	zumai(wine)	kham(burn)
/n/ na(fish)	zunar(chest)	dain(eight)
/ng/ ……	sanggrang(alert)	swng(ask)

Wave image analysis of Initial position of /m/ phoneme



Word ‘ma’

/m/ image

Here , Results are –

a) Energy

Minimum energy 48.43dB Maximum energy 66.71dB Mean energy 53.55dB

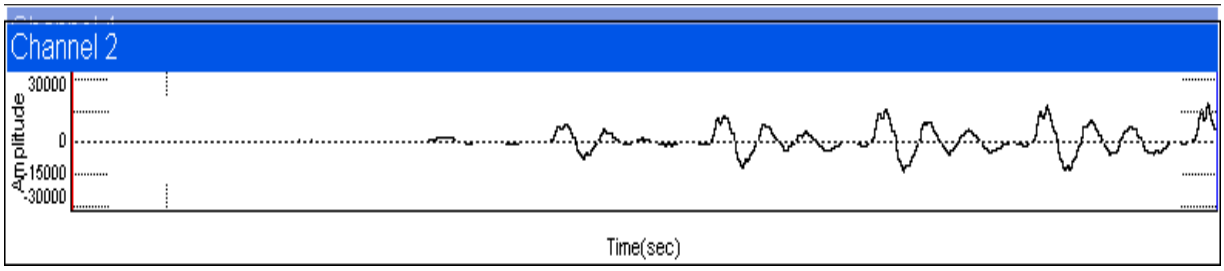
b) Pitch

Minimum pitch (-)1.00Hz Maximum pitch (-)1.00 Hz

c) Frame length 25 M.sec, mean Period 4.22 M.sec

d) Value of F1=2110.62 F2=3496.57

Wave image analysis of medial position of /n/ phoneme



Word ‘na’

/n/ image

Here , Results are –

a) Energy

Minimum energy 72.02dB Maximum energy 75.63dB Mean energy 73.83db

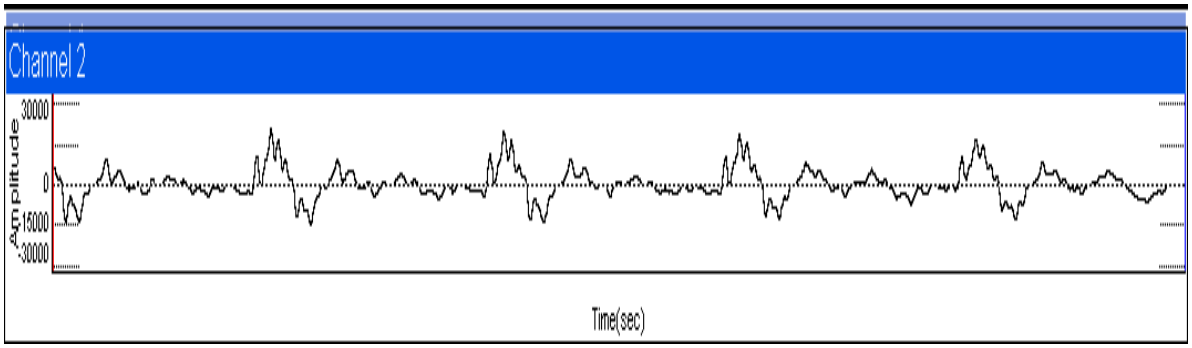
b) Pitch

Minimum pitch 135.38Hz Maximum pitch 135.38Hz

b) Frame length 25 Msec Mean period 7.39Msec

c) Value of F1=1202.34 F2=3588.71

Wave image analysis of final position of /ng/ phoneme



Word ‘swng’

/ng / image

Here , Results are –

a) Energy

Minimum energy 47.65dB Maximum energy 65.57dB

Mean energy 55.82dB

b) Pitch

Minimum pitch 133.56Hz Maximum pitch 1206.39Hz

c) Frame length 25 M.sec mean period 5.82M.secd) Value of F1=98.40 F2=2963.81

(b) Acoustic analysis of fricative sound /s,z,h/ Phonetic Description

/s/- voiceless alveolar fricative

/z/- voiced alveolar fricative

/h/- voiced glottal fricative

/s,z,h/ l phonemes have Initial, Medial and Final position of

Word. Example are as follows:

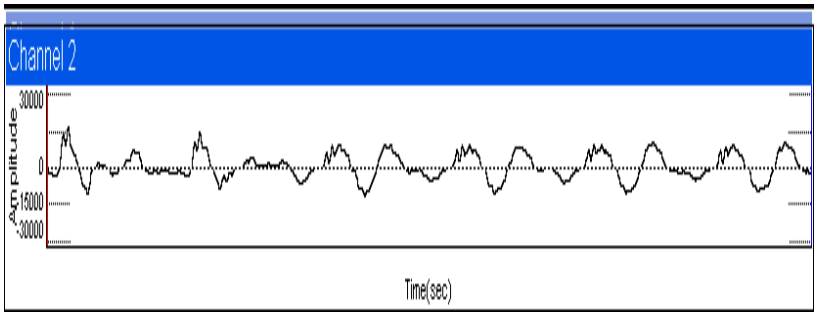
Initial Medial Final

/s/ salai(tongue) asi(finger) mas(month)

/z/ za(eat) sanza(east) ……

/h/ ha(land) baha(nest) ……

Wave image analysis of Initial position of /s/ phoneme



Word ‘salai’

/s/ image

Here , Results are –

e) Energy

Minimum energy 47.59dB Maximum energy55.99 dB

Mean energy 49.78dB

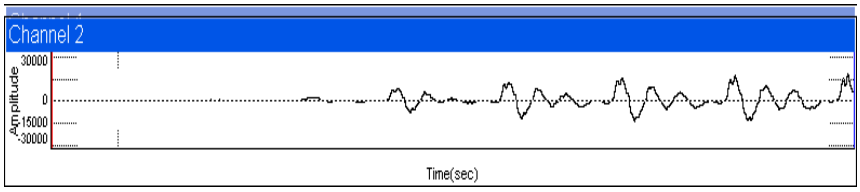
f) Pitch

Minimum pitch 154.15Hz Maximum pitch 169.61 Hz

g) Frame length 25 M.sec, mean Period 6.15 M.sec

d)Value of F1=630.33 F2=1842.52

Wave image analysis of medial position of /z/ phoneme



Word ‘sanza’

/z/ image

Here , Results are –

c) Energy

Minimum energy 44.64dB Maximum energy 65.95dB Mean energy 56.06dB

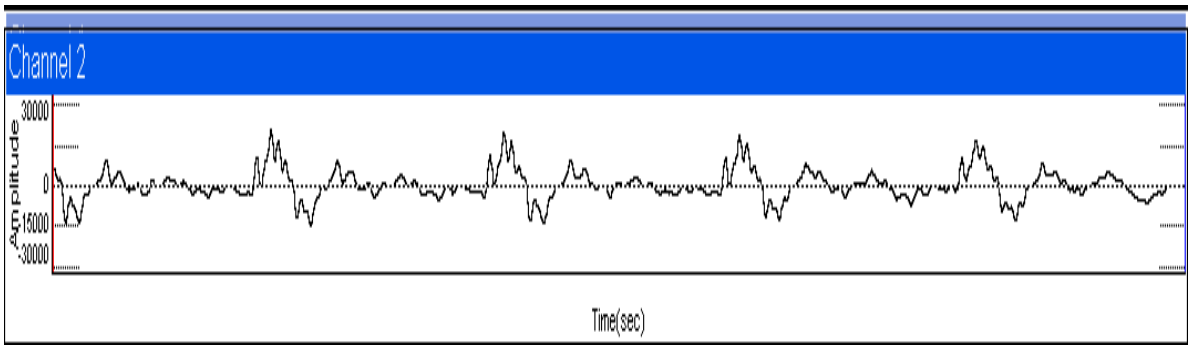
d) Pitch

Minimum pitch 119.17Hz Maximum pitch 119.17Hz

b) Frame length 25 Msec Mean period 8.39Msec

c) Value of F1=717.72 F2=1813.03

Wave image analysis of medial position of /h/ phoneme



Word 'baha'

/ng / image

Here , Results are –

d) Energy

Minimum energy 64.02dB Maximum energy 64.70dB

Mean energy 64.43dB

e) Pitch

Minimum pitch 100.82Hz Maximum pitch 100.82Hz

f) Frame length 25 M.sec mean period 9.92M.sec

d) Value of F1=846.74 F2=1505.21

6. Conclusion

- /m/- voiced bi- labial nasal
- /n/- voiced alveolar nasal
- /ng/- voiced velar nasal
- /s/- voiceless alveolar fricative
- /z/- voiced alveolar fricative
- /h/- voiced glottal fricative
- F1 value of /m/ 2110.62
- F1 value of /n/1202.34
- F1 value of /ng/98.40

- F2 value of /m/3496.57
- F2 value of /n/3588.71
- F2 value of /ng/2963.81
- F1 value of /s/ 630.33
- F1 value of /z/717.72
- F1 value of /h/846.74
- F2 value of /s/1842.52
- F2 value of /z/1813.03
- F2 value of /h/1505.21

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