6.1 PHONEMIC INVENTORY: CONSONANTS

In Bengali there are twenty seven distinct consonant phonemes. These consonant phonemes in vertical axis (i.e. manners of articulation) are classified as stops, affricates, nasals, trill, lateral and fricatives. They are further classified in horizontal axis (i.e. points of articulation) as bilabial, dental, alveolar, retroflex, palato-alveolar, velar and glottal.

The following table represents the Bengali consonant phonemes:
### Table - 1

<table>
<thead>
<tr>
<th></th>
<th>Bi- labial</th>
<th>Dental</th>
<th>Alveo- lar</th>
<th>Retro- flex</th>
<th>Palato- lar</th>
<th>Velar</th>
<th>Glottal</th>
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<tbody>
<tr>
<td><strong>Stops</strong></td>
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<tr>
<td><strong>Affricates</strong></td>
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<td><strong>Trill</strong></td>
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<td><strong>Lateral</strong></td>
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<tr>
<td><strong>Fricatives</strong></td>
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</tbody>
</table>

6.2 **PHONEMIC CONTRASTS: CONSONANTS**

The following are the minimal and sub-minimal pairs to establish contrast between corresponding consonant phonemes.

**Initially** | **Medially** | **Finally**
--- | --- | ---
/p-ph/ | /pol/ 'a moment' | /lopa/ 'a name' | /map/ 'measurement'
/phi/ | /phol/ 'fruit' | /lopha/ 'to catch' | /maph/ 'excuse'
/p-b/ | /poka/ 'insect' | /kop/ 'cabbage' | /bhap/ 'vapour'
/bok/ | /boka/ 'fool' | /kot/ 'post' | /bhah/ 'friendship'
/b-bh/ | /bat/ 'rheumatism' | /nabi/ '(I) descend' | -
 | '/bhat/ 'cooked rice' | /nabhi/ 'naval' | -
| /ph-bh/ | /phul/ 'flower' | /sopha/ 'sofa' | /lap/ 'jump'
 | /bhul/ 'mistake' | /sobha/ 'beauty' | /labh/ 'profit'
<table>
<thead>
<tr>
<th>Phoneme</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| /t-th/  | /tala/'a lock'  
|         | /puti/'ball of glass'  
|         | /sat/'seven' |
| /thala/'a plate'  
|         | /puthi/'manuscript'  
|         | /sath/'company' |
| /t-d/  | /tol/'bottom'  
|         | /data/'donor'  
|         | /mot/'opinion' |
| /dol/'group'  
|         | /gada/'elder brother'  
|         | /mod/'liquor' |
| /a-dh/  | /gan/'donation'  
|         | /gada/'a heap'  
|         | /kad/'(you) cry' |
| /ghan/'paddy'  
|         | /gadha/'an ass'  
|         | /kadh/'shoulder' |
| /th-dh/  | /than/'bolt of cloth'  
|         | /sathe/'with'  
|         | /sath/'company' |
| /dhan/'paddy'  
|         | /sadhe/'requests'  
|         | /sadh/'desire' |
| /T-Th/  | /Tak/'sour'  
|         | /paTa/'a plank'  
|         | /paT/'jute' |
| /Thk/'cheat'  
|         | /paTha/'(you) send'  
|         | /paTh/'a lesson' |
| /T-D/  | /Tak/'baldness'  
|         | /pata/'custard'  
|         | /hat/'hand' |
| /Dak/'call'  
|         | /aTa/'a wheat product'  
|         | /haT/'market' |
| /D-Dh/  | /Dala/'basket'  
|         | /lathi/'a kick'  
|         | /gath/'(you) string' |
| /Dhala/'to pour'  
|         | /Thoka/'to hammer'  
|         | /lathThi/'a stick'  
|         | /gThTha/'a big bundle' |
| /d-Dh/  | /dhuli/'dust'  
|         | /dhuli/'a drum beater'  
|         | /dhuli/'a drum beater' |
| /k-kh/  | /kal/'time'  
|         | /paka/'ripe'  
|         | /muk/'dumb' |
| /khal/'canal'  
|         | /pakha/'wing'  
|         | /mukh/'mouth' |
| /k-g/  | /kan/'ear'  
|         | /nakal/'harrassed'  
|         | /nak/'nose' |
| /gan/'song'  
|         | /nagal/'reach'  
|         | /nag/'snake' |
| /g-gh/  | /gol/'round'  
|         | /baje/'within grasp'  
|         | /mag/'(you) beg' |
| /ghol/'whey'  
|         | /baghe/'by the tiger'  
|         | /magh/'name of a month' |
/kh-gh/ /kham/'envelope' /mekhla/'a kind of ladies dress'
/gham/'sweating' /meghla/'cloudy'
/makh/' (you) smear'
/ghara/' sweating1 /raeghla/'cloudy' /magh/'name of a month'
/c-ch/ /cal/'rice' /kace/'washes' /kac/'(you) wash'
/chal/'skin' /kache/'near' /kach/'near'
/c-j/ /cal/'rice' /nice/'below' /kac/'(you) wash'
/jal/'net' /niye/'self' /kaj/'work'
/j-jh/ /jal/'net' /majli/'(I) wash' /boj/'(you) shut'
/jhal/'hot' /majhi/'boatman' /bojh/ '(you) understand'
/ch-jh/ /chêTa/'to trim' /machi/'fly' /mach/'fish'
/jhêTa/'broom' /majhi/'boatman' /majh/'midst'
/m-n/ /mala/'garland' /jama/'shirt' /dham/'place'
/nala/'drain' /jana/'to know' /dhan/'paddy'
/m-ŋ/ - /bamal/'looted thing' /bham/'civet cat'
/n-ŋ/ - /banal/'people of Bangladesh'
/Dana/'wing' /gan/'song'
/raja/'up land' /gag/'a river'
/raj/'kingdom' /kori/(I) do'/ /sor/'tune'
/laj/'shyness' /koli/'bud' /sul/'spike'
/s-h/ /sar/'manure' /basôn/'utensils' /bas/ 'dwelling Place'
/har/'defeat' /bason/'utensils' /bas/'dwelling Place'
/bahon/'carrier' /bah/ 'exclamation in praise'
## 6.3 Distribution of Allophones and Their Relations with Consonant Phonemes

<table>
<thead>
<tr>
<th>Phoneme</th>
<th>Allophone</th>
<th>Phonetic Description</th>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>/p/</td>
<td>/p/</td>
<td>It is a bilabial voice-less unaspirated stop.</td>
<td>All the positions of words. e.g., /pata/ 'a leaf', /kopel/ 'forehead', /rup/ 'beauty'.</td>
</tr>
<tr>
<td>/ph/</td>
<td>/ph/</td>
<td>It is a bilabial voice-less aspirated stop.</td>
<td>All the positions of words. e.g., /phut/ 'flower', /sphol/ 'successful', /borph/ 'ice'.</td>
</tr>
<tr>
<td>/b/</td>
<td>/b/</td>
<td>It is a voiced unaspirated bilabial stop.</td>
<td>All the positions of words. e.g., /bok/ 'crane', /chobi/ 'picture', /gorib/ 'poor'.</td>
</tr>
<tr>
<td>/bh/</td>
<td>/bh/</td>
<td>It is a voiced aspirated bilabial stop.</td>
<td>All the positions of words. e.g., /bho:r/ 'dawn', /gobhir/ 'deep', /sul:bh/ 'cheap'.</td>
</tr>
<tr>
<td>/t/</td>
<td>/t/</td>
<td>It is a voiceless unaspirated dental stop.</td>
<td>All the positions of words. e.g., /tara/ 'star', /notun/ 'new', /korat/ 'saw'.</td>
</tr>
</tbody>
</table>
\(/\text{th}/ \quad [\text{th}] \quad \text{It is a voiceless aspirated dental stop.} \quad \text{All the positions of words.} \\
\quad \text{e.g.: } [\text{thala}] \text{ a plate',} \\
\quad [\text{baetha}] \text{'pain',} \\
\quad [\text{nath}] \text{'orphan'.}

\(/\text{d}/ \quad [\text{d}] \quad \text{It is a voiced unaspirated dental stop.} \quad \text{All the positions of words.} \\
\quad \text{e.g.: } [\text{data}] \text{ 'donor',} \\
\quad [\text{ada}] \text{ 'ginger',} \\
\quad [\text{holud}] \text{ 'yellow'.}

\(/\text{dh}/ \quad [\text{dh}] \quad \text{It is a voiced aspirated dental stop.} \quad \text{All the positions of words.} \\
\quad \text{e.g.: } [\text{dhara}] \text{ 'flow',} \\
\quad [\text{modhu}] \text{ 'honey',} \\
\quad [\text{badh}] \text{ 'unobstructed'.}

\(/\text{T}/ \quad [\text{T}] \quad \text{It is a voiceless unaspirated retroflex stop.} \quad \text{All the positions of words.} \\
\quad \text{e.g.: } [\text{Taka}] \text{ 'rupee',} \\
\quad [\text{maTa}] \text{ 'fat',} \\
\quad [\text{aT}] \text{ 'eight'.}

\(/\text{Th}/ \quad [\text{Th}] \quad \text{It is a voiceless aspirated retroflex stop.} \quad \text{All the positions of words.} \\
\quad \text{e.g.: } [\text{ThoTha}] \text{ 'paper packet',} \\
\quad [\text{laTha}] \text{ 'a stick',} \\
\quad [\text{kaTh}] \text{ 'wood'.}

\(/\text{b}/ \quad (\text{i}) \quad [\text{b}] \quad \text{It is a voiced unaspirated retroflex stop.} \quad (\text{a) Initially in words.} \\
\quad \text{e.g.: } [\text{Dana}] \text{ 'wing'.} \\
\quad \text{e.g.: } [\text{Dana}] \text{ 'wing'.} \\
\quad \text{(b) Word medially and finally in a few borrowed}
(ii) /\text{R}/ It is a voiced unaspirated retroflex flap.

/\text{Dh}/ (i) /\text{Dh}/ It is a voiced aspirated retroflex stop.
(ii) /\text{Rh}/ It is a voiced aspirated retroflex flap.

/\text{k}/ /\text{k}/ It is an unaspirated voiceless velar stop.

/\text{kh}/ /\text{kh}/ It is an aspirated voiceless velar stop.

/\text{g}/ /\text{g}/ It is a voiced unaspirated velar stop.

\begin{itemize}
\item words e.g. \textit{goda}, \textit{goda}, \textit{goda}.
\item 'sodium bicarbonate',
\item \textit{goda}, \textit{goda}, \textit{goda}.
\item \textit{rəd}, \textit{rod}'.
\end{itemize}

Word medially and word finally. e.g. \textit{boRo}.
\begin{itemize}
\item 'big', \textit{haR} 'bone'.
\end{itemize}

Initially in words. e.g., \textit{Dho:lı} 'a kind of drum'.

Word medially having been in intervocalic position.
\begin{itemize}
\item e.g.; \textit{GriRho} 'firm'.
\end{itemize}

All the positions of words. e.g. \textit{ka} 'what'.
\begin{itemize}
\item \textit{dokan} 'shop', \textit{Tərək} 'baldness'.
\end{itemize}

All the positions of words. e.g. \textit{khabar} 'food',
\begin{itemize}
\item \textit{siRka} 'flame',
\item \textit{no:kh} 'nail'.
\end{itemize}

All the positions of words. e.g. \textit{gola} 'throat',
\begin{itemize}
\item \textit{chagol} 'goat',
\item \textit{ra:q} 'anger'.
\end{itemize}
\( /gh/ \quad \{ gh \} \quad \) It is a voiced aspirated velar stop.  
All the positions of words.  
e.g., \( gh:r \) 'room',  
\( gh\) 'a stroke',  
\( me:gh \) 'cloud'.

\( /c/ \quad \{ c \} \quad \) It is an unaspirated voiceless palato-alveolar affricate.  
All the positions of words.  
e.g., \( ca:\) 'four',  
\( acar \) 'pickle',  
\( \k\) 'glass'.

\( /ch/ \quad \{ ch \} \quad \) It is an aspirated voiceless palato-alveolar affricate.  
All the positions of words.  
e.g., \( chola \) 'gram',  
\( kich \) 'some',  
\( garsch \) 'tree'.

\( /j/ \quad \{ j \} \quad \) It is a voiced unaspirated palato-alveolar affricate.  
All the positions of words.  
e.g., \( juto \) 'shoe',  
\( 'soja \) 'straight',  
\( 'schoj \) 'easy'.

\( /jh/ \quad \{ jh \} \quad \) It is a voiced aspirated palato-alveolar affricate.  
All the positions of words.  
e.g., \( jhola \) 'bag',  
\( bojha \) 'load', \( jh\) 'strong heat'.

\( /m/ \quad \{ m \} \quad \) It is a voiced unaspirated bilabial nasal.  
All the positions of words.  
e.g., \( ma \) 'mother',  
\( mama \) 'maternal uncle',  
\( arm \) 'a mango'.

It is a voiced unaspirated dental nasal. (a) Word medially before and after dental stops. e.g., ɾotno'jewel', ɾanto'calm', ɾoŋtho'book'.

It is a voiced unaspirated palato-alveolar nasal. Word medially before palato-alveolar affricates. e.g., boñcito 'deprived', lañchito 'reproached', roñjito 'coloured', jhönjha 'a rain storm'.

It is a voiced unaspirated retroflex nasal. Word medially before retroflex stops. e.g., bonton 'distribution', kontho 'throat', kendo 'branch/stem'.

It is a voiced unaspirated alveolar nasal. It occurs elsewhere. e.g., ni'l 'blue', chana 'posset', moin 'mind'.

It is a voiced unaspirated velar nasal. Finally. e.g., roquin 'coloured', baŋ'frog'.

It is a voiced unaspirated alveolar trill. All the positions of words. e.g., roj 'every day', aRAM 'comfort', abar 'again'.

/ŋ/ /ŋ/ It is a voiced unaspirated velar nasal.
/l/ (i) /l/ It is a voiced unaspirated retroflex lateral. It occurs elsewhere. e.g.,
\[\text{\textit{ulto}}\text{\textit{ reverse}},\]
\[\text{\textit{Della}}\text{\textit{ a kind of veg. oil}}.\]

(ii) /l/ It is a voiced unaspirated, alveolar lateral. e.g.,
\[\text{\textit{lofhi}}\text{\textit{ greed}}, \text{\textit{kalo}}\]
'black', \[\text{\textit{pabol}}\text{\textit{ mad}}'.

/s/ (i) /s/ It is a voiceless unaspirated dental fricative. e.g., /k, kh, t, th, n, p, ph, r, l/. e.g., /sko\textit{ndho}/'shoulder', /sko\textit{alon} 'falling', /\textit{stri} 'wife', /\textit{sthanon} 'installation', /
\textit{sna:n} 'bath', /\textit{sporo}\textit{ 'touch'}, /\textit{spito}\textit{ 'expanded'}, /\textit{sro:t}\textit{ 'current'}, /\textit{slonk}\textit{ 'a couplet'}.

(b) Word medially before
\[\text{\textit{t, th, sn, sr, sl, tr}}\]. e.g., /\textit{aste}\textit{ slowly'},
\[\text{\textit{sthr}}\text{\textit{ restless}},\]
\[\text{\textit{ssnato}}\text{\textit{ unbathed}},\]
\[\text{\textit{ssru}}\text{\textit{ tear}},\]
\[\text{\textit{ssnil}}\text{\textit{ obscene}},\]
\[\text{\textit{stro}}\text{\textit{ weapon}}'.

(ii) /s/ It is a voiceless unaspirated palato-alveolar fricative.

(a) It occurs elsewhere.

\[ \text{e.g., } \text{škol} \] \[ \text{škal} \] \[ \text{'all'} \]

\[ \text{časa} \] \[ \text{čamer} \] \[ \text{čakar} \]

\[ \text{'sky'} \] \[ \text{kušTo} \] \[ \text{'suffering'} \]

\[ \text{kušThi} \] \[ \text{'horoscope'} \]

\[ \text{šuško} \] \[ \text{'dry'} \] \[ \text{poščim} \]

\[ \text{'west'} \] \[ \text{prošno} \]

\[ \text{'question'} \] \[ \text{bašpo} \]

\[ \text{'vapour'} \] \[ \text{misphol} \]

\[ \text{'fruitless'} \] \[ \text{kasmr} \]

\[ \text{'Kashmir'} \] \[ \text{čosso} \] \[ \text{'crops'} \]

\[ \text{(a) Word initially before} \]

\[ \text{čr} \] \[ \text{čI} \] \[ \text{čg} \] \[ \text{čs} \] \[ \text{čč} \] \[ \text{čk} \] \[ \text{čt} \] \[ \text{čn} \] \[ \text{čs} \] \[ \text{či} \] \[ \text{'sky'} \] \[ \text{kušTo} \] \[ \text{'suffering'} \]

\[ \text{kušThi} \] \[ \text{'horoscope'} \]

\[ \text{šuško} \] \[ \text{'dry'} \] \[ \text{poščim} \]

\[ \text{'west'} \] \[ \text{prošno} \]

\[ \text{'question'} \] \[ \text{bašpo} \]

\[ \text{'vapour'} \] \[ \text{misphol} \]

\[ \text{'fruitless'} \] \[ \text{kasmr} \]

\[ \text{'Kashmir'} \] \[ \text{čosso} \] \[ \text{'crops'} \]

\[ \text{(b) Word medially before} \]

\[ \text{čč} \] \[ \text{čč} \] \[ \text{'lake'} \]

\[ \text{čhadi} \] \[ \text{'delighting'} \]

\[ \text{(ii) /s/ It is a voiceless glottal fricative.} \]

\[ \text{It occurs elsewhere. e.g.,} \]

\[ \text{čhat} \] \[ \text{'an elephant'} \]

\[ \text{čpahar} \] \[ \text{'a hill'} \] \[ \text{čbarh} \]

\[ \text{'exclamation of praise'} \]

6.4 DISTRIBUTION OF THE CONSONANT PHONEMES

Among the consonant phonemes, /ŋ/ does not occur word initially and /Dh/ does not occur word finally. All other consonant phonemes
occur in all the three positions. The aspirated consonants, which occur in all the positions are weakly pronounced in the final position. The following chart shows the distribution of all consonant phonemes.

<table>
<thead>
<tr>
<th>Phono­neme</th>
<th>Initially</th>
<th>Medially</th>
<th>Finally</th>
</tr>
</thead>
<tbody>
<tr>
<td>/p/</td>
<td>/puja/'worship'</td>
<td>/dupur/'noon'</td>
<td>/jhøp/'bush'</td>
</tr>
<tr>
<td>/ph/</td>
<td>/phød/'trap'</td>
<td>/aphim/'opium'</td>
<td>/ãøph/'breathlessness'</td>
</tr>
<tr>
<td>/b/</td>
<td>/boka/'fool'</td>
<td>/søbuju/'green'</td>
<td>/Dab/'tender coconut'</td>
</tr>
<tr>
<td>/bh/</td>
<td>/bhul/'mistake'</td>
<td>/søbha/'meeting'</td>
<td>/labh/'profit'</td>
</tr>
<tr>
<td>/t/</td>
<td>/tana/'copper'</td>
<td>/batas/'wind'</td>
<td>/bhut/'ghost'</td>
</tr>
<tr>
<td>/th/</td>
<td>/thoka/'bunch'</td>
<td>/køtha/'word'</td>
<td>/pth/'way'</td>
</tr>
<tr>
<td>/d/</td>
<td>/dana/'grain'</td>
<td>/bãdor/'monkey'</td>
<td>/mod/'wine'</td>
</tr>
<tr>
<td>/dh/</td>
<td>/dhan/'paddy'</td>
<td>/ochikar/'right'</td>
<td>/sodh/'repayment'</td>
</tr>
<tr>
<td>/T/</td>
<td>/Taka/'rupee'</td>
<td>/chuTı/'holiday'</td>
<td>/moT/'total, gross'</td>
</tr>
<tr>
<td>/Th/</td>
<td>/Thakur/'God'</td>
<td>/sTha/'gum'</td>
<td>/kaTh/'wood'</td>
</tr>
<tr>
<td>/D/</td>
<td>/Dab/'tender coconut'</td>
<td>/KhøDa/'lame'</td>
<td>/sãD/'bull'</td>
</tr>
<tr>
<td>/Dh/</td>
<td>/Dhulı/'a drum beater'</td>
<td>/muDho/'stupid'</td>
<td></td>
</tr>
<tr>
<td>/k/</td>
<td>/kobi/'a poet'</td>
<td>/akaś/'sky'</td>
<td>/sok/'condolence'</td>
</tr>
<tr>
<td>/kh/</td>
<td>/khonı/'a mine'</td>
<td>/æ khon/'now'</td>
<td>/cokh/'eye'</td>
</tr>
<tr>
<td>/g/</td>
<td>/gal/'cheek'</td>
<td>/roga/'thin'</td>
<td>/jug/'an era'</td>
</tr>
<tr>
<td>/gh/</td>
<td>/ghum/'sleep'</td>
<td>/sighı/'a big lake'</td>
<td>/bagh/'a tiger'</td>
</tr>
<tr>
<td>/c/</td>
<td>/car/'four'</td>
<td>/bicar/'a trial'</td>
<td>/súc/'a needle'</td>
</tr>
<tr>
<td>/ch/</td>
<td>/chobi/'picture'</td>
<td>/gamcha/'towel'</td>
<td>/mach/'fish'</td>
</tr>
<tr>
<td>/j/</td>
<td>/jibon/'life'</td>
<td>/raja/'king'</td>
<td>/baj/'thunder'</td>
</tr>
<tr>
<td>/jh/</td>
<td>/jhal/'hot'</td>
<td>/majhi/'boatman'</td>
<td>/majh/'midst'</td>
</tr>
</tbody>
</table>
6.4.1 ASPIRATED CONSONANTS

In Bengali there are ten aspirated consonant phonemes, out of which eight are aspirated stops and two are aspirated affricates. Besides these aspirated consonant phonemes in Bengali, /h/ is also described in this analysis as a separate phoneme. The aspirated consonant phonemes should not be treated as simple clusters of respective stops and affricates plus /h/. Because all the aspirated consonants in Bengali are produced by a single breath pulse, there is no intervening syllabic break in between them.

Aspiration in Bengali is a marked feature by which stops and affricates are distinguished from their non-aspirated counterparts.

The aspirated retroflex flap /Sh/ which exists in Bengali, has been analysed here as an allophone of the aspirated retroflex stop /Dh/, as it is in complementary distribution with /Dh/.
It is worth mentioning that in the final position of words the aspirated stops and affricates do not show contrasts with their respective non-aspirated counterparts. The contrast between aspirates and their non-aspirated counterparts word finally is completely neutralised in certain positions.

6.4.2 NASAL CONSONANTS

In the present analysis we have considered three nasal consonants as phonemes, namely, /m/, /n/ and /ŋ/. /m/ and /n/ phonemes occur in all the positions in which the majority of the consonant phonemes occur. But it is to be noted that /ŋ/ does not occur word initially. It occurs only medially and finally. Although there are six nasal consonants articulated in Bengali but all of them are not analysed as phonemes. /n/, /n/, /n/ and /n/ are analysed here as allophones of /n/ as they are in complementary distribution.

6.4.3 TREATMENT OF FLAP CONSONANTS

There are two flap consonants in Bengali. They are retroflex unaspirated flap /R/ and retroflex aspirated flap /Rh/. It may be noted that the retroflex unaspirated flap /R/ contrasts with alveolar trill /r/. /R/ does not occur word initially. Therefore, the minimal pairs showing the contrast word medially and word finally are presented below:
But this variation is not available in some idiolects. In the speeches of some native speakers the variation cited above is ignored and pronounced alike. However, this fact has not been taken into consideration since the contrast between /ra/ and /ra/ exists in the speeches of most of the native speakers.

Despite the contrasts reflected by the flap and the trill, the former has not been given a phonemic status because the retroflex flap /ra/ is in complementary distribution with the retroflex voiced stop /da/. Although in the speeches of the educated speakers /da/ and /ra/ show contrast only in a few loan words but this contrast is not available with most of the monolingual speakers. Therefore, the retroflex flap /ra/ has been preferred in this analysis as an allophone of /da/.

6.5 CONSONANTS IN COMBINATION

In Bengali consonantal combinations are of two types: One type consists of homo-organic consonants which are described as geminate consonants while the other consists of hetero-organic consonants which are described as consonant clusters.
6.5.1 GEMINATE CONSONANTS

Bengali has geminate consonants which are often referred to as double consonants. According to Chatterji (1986) the Bengali double consonants are long consonants. In fact while pronouncing the double consonants, duration is extended from one to the other syllable as it occurs in English in between two words. For instance, night time, pen knife, etc.

In Bengali, however, the geminate consonants which are described as double consonants occur word medially. They are fifteen in number. They also show contrasts with the respective single consonants. The following chart presents the contrasts between single and double consonants:

<table>
<thead>
<tr>
<th>Single Consonants</th>
<th>Examples</th>
<th>Double Consonants</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>/k/</td>
<td>/cho:ka/</td>
<td>/kk/</td>
<td>/cho:kk/a/</td>
</tr>
<tr>
<td>/g/</td>
<td>/bhago/</td>
<td>/gg/</td>
<td>/bhaggo/</td>
</tr>
<tr>
<td>/c/</td>
<td>/k:ca/</td>
<td>/cc/</td>
<td>/k:cca/</td>
</tr>
<tr>
<td>/j/</td>
<td>/m:ja/</td>
<td>/jj/</td>
<td>/m:jja/</td>
</tr>
<tr>
<td>/t/</td>
<td>/aTa/</td>
<td>/TT/</td>
<td>/aTTa/</td>
</tr>
<tr>
<td>/b/</td>
<td>/h:Di/</td>
<td>/DD/</td>
<td>/h:ADDi/</td>
</tr>
<tr>
<td>/t/</td>
<td>/pta/</td>
<td>/tt/</td>
<td>/pta/</td>
</tr>
<tr>
<td>/d/</td>
<td>/adi/</td>
<td>/dd/</td>
<td>/addi/</td>
</tr>
</tbody>
</table>

The table above shows the contrasts between single and double consonants in Bengali. The examples given illustrate the differences in pronunciation and meaning between the two sets of consonants.
Bengali has both bi-consonant and tri-consonant clusters occurring within the same syllable. The bi-consonant clusters are thirty-nine in number whereas the tri-consonant clusters are three in number. The bi-consonant clusters occur both syllable initially and syllable finally whereas the tri-consonant clusters occur always syllable initially and never syllable finally. Only thirty-six bi-consonant clusters occur syllable initially and three syllable finally. Following are the bi-consonant and tri-consonant clusters in Bengali.

<table>
<thead>
<tr>
<th>Bi-consonant clusters</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>/pr/</td>
<td>/pran/</td>
</tr>
<tr>
<td>/pl/</td>
<td>/plabon/</td>
</tr>
<tr>
<td>/phr/</td>
<td>/phrem/</td>
</tr>
<tr>
<td>/phl/</td>
<td>/phlaeT/</td>
</tr>
<tr>
<td>/br/</td>
<td>/brono/</td>
</tr>
</tbody>
</table>
blad', 'travelling', 'mistake', 'thing', 'object', 'held', 'tram', 'drain', 'swelled', 'thunder', 'order', 'tired', 'The christian era', 'village', 'fatigue', 'smell', 'light', 'pale', 'strike', 'dance', 'bank', 'Institution', 'distinct', 'crystal', 'praise', 'place', 'station
It may be noted that the clusters with /s/ as the first member, are realized phonetically as /s/. Since Bengali has a sibilant phoneme which is palato-alveolar, the clusters with the sibilant are, therefore, transcribed phonemically with /s/.

Tri-consonant clusters

/šk/ /škn'dho/ 'shoulder'
/škh/ /škh'lon/ 'falling'
/šm/ /šmito/ 'smiling'
/in/ /snatok/ 'graduate'
/is/ /srota/ 'hearer'
/šl/ /šlok/ 'a verse'
/hr/ /hras/ 'reduced'
/hl/ /hladini/ 'delighting'

Examples

/špr/ /špriha/ 'desire'
/štr/ /štrino/ 'hen-pecked'
/škr/ /škru/ 'screw'