Chapter II

Phonology
2.1 Vowels

Malayalam

2.1.1 Front Vowels

2.1.1.1 Malayalam

The front vowels in Malayalam are /i, i:, e,e:/ of these two are short vowels /i,e/ and two are long vowels /i:, e:/ The four front vowels have an onglide 'y' in the initial position and an offglide of 'y' in the final position. This general statement is not repeated in the allophonic statement. Their allophones and their distribution are as follows (cf. Velayudhan Asari 1970).

/i/ High front unrounded tense vowel.

[I] Lower high front unrounded vowel occurs in the environment c-c.

e.g. /tinnu/ [tInnu] 'ate'
[i] High front unrounded tense vowel occurs elsewhere.

  e.g. /iṭi/  [i:di]  'hit'
  /ka:lI/  [ka:li]  'play'

2. /i:/ High front unrounded tense long vowel

  [i:] High front unrounded tense long vowel occurs initially, medially and finally.

  e.g. /i:cca/  [i:c:a]  'fly'
  /mi:in/  [mi:n]  'fish'
  /ni:/  [ni:]  'you'

3. /e/ Higher-mid front unrounded short vowel.

  [e] meanmid front unrounded vowel occurs in the environment c-c.

  e.g. /peṭṭi/  [peṭṭi]  'box'
  /velḷam/  [velḷam]  'water'

  [e] Highermid front unrounded short vowel occurs elsewhere.

  e.g. /e:li/  [e:li]  'rat'
  /enRe/  [enRe]  'mine'

4. /e:/ Higher-mid front unrounded long vowel.

  [e:] Highermid front unrounded long vowel occurs initially, medially and finally.

  e.g. /e:ni/  [e:ni]  'ladder'
  /pe:ṭṭi/  [pe:ṭṭi]  'fear'
  /po:re:/  [po:re:]  '(is it) not enough'.
2.1.1.2. Hindi

In Hindi all the vowels which are preceded or followed by a nasal consonant are generally nasalized. This general statement is not repeated in the allophonic distribution.

Front vowels in Hindi are /i, i:, e:, æ:/

Their allophonic distribution is as shown below.
(c.f. Chaturvedi, 1973)

1. /i/ High, front, unrounded short vowel.

[c] Lower-high front little centralized extra short vowel occurs word initially before s+c, word finally and elsewhere after c1+c2.

e.g. /iste:ma:l/ [Iste•ma:l] 'we'
     /priy/    [prIy ] 'beloved'
     /pra:pti/ [pra:ptI] 'ability'

[i] Lower-high front little centralized short vowel occurs elsewhere.

e.g. /itiha:s/ [itiha:s] 'history'
     /niša:n/ [niša:n] 'any mark'

/i:/ High front unrounded long vowel.

[i:] High, front, unrounded long vowel occurs word finally.

  e.g. /kōhi:/ [kəbhi:] /kcci:/ [kəcːiː] 'unripe'

[i*] High front unrounded half long little centralized vowel occurs elsewhere.
/ka: ri:gər/ [kaˌriːɡəɾ] 'Craftsman'
e.g. /iːmaːndaːr/ [iˌmaːndaːr] 'intelligent'

3. /e:/ Lower-mid front unrounded long vowel.

[e:] Lower-mid front unrounded long vowel occurs initially.

/eːvəm/ [eːvəm] 'thus'
e.g. /eːk/ [eːk] one'

[e·] Little centralized lower mid half long vowel occurs elsewhere.
e.g. /keːle/ [keˌleː] 'fruits'
/jeːb/ [jeˌb] 'pocket'

4. /æ/ Higher-low, front unrounded long vowel.

[æ] Higherlow, front unrounded long vowel occurs initially.
e.g. /æːsa:/ [æːsa:] 'like that'
/æːk’y/ [æːk’y] 'unity'

[æː] Higher-low, front unrounded little centralized, half long vowel occurs elsewhere except before y.
e.g. /mædaːn/ [mæˈdaːn] 'playground'
/kæsaː/ [kæsaː] 'what kind of'

[œI] a diphthong beginning with [œ] and gliding off towards [I] occurs when followed by /y/.
e.g. /bhæːya/ [bhæIyaː] 'brother'
/mæːya/ [mæIyaː] 'mother'

2.1.1.3. Similarities and dissimilarities

The front vowels /i:, e:/ show similarity in both Malayalam and Hindi.
The front short vowel /i/ show partial similarity. When compared with the Malayalam /i/ Hindi /i/ is a little centralized and extra short.

e.g.

<table>
<thead>
<tr>
<th>M</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>/i:cca/</td>
<td>[i:c:a]</td>
</tr>
<tr>
<td>/mi:n/</td>
<td>[mi:n]</td>
</tr>
<tr>
<td>/e:ni/</td>
<td>[e:ni]</td>
</tr>
<tr>
<td>/me:tam/</td>
<td>[me:da:n]</td>
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<tr>
<td></td>
<td>/i:sva:r/</td>
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<tr>
<td></td>
<td>/abhi:/</td>
</tr>
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<td></td>
<td>/e:k/</td>
</tr>
<tr>
<td></td>
<td>/ge:l/</td>
</tr>
</tbody>
</table>

The front short vowel /e/ is found only in Malayalam.
The vowel /æ:/ is found in Hindi only.

2.1.2 Central vowels

2.1.2.1 Malayalam

The central vowels in Malayalam are /ə, ə, ə/. Their allophonic distributions are as follows.

(1) /ə/ Mean-mid central unrounded vowel.

[ə] Mean-mid central unrounded vowel occurs word finally.

e.g. /ka:lə/ [ka:lə] 'leg'
     /va:lə/ [va:lə] 'tail'
(2) /a/ Low central unrounded short vowel.

\[ \text{[ə]} \] Low central unrounded vowel occurs in the environment c-c except in the first syllable.

e.g. /kəɾəm/ \( [\text{kaɾəm}] \) 'tax'
      /məɾəm/ \( [\text{marəm}] \) 'tree'

\[ \text{[ə]} \] Low back unrounded vowel occurs elsewhere.

e.g. /kətə/ \( [\text{kaɾə}] \) 'shop'
      /vətəm/ \( [\text{vaɾəm}] \) 'rope'

(3) /aː/ Low central unrounded long vowel.

\[ \text{[aː]} \] low central unrounded long vowel occurs word initially, medially and finally.

e.g. /əːna/ \( [\text{aːna}] \) 'elephant'
      /vimaːnəm/ \( [\text{vImaːnəm}] \) 'aeroplane'
      /vaː/ \( [\text{vaː}] \) 'come'

2.1.2.2. Hindi

The two central vowels in Hindi are /ə, aː/. Their allophonic distribution is shown below.

(1) /ə/ Mean-mid, central unrounded vowel.

\[ \text{[ɛ]} \] Mean-mid front more centralized unrounded short vowel occurs before /h/ + /c/ or before final /h/ or before /h/ not followed by a vowel.

e.g. /kɛnəhna:/ \( [\text{kɛnəhna:}] \) 'to say'
      /væɡɛɾəh/ \( [\text{vaɾəh}] \) 'eto'
      /ɾɛhnaː:/ \( [\text{ɾɛhnaː:}] \) 'stay'

\[ \text{[ə]} \] Mean-mid central unrounded short vowel occurs elsewhere.
(2) /a:/ Low central unrounded long vowel.

[a:] Low central unrounded long vowel occurs initially and medially.

- e.g. /a:j/ [a:j] 'today'
- /ka:l/ [ka:l] 'time'

[a·] Low central, little higher than [a:] half long occurs elsewhere.

- e.g. /ka:la:/ [ka:la·] 'black'
- /kha:ta:/ [kha:ta·] 'granary'

2.1.2.3. Similarities and dissimilarities

The central vowel /a:/ is similar in both Malayalam and Hindi.

- e.g.

M.                                      H.
/a:na/ [a:na] 'elephant' /a:j/ [a:j] 'today'

The vowel phoneme /a/ of Malayalam is partially similar to Hindi phoneme /ə/. Both of them are central unrounded vowels with difference in tongue height. /a/ in Malayalam is low and /ə/ in Hindi is high as exemplified below:
The vowel phoneme /ə/ which is a central unrounded vowel is found only in Malayalam.

2.1.3 Back vowels

2.1.3.1. Malayalam

The four back vowels in Malayalam are /u, u:, o, o:/.

These vowels have an onglide of 'w' initially and an offglide of 'w' finally. This general statement is not repeated in the allophonic statements.

1. /u/ High back rounded short vowel.

[ʊ] High back unrounded vowel occurs in the environment c-c except in word initial syllables.

- e.g. /kotuko/ [kotuŋo] 'mosquito'
- /kaṭuka/ [kaṭua] 'mastard seed'

[u] High back rounded tense vowel occurs elsewhere.

- e.g. /umi/ [umi] 'paddy husk'
  /kuṭam/ [kuṭam] 'pot'

2. /u:/ High back rounded long vowel occurs word initially, medially and finally.

- e.g. /u:ma/ [u:ma] 'dumb'
  /kuṭa/ [kuṭa] 'basket'
  /varu:/ [varu:] 'come (please)'

3. /o/ Higher-mid back rounded vowel.

[o] Higher-mid back rounded short vowel occurs word initially and medially.
e.g. /oruma/ [orw·ma] 'unity'  
/koti/ [koj·i] 'flag'  

4. /oː/ Higher-mid back rounded long vowel.  
   [oː] Higher-mid back rounded long vowels occurs word initially, medially and finally.  
   e.g. /oːlam/ [oːl·əm] 'ripples'  
        /toːni/ [toːni] 'small boat'  
        /poː/ [poː] 'go'  

2.1.3.2. Hindi  

The back vowels in Hindi are /u, uː, oː/. Their allophonic distributions are as follows:  

1. /u/ High back slightly rounded short vowel.  
   [u] High back slightly rounded little centralized extra short vowel occurs finally.  
   e.g. /vuːstu/ [vuːstu] 'thing  
        /kuːtu/ [kuːtu] 'pricking'  
   [u] High back slightly rounded short vowel occurs elsewhere.  
   e.g. /umr/ [umr] 'age'  
        /umpamaː/ [upamaː] 'smile'  

2. /uː/ High back slightly rounded long vowel.  
   [uː] High back slightly rounded long vowel occurs initially and medially.  
   e.g. /uːpɔːr/ [uːpɔːr] 'above'  
        /kɔːbuːtɔːr/ [kɔːbuːtɔːr] 'pigeon'
[u'] High back slightly rounded little centralized half-long vowel occurs elsewhere.

e.g. /a:lu/ [a:lu'] 'potato'
      /pa:ltu:/ [pa:ltu'] 'pet'

3. /o:/ Higher-mid, back rounded long vowel.

[o:] Higher-mid, back rounded long vowel occurs word initially.

   e.g. /ɔ:r/ [ɔ:r] 'towards'
       /ɔkhali:/ [ɔkhali:] 'grinding stone'

[ɔ'] Higher-mid back little centralized half-long vowel occur elsewhere.

   e.g. /go:pa:l/ [go'pa:l] 'a personal name'
        /so'na:/ [so·na:] 'gold'

4. /ɔ:/ Higher-low back rounded long vowel.

[ɔ:] Higher-low back rounded long vowel occurs word initially and medially.

   e.g. /ɔ:r/ [ɔ:r] 'and'
        /ɔ:rat/ [ɔ:rat] 'lady'

[ɔU] a diphthong beginning with [ɔ] and gliding off towards [U] occurs when followed by a/ɔ/;

   e.g. /kɔ:va/ [kɔuva] 'crow'
        /ɔ: va:/ [ɔuva:] 'thread wound fore fingers.'

2.1.3.3 Similarities and dissimilarities

The long back vowel /o:/ is similar in both Malayalam and Hindi.
The vowel phonemes /u:/ and /u/ of Malayalam are partially similar to Hindi phonemes /u:/ and /u/. In Malayalam they are rounded and high but in Hindi they are slightly rounded and a little centralised.

e.g.

M
/o:lam/ [o:lam] 'ripples'
H
/o:r/ [o:r] 'towards'

The vowel phonemes /u:/ and /u/ of Malayalam are partially similar to Hindi phonemes /u:/ and /u/. In Malayalam they are rounded and high but in Hindi they are slightly rounded and a little centralised.

e.g.

M
/u:ma/ [u:ma] 'dumb'
H
/u:par/ [u:par] 'above'
/umr/ [umr] 'age'

The short back vowel /o/ is found only in Malayalam.

The vowel /ɔ:/ is found only in Hindi.

In Malayalam sub phonemic length is not indicated in the transcription. There are three degrees of phoentic duration in Malayalam - extra short, short and half-long but which do not have much significance in Malayalam language. Only two degrees of length short and long need to be recognised in Malayalam. But in Hindi this character of vowel is taken care of in the allophonic level since they have a major role in determining the vowel quality.

Nasalization of vowel is a peculiarity of Hindi vowels. There are two types of nasalization of vowels in Hindi one allophonic and the other phonemic. Allophonic nasalization is automatic so it is mostly not marked in writing. In Hindi
the vowels after or before a nasal consonant are generally nasalized. This sort of nasalization is found in Malayalam also but it is ignorable.

Phonemic nasalization has only a restricted distribution, it may even be considered as a part of the secondary vowel system of Hindi.

e.g.

Allophonic nasalization
/kən/ 'who'
/jaːnə/ 'going'

Phonemic nasalization

/e.g./
/kəhi:/ 'said' /kəhəː/ 'somewhere'
/saːs/ 'mother-in-law' /səːs/ 'breath'

In Malayalam vowels there is no complex diphthongs or diphthongizing of long vowels. The two diphthongal articulations to be distinguished in Malayalam are symbolized as /ai/ and /au/. These are not given phonemic status because their occurrence is very limited and sometimes may be replaced by the continuants y or v.

In Hindi also the short Sanskrit diphthongs / ai/ and / au/ are replaced by /əː/ and /ɔː/.
# Phonemic Chart of Malayalam

<table>
<thead>
<tr>
<th>Bilabial</th>
<th>Labiodental</th>
<th>Dental</th>
<th>Alveolar</th>
<th>Retroflex</th>
<th>Palatal</th>
<th>Velar</th>
</tr>
</thead>
<tbody>
<tr>
<td>p</td>
<td>b</td>
<td>t</td>
<td>d</td>
<td>R¹</td>
<td>t</td>
<td>q</td>
</tr>
<tr>
<td>Aspirated stop</td>
<td>ph</td>
<td>th</td>
<td>th</td>
<td>ch</td>
<td>kh</td>
<td></td>
</tr>
<tr>
<td>Nasal</td>
<td>m</td>
<td>n</td>
<td>n</td>
<td>n̄</td>
<td>n̄</td>
<td></td>
</tr>
<tr>
<td>Lateral</td>
<td>l</td>
<td>l</td>
<td>l</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trill</td>
<td>r</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fricative</td>
<td>s</td>
<td>s</td>
<td>ñ</td>
<td>s</td>
<td>h</td>
<td></td>
</tr>
<tr>
<td>Semivowel</td>
<td>V</td>
<td></td>
<td></td>
<td>y</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Though one of the allophones of /R/ has a phonetic quality of trill is treated as a stop phoneme since it patterns with the other stops in transitive formation and also in cluster formation it occurs only after a homorganic nasal like all other stops.
### Phonemic Chart of Hindi

<table>
<thead>
<tr>
<th></th>
<th>Bilabial</th>
<th>Labiodental</th>
<th>Dental</th>
<th>Alveolar</th>
<th>Post-alveolar</th>
<th>Palatal</th>
<th>Velar</th>
<th>Post-velar</th>
<th>Glottal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stop</td>
<td>p</td>
<td>b</td>
<td>t</td>
<td>d</td>
<td>t</td>
<td>d</td>
<td>c</td>
<td>j</td>
<td>k</td>
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<td>(q)</td>
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<tr>
<td>Aspirated stop</td>
<td>ph</td>
<td>bh</td>
<td>th</td>
<td>dh</td>
<td>th</td>
<td>dh</td>
<td>ch</td>
<td>jh</td>
<td>kh</td>
</tr>
<tr>
<td>Nasal</td>
<td>m</td>
<td>n</td>
<td>n̄</td>
<td></td>
<td>(h)</td>
<td></td>
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<tr>
<td>Lateral</td>
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<tr>
<td>Trill</td>
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<td>r</td>
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<tr>
<td>Aspirated trill</td>
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<td>rh</td>
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<tr>
<td>Fricative</td>
<td>(f)</td>
<td>s</td>
<td>(Z)</td>
<td>y</td>
<td>(x)</td>
<td>(y)</td>
<td>h</td>
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<tr>
<td>Semivowel</td>
<td>V</td>
<td>y</td>
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</tbody>
</table>

1. The consonants put into parentheses are not found in the speech of native speakers, even educated people are found to replace these phonemes by other phonemes.
2.2 Consonants

2.2.1 Stops

2.2.1.1. Malayalam

In Malayalam there are sixteen stops. Voiced aspirated stops are absent in Malayalam\(^1\). All voiceless stops here have corresponding voiceless aspirated varieties also. The stops and their allophonic distribution are as follows:

1. /p/ Bilabial voiceless stop

   \[\text{[p, b, p]}\]

   [b] Bilabial voiced lenis fricative occurs intervocalically.

   e.g. /ṣa:pm/ [ṣa:ṇm] 'curse'
   /ape:kṣa/ [aœ:kṣa] 'request'

   [b] Bilabial voiced stop with a gradual trailing in voicing occurs medially after homorganic nasal.

   e.g. /tumpa/ [t̪um bụ] 'a plant'
   /kampə/ [kamḅə] 'stick'

   [P] Bilabial voiceless fortis stop occurs elsewhere.

   e.g. /pattə/ [pat:ə] 'ten'
   /kuppi/ [kup:i] 'bottle'
   /kopRa/ [kopRa] 'dry coconut'

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1. The Malayalam writing system do have letters for voiced aspirated and in the writing system such words with voiced stops are written with voiced aspirated letters, however even in standard pronunciation of Malayalam, the voiced aspirated are absent and hence they are not considered here as separate phonemes.
2. /ph/ Bilabial voiceless aspirated stop

[ḇh, bh, ph]

[ḇh] Bilabial semivoiced aspirated stop with a slight friction occurs intervocalically.

   e.g. /a:bharanam/ [a:ṭhaːɾənaːm] 'ornament'
   /vibhavam/ [vɪbʰə vəm] 'item'

[bh] Bilabial voiced aspirated stop with a gradual trailing in voicing occurs medially after homorganic nasal.

   e.g. /rembha/ [rəmbha] 'a personal name'
   /rehasyam/ [rəhasyəm] 'secret'

[ph] Bilabial voiceless aspirated stop occurs elsewhere.

   e.g. /bhaː(sa)/ [phaːsa] 'language'
   /abhram/ [aphrəm] 'mica'

(3) /b/ Bilabial voiced stop.

[b] Bilabial voiced stop occurs initially and medially.

   e.g. /jubba/ [jubːa] 'a kind of shirt'
   /balam/ [baləm] 'strength'

(4) /t/ Dental voiceless stop.

[D, D, t]

[D] Dental voiced lenis fricative occurs intervocalically.

   e.g. /paːta/ [paːda] 'path'
   /cata/ [caːta] 'flesh'

[D] Dental voiced stop with a gradual trailing in voicing occurs medially after homorganic nasal.

   e.g. /caṇṭam/ [caṇDəm] 'beauty'
   /ventu/ [vəŋDʊ] 'cooked'
[t] Dental voiceless stop occurs elsewhere.
e.g. /taʃi/ [taʃi] 'wood'
    /pattə / [patə] 'ten'

(5) /th/ Dental voiceless aspirated stop
    [Dh, Dh, th]

[Dh] Dental voiced affricate occurs intervocalically.
e.g. /redham/ [reDha:rm] 'chariot'
    /a:dha:ram/ [a:Da:ram] 'document'

[Dh] Dental voiced aspirated stop with a gradual trailing in voicing occurs medially after homorganic nasal.
e.g. /bandhu/ [bAnDhu] 'relative'
    /anDhan/ [a:NDhan] 'blind man'

[th] Dental voiceless aspirated stop occurs elsewhere.
e.g. /dhayryam/ [tha:ryəm] 'courage'
    /vardhiccu/ [varthIc:u] 'increased'

(6) /d/ Dental voiced stop.
[d] Dental voiced stop occurs initially and word medially with length or in clusters.
e.g. /de: ham/ [de:ha:rm] 'body'
    /da:ridryam/ [da:riDrəm] 'poverty'

(7) /R/ Alveolar voiceless stop.
[d, t, R]

[d] Alveolar voiced stop occurs the homorganic nasal.
e.g. /enRe/ [enDe] 'mine'

[t] Alveolar voiceless stop occurs with length medially.
e.g. /pa:RRa/ [pa:təa] 'cockroach'
Alveolar trill occurs elsewhere.

\[ \text{e.g.} \quad /\text{kaRi}/ \quad [\text{kaRi}] \quad \text{'curry'} \]
\[ /\text{Rava}/ \quad [\text{Rava}] \quad \text{'rava'} \]

(8) \( /\text{t}/ \) Retroflex voiceless stop.

\[ [\text{D}, \text{D}, \text{t}] \]

Retroflex voiced stop with less duration occurs intervocalically.

\[ \text{e.g.} \quad /\text{ta\text{"u}/} \quad [\text{ta\text{"u}}] \quad \text{'wood'} \]
\[ /\text{pa\text{"a}/} \quad [\text{pa\text{"a}}] \quad \text{'picture'} \]

Retroflex voiced stop with a gradual reduction in voicing occurs medially after a homorganic nasal.

\[ \text{e.g.} \quad /\text{vi\text{"u}/} \quad [\text{vi\text{"u}}] \quad \text{'again'} \]
\[ /\text{pa\text{"a}/} \quad [\text{pa\text{"a}}] \quad \text{'years ago'} \]

(9) \( /\text{th}/ \) Retroflex voiceless aspirated stop.

\[ [\text{Dh}, \text{Dh}, \text{th}] \]

Retroflex voiced aspirated stop with a friction occurs intervocalically.

\[ \text{e.g.} \quad /\text{pa\text{"a}/} \quad [\text{pa\text{"a}}] \quad \text{'lesson'} \]
\[ /\text{pi\text{"a}/} \quad [\text{pi\text{"a}}] \]

Retroflex voiced aspirated stop with a reduction in voicing occurs after the homorganic nasal.

\[ \text{e.g.} \quad /\text{k\text{"a}/} \quad [\text{k\text{"a}}] \quad \text{'neck'} \]
\[ /\text{k\text{"a}/} \quad [\text{k\text{"a}}] \quad \text{'sorrow'} \]

Retroflex voiceless aspirated stop occurs elsewhere.

\[ \text{e.g.} \quad /\text{\v{S}a\text{"a}/} \quad [\text{\v{S}a\text{"a}}] \quad \text{'insistance'} \]
(10) /d/ [ɖ] Retroflex voiced stop occurs initially and medially.
   e.g. /daːnsə/ [ɖaːnsə] 'dance'

(11) /c/ Palatal voiceless stop.
   [ʃ, ɶ, c]
   [ʃ] palatal voiced stop with a slight friction occurs intervocally.
   e.g. /vicaːram/ [vIjaːɾəm] 'thinking'
         /paricayam/ [parIjayəm] 'familiarity'
   [ʃ] palatal voiced stop with a gradual reduction in voicing occurs medially after the homorganic nasal.
   e.g. /iʃci/ [iʃji] 'ginger'
   [c] palatal voiceless stop occurs elsewhere.
   e.g. /ciri/ [cIri] 'laugh'
         /pacca/ [pac:a] 'green'

(12) /ch/ palatal voiceless aspirated stop.
   [ch] palatal voiceless aspirated stop occurs word initially and medially.
   e.g. /chaːya/ [chaːya] 'image'
         /muːrccha/ [muːrccha] 'looking'

(13) /J/ palatal voiced stop.
   [ʃ] palatal voiced stop occurs initially and medially.
   e.g. /jayam/ [jayəm] 'victory'
         /lejja/ [lejːa] 'shyness'

(14) /k/ Velar voiceless stop
   [θ, ɡ, k]
[θ] Velar voiced stop with slight friction occurs inter-vocalically and after y and v.
   e.g. /makan/ [mako:] 'son'
   /paːcakam/ [paːçakam] 'cooking'

[ʒ] Velar voiced stop with a reduction in voicing occurs medially after homorganic nasal.
   e.g. /paŋkə/ [paŋkə] 'share'
   /taŋkam/ [taŋkam]

[k] Velar voiceless stop occurs word initially and medially not after nasals, y and v.
   e.g. /kala/ [kala] 'art'
       /pakal/ [pakal] 'morning'

(15) /kh/ Velar voiceless aspirated stop.

[θ, ŋ, ʁ, kh]

[θ] velar voiced aspirated stop with a fricative quality occurs intervocalically.
   e.g. /sukham/ [suθəm] 'comfort'
       /nakham/ [naθəm] 'nail'

[ŋ] velar voiced aspirated stop with a gradual reduction in voicing occurs medially after the homorganic nasal.
   e.g. /saŋkhə/ [saŋkʰə] 'xancus'
       /saŋkham/ [saŋkʰəm] 'group'

[kh] velar voiceless aspirated stop occurs elsewhere
   e.g. /khani/ [khani] 'mine'
       /muːrkhan/ [muːrkʰən] 'cobra'

(16) /g/ velar voiced stop

[ʒ] velar voiced stop, occurs
(1) initially (2) medially in clusters.

e.g. /guṇam/  [guṇəm] 'goodness'
     /svargam/  [svargəm] 'heaven'

2.2.1.2. Hindi

In Hindi there are twentyone stop consonants. Their allophonic distribution is given below:

(1) /p/ Bilabial voiceless stop.
    [pʾ, pʾ, pʾ, p]
    [pʾ] Bilabial voiceless unreleased stop occurs finally after a vowel and elsewhere before a consonant.
    e.g.  /ba:p/  [ba:p] 'father'
           /cəpʾpal/  [cəpʾpal] 'slipper'
    [pʾ] Bilabial voiceless released stop occurs finally after a consonant.
    e.g.  /əlp/  [əlpʾ] 'very little'
    [pʾ] Bilabial voiceless unreleased relatively long stop occurs medially before /y/, /r/, /l/ and after a vowel.
    e.g.  /pra:py/  [pra:pʾy] 'attainable'
           /vipləv/  [vipʾləv] 'a riot'
           /vipralambh/  [vipʾrələmbʾ] 'deception'
    [p] Bilabial voiceless stop occurs elsewhere.
    e.g.  /pəkši:/  [pəkši:] 'bird'
           /pə:sa:/  [pə:sa:] 'money'

(2) /ph/ Bilabial voiceless aspirated stop.
    [phʾ, pʾ, h, ph]
[phʰ] bilabial, voiceless, lightly aspirated released stop occurs word finally.
e.g. /sa:ph/ [sa:phʰ] 'clean'

[pʰ] Bilabial, voiceless, lightly aspirated, unreleased, relatively long stop occurs medially before /r/ and after a vowel.
e.g. /naphret/ [nəpʰhrət] 'hatred'

[ph] Bilabial, voiceless, aspirated stop occurs elsewhere
e.g. /phəl/ [phəl] 'fruit'
    /səpha:yi/ [səpha:yi] 'neatness'

(3) /b/ Bilabial voiced stop.
[b', b', b', b]

[b'] Bilabial, lightly voiced unreleased stop occurs finally after a vowel and elsewhere before a consonant.
e.g. /kəb/ [kəb'] 'when'
    /bya:h/ [b'ya:h] 'marriage'

[b'] Bilabial lightly voiced released stop occurs finally after a consonant.
e.g. /bimb/ [bimb'] 'reflection'

[b'] Bilabial, lightly voiced, relatively long unreleased stop occurs medially before /r/ and after a vowel.
e.g. /kabr/ [kəb'r] 'a grave'

[b] Bilabial, voiced, unaspirated stop occurs elsewhere.
e.g. /ba:l/ [ba:l] 'hair'
    /sabu:t/ [sabu:t] 'evidence'
(4) /bh/ Bilabial voiced aspirated stop.

[bh', b.'h, bh', bh]

[bh'] Bilabial, voiced, lightly aspirated released stop occurs word finally.

e.g. /la: bh/ [la: bh'] 'profit'
     /garbh/ [gərh'] 'pregnancy'

[b.'h] Bilabial, voiced, lightly aspirated relatively long unreleased stop occurs medially before /r/ or /y/ and after a vowel.

e.g. /əbhyyuday/ [əb.'hyud əy] 'progress'
     /əbhrak/ [əb.'hrək] 'mica'

[bh'] Bilabial, voiced, lightly aspirated unreleased stop occurs before a consonant.

e.g. /bhramar/ [bh'rəmər] 'bee'
     /bhruːp/ [bh'ruːŋ] 'embryo'

[bh] Bilabial, voiced aspirated stop occurs elsewhere.

e.g. /bhi: tar/ [bhi:tər] 'inside'
     /bha:i/ [bha:i:] 'brother'

(5) /t/ Dental, voiceless, stop

[t', t', t', t]

[t'] Dental, voiceless, unreleased stop occurs finally after a vowel and elsewhere before a consonant.

e.g. /sa:t/ [sa:t'] 'seven'

[t'] dental, voiceless released stop occurs finally after a consonant.

e.g. /bhəkt/ [bhəkt'] 'devotee'
     /niyukt/ [niyukt'] 'appointed'
[t.] Dental voiceless, relatively long unreleased stop occurs medially before /y/, /r/, /v/ and after a vowel.
e.g. /səˈtəyaːɡraːh/ [səˈtəˈyaːɡraːh] 'resistance'
       /ˈpətrɪkə/ [ˈpətrɪkə] 'magazine'

[t] Dental, voiceless stop occurs elsewhere.
e.g. /təˈlvaːr/ [təˈlvaːr] 'sword'
       /əntər/ [əntər] 'difference'

(6) /θ/ Dental, voiceless, aspirated stop.
[θ‘, t.’h, th’, th]
[θ‘] dental, voiceless, lightly aspirated released stop occurs word finally.
e.g. /səˈθəθ/ [səˈθəθ] 'along with'
       /əθθ/ [əθθ] 'meaning'

[t.’h] Dental, voiceless, lightly aspirated relatively long unreleased stop. Occurs medially before /v/ and /y/ and after a vowel.
e.g. /prɪθθiːv/ [prɪθθiːv] 'earth'

[θ] dental voiceless aspirated unreleased stop occurs before a consonant.
e.g. /tvəθθɪt/ [tvəθθɪt] 'sudden'

[θ] Dental voiceless aspirated stop occurs elsewhere.
e.g. /pəθθər/ [pəθθər] 'stone'

(7) /d/ dental, voiced stop
[d‘, d‘, d‘, d]
[d‘] dental voiced unreleased stop occurs finally after a vowel and elsewhere before a consonant.
e.g. /vɪsə:d/ [vɪsə:d] 'sadness'
[d'] dental slightly voiced released stop occur after a consonant.
e.g. /d'ør/ [d'ør'] 'pain'

[d. '] Dental voiceless relatively long unreleased stop occurs medially before /r/, /v/, /y/ and after a vowel.
e.g. /vidro:h/ [vId.'ro:h] 'mu-ding'
/vidva:n/ [vId.'wa:n] 'lear-ned'
/pady/ [pad.'y] 'poe-try'

[d] Dental voiced unreleased stop occurs elsewhere.
e.g. /da:n/ [da:n] 'char-ity'
/andar/ [ənd ər] 'di-si-nce'

(8) /dh/ Dental voiced aspirated stop.
[dh', d.'h, dh', dh]

[dh'] dental, voiced, lightly aspirated released stop occurs word finally.
e.g. /ərdh/ [ərdh'] 'mean-ing'
/sa:dh/ [sa:dh'] 'to-get-her'

[dh'] dental, voiced aspirated unreleased stop occurs before a consonant.
e.g. /dhvaj/ [dh'wəj] 'flag'
/dhruv/ [dh'ruv'] 'north pole'

[d.'h] dental, voiced, lightly aspirated relatively long unreleased stop occurs medially before /v/, /r/, /y/ and after a vowel.
e.g. /vidhvms/ [vId.'hwəms] 'destruc-tion'
/ədhya:y/ [əd.'hya:y] 'chap-ter'
[dh] dental, voiced aspirated stop occurs elsewhere.
e.g. /dhɔn'/ [dhɔn'] 'wealth'
     /əndh/ [əndh] 'blind'

(9) /t/ post-alveolar, voiceless stop.
   [t', t', t', t] post-alveolar, voiceless unreleased stop occurs
finally after a vowel and elsewhere before a consonant.
e.g. /mi'ti/ [mi'ti] 'earth'
     /ka:t/ [ka:t'] 'mattress'
   [t'] post-alveolar, voiceless, released stop occurs
finally after a consonant.
e.g. /pət'/ [pət'] 'a document'
   [t'] post-alveolar, voiceless, relatively long
unreleased stop occurs medially before /y/ and after a
vowel.
e.g. /ekəty/ [ekət' y] 'unity'
   [t] post-alveolar, voiceless stop occurs elsewhere.
e.g. /təp/ [təp] 'cover'
     /ghaŋta:/ [ghəŋta:] 'bell'

(10) /th/ post-alveolar, voiceless, aspirated stop.
   [th', th]
   [th'] post-alveolar, voiceless, lightly aspirated
released stop occurs word finally.
e.g. /a:th'/ [a:th'] 'eight'
     /kənhθ/ [kəNθ] 'neck'
[\text{\textipa{\textasciitilde{t}h}}] post-alveolar, voiceless, aspirated stop occurs elsewhere.

e.g.  /\text{\textipa{\textasciitilde{t}ho:kar}}/  \text{[\textipa{\textasciitilde{t}ho:k\textipa{\textasciitilde{a}r}}]}  'blow'
/k\text{\textipa{\textasciitilde{th}in}}/  \text{[\textipa{k\textipa{\textasciitilde{\textasciitilde{\textasciitilde{t}}h}\textipa{\textasciitilde{a}n}}]}  'difficult'  

(11) /\text{\textipa{\textasciitilde{d}}}/  post-alveolar, lightly voiced stop.

[\text{\textipa{\textasciitilde{d}'}, \text{\textipa{\textasciitilde{d}''}, \text{\textipa{\textasciitilde{d}'''}, \text{\textipa{\textasciitilde{d}}}]}]

[\text{\textipa{\textasciitilde{d}'}}] post-alveolar, lightly voiced, unreleased stop occurs finally after a vowel or before a consonant.

e.g.  /\text{\textipa{\textasciitilde{le\textasciitilde{d}}}/  \text{[\textipa{\textasciitilde{le\textasciitilde{d}'}}]}  'mortar plaster'
/h\text{\textipa{\textasciitilde{d}'d}i}/  \text{[\textipa{\textasciitilde{h\textasciitilde{d}'\textasciitilde{d}i}]}]  'bone'

[\text{\textipa{\textasciitilde{d}''}]} post-alveolar, lightly voiced, released stop occurs finally after a consonant.

e.g.  /\text{\textipa{\textasciitilde{gadd}}}/  \text{[\textipa{\textasciitilde{g\textasciitilde{a}d'\textasciitilde{d}''}}]}  'a pack'

[\text{\textipa{\textasciitilde{d}'''}}] post-alveolar, lightly voiced, relatively long unreleased stop occurs medially before /y/ and after a vowel.

e.g.  /\text{\textipa{\textasciitilde{ja\textasciitilde{d}y}/  \text{[\textipa{ja:d.'y}]}  'stupidity'
[\text{\textipa{\textasciitilde{d}}}] post-alveolar, voiced stop occurs elsewhere.

e.g.  /\text{\textipa{\textasciitilde{da\textasciitilde{li}/  \text{[\textipa{\textasciitilde{\textasciitilde{d}a\textasciitilde{li}}}]}  'brach'
/d\text{\textasciitilde{i}b\textasciitilde{ba}/  \text{[\textipa{\textasciitilde{d}Ib'\textasciitilde{ba}]}}  'compartment'  

(12) /\text{\textipa{\textasciitilde{dh}}}/  post-alveolar voiced stop.

[\text{\textipa{\textasciitilde{d}h}', \text{\textipa{\textasciitilde{d}.'h}, \text{\textipa{\textasciitilde{d}h}}}]

[\text{\textipa{\textasciitilde{d}h}'}] post-alveolar, voiced lightly aspirated released stop occurs word finally.

e.g.  /\text{\textipa{\textasciitilde{dhu:\textasciitilde{\textasciitilde{\textasciitilde{\textasciitilde{d}}}h}/  \text{[\textipa{\textasciitilde{dhu:\textasciitilde{\textasciitilde{\textasciitilde{\textasciitilde{d}}}h}]}}  'investigation'

[\text{\textipa{\textasciitilde{d}.'h}] post-alveolar, voiced, lightly aspirated
unreleased stop occurs medially before /y/ and after a vowel.

e.g. /aːdj̯/ [aːd̯'j̯] 'rich'

[ʔ] post-alveolar, voiced aspirated stop occurs elsewhere.

/ʔhaːl/ [ʔhaːl] 'a shield'

/ʔhək/ [ʔhək′] 'hurt'

(13) /c/ palatal voiceless stop

[c, c', c', c] *

[c'] palatal voiceless unreleased stop occurs finally after a vowel and elsewhere before a consonant.

e.g. /sac/ [səc′] 'truth'

/bacpan/ [bəc′pən] 'childhood'

(14) /ch/ palatal, voiceless, aspirated stop.

[ch', ch', c′h, ch]

[ch'] palatal, voiceless, lightly, aspirated stop released with a friction occurs word finally.

e.g. /svech/ /swəc′ch′/ 'calm'

[ch'] palatal, voiceless, lightly aspirated unreleased stop occurs before a consonant.

e.g. /ucch̯v/ [uc′ch′v] 'a festival'

[c′h] palatal, voiceless, aspirated, relatively long, unreleased stop occurs medially before /v/ and after a vowel.

e.g. [uc′hwa:s] 'inspiration'

[ch] palatal, voiceless, aspirated stop released with friction occurs elsewhere.

* p. 57
(15) /J/ palatal, voiced stop

\[ j', j^*, j^*, j \]

\[ j' \] palatal, voiced, unreleased stop occurs finally after a vowel, elsewhere before consonant.

E.g. \(/bि: j/ \ [bि:j] \ 'a seed'\)

\[ J^* \] palatal, voiced, released stop with slight friction occurs finally after a consonant.

E.g. \(/hाj_j/ \ [हाौj^*] \ 'hajj'\)

\[ j^* \] palatal, voiced, unreleased relatively long stop occurs medially before /r/, /v/, /y/ and after a vowel.

E.g. \(/vौj^r/ \ [वौौj^r] \ 'diamond'\)

\(/uौjvौ1/ \ [उौjवौौ] \ 'bright'\)

\(/rा: jy/ \ [रा:ौjy] \ 'kingdom'\)

\[ j \] palatal, voiced stop, released with a friction occurs elsewhere.

E.g. \(/jा:ti/ \ [jा:ti] \ 'race'\)

(16) /jh/ palatal, voiced, aspirated stop

\[ jh^*, jh \]

\[ jh^* \] palatal voiced lightly aspirated stop released with friction occurs finally.

E.g. \(/sा:jh/ \ [सा:ौj^*] \ 'evening'\)

\[ jh \] palatal, voiced aspirated stop released with friction occurs elsewhere.

E.g. \(/jha:g/ \ [jha:ौg] \ 'ham'\)
(17) /k/ velar, voiceless stop.

\[ k', k, k' \]

[k'] velar, voiceless, unreleased stop occurs finally after a vowel. Elsewhere before a consonant.

\[ /\text{\textipa{qa:k/}} / [\text{\textipa{qa:k\'}}] \ 'a stage-coach' \]
\[ /\text{\textipa{aksar/}} / [\text{\textipa{a:k'sar\}}] \ 'often' \]

[k ] velar, voiceless, released stop occurs finally before a consonant.

\[ /\text{\textipa{tark/}} / [\text{\textipa{t\text{\_}rk\}}] \ 'debate' \]

[k.\'] velar, voiceless, unreleased, relatively long stop occurss medially after /l/, /r/, /r/, /v/, /y/ and before a vowel.

\[ /\text{\textipa{takli:f/}} / [\text{\textipa{t\_k.'li:f\}}] \ 'difficulty' \]
\[ /\text{\textipa{atikram/}} / [\text{\textipa{\_tik.'ram\}}] \ 'trespass' \]
\[ /\text{\textipa{pakv/}} / [\text{\textipa{p\_k.'w\}}] \ 'mature' \]
\[ /\text{\textipa{\_kyata/}} / [\text{\textipa{\_k.'yata\}}] \ 'unity' \]

[k] velar, voiceless stop occurs elsewhere.

\[ /\text{\textipa{katha/}} / [\text{\textipa{k\_tha\}}] \ 'story' \]
\[ /\text{\textipa{taka:n/}} / [\text{\textipa{taka:n\}}] \ 'gaze' \]

(18) /kh/ velar, voiceless, aspirated stop.

\[ kh', kh', k.'h, kh \]

[kh\'] velar, voiceless, lightly aspirated released stop occurs word finally.

\[ /\text{\textipa{a:nhkh/}} / [\text{\textipa{\_\_kh\'}}] \ 'eye' \]
\[ /\text{\textipa{mu:rkh/}} / [\text{\textipa{mu:rkh\'}}] \ 'foolish' \]

[kh\'] velar, voiceless, lightly aspirated stop occurs before a consonant.
e.g. /khya:ti/ [kh'ya:ti:] 'fame'
[k.'h] velar, voiceless, lightly aspirated, unreleased relatively long stop occurs medially before /y/ and after a vowel.
e.g. /vikhya:t/ [vIk.'hya:t'] 'famous'

[kh] velar, voiceless, aspirated stop occurs elsewhere.
e.g. /khani/ [khɔni:] 'mine'

/kh/ velar, voiceless, aspirated stop occurs elsewhere.
e.g. /sa:kha:/ [sa:kha:] 'branch'

(19) /g/ velar voiced stop
[g', g, g', g]  
[g'] velar, voiced, unreleased stop occurs finally after a vowel, elsewhere before a consonant.
e.g. /a:g/ [a:g'] 'fire'

[g'] velar, voiced released stop occurs finally after a consonant.
e.g. /ma:rg/ [ma:rg'] 'way'

[g'] velar, voiced, unreleased, relatively long stop occurs, medially before /r/, /y/ and after a vowel.
e.g. /agr/ [ag'r] 'tip'

[g] velar, voiced stop occurs elsewhere.
e.g. /gati/ [gəti] 'motion'

(20) /gh/ velar, voiced aspirated stop.
[gh', gh, g', h, gh]

[gh'] velar, voiced, lightly aspirated released stop occurs word finally.
e.g. /sañgh/ [sañgh'] 'sang'
[gh'] velar, voiced, lightly aspirated unreleased stop occurs before a consonant.
e.g. /ghra:ŋ/ [gh'ra:ŋ] 'odour'

[g'h] velar, voiced, lightly aspirated, relatively long stop occurs medially before /r/, /y/ and after a vowel.
e.g. /ši:ghr / [ši:g.'hr] 'quick'

[gh] velar voiced aspirated stop occurs elsewhere.
e.g. /ghaḍi/ [ghoḍi:] 'time'

2.2.1.3. Similarities and dissimilarities

The stop consonants / p, ph, b, t, th, d, c, ch, j, k, kh g/ are similar in both Malayalam and Hindi. e.g.

<table>
<thead>
<tr>
<th>Malayalam</th>
<th>Hindi</th>
</tr>
</thead>
<tbody>
<tr>
<td>/pakṣi/ [pakṣi]</td>
<td>'bird'</td>
</tr>
<tr>
<td>/pha:n/ [pha:n]</td>
<td>'fan'</td>
</tr>
<tr>
<td>/balam/ [bal;m]</td>
<td>'strength'</td>
</tr>
<tr>
<td>/taṭi/ [taḍi]</td>
<td>'wood'</td>
</tr>
<tr>
<td>/thayryam/ [thayry;m]</td>
<td>'courage'</td>
</tr>
<tr>
<td>/de:ham/ [de:ham]</td>
<td>'body'</td>
</tr>
<tr>
<td>/ca:ya/ [ca:ya]</td>
<td>'tea'</td>
</tr>
<tr>
<td>/jayam/ [jay;m]</td>
<td>'victory'</td>
</tr>
<tr>
<td>/katha/ [katha:]</td>
<td>'story'</td>
</tr>
<tr>
<td>/khani/ [khani]</td>
<td>'mine'</td>
</tr>
<tr>
<td>/gunam/ [gun;m]</td>
<td>'merit'</td>
</tr>
</tbody>
</table>

Malayalam voiced aspirated stops are found only in the allophonic level. The allophones [bh] of the phoneme /ph/ and [dh] of the phoneme /th/ are voiced aspirated in
Malayalam. Thus these phonemes are partially similar to Hindi phonemes /bh/ and /dh/ in the allophonic level.

e.g.

/membha/ [membha] 'a pr.l. name' /la:bh/ [la:bh ] 'profit'
/banthu/ [banDhu] 'relative' /ardh/ [ardh] 'meaning'

The Malayalam phonemes /t, th, d/ are partially similar to Hindi /t, th, d/. In Malayalam these sounds are retroflex stops. In Hindi they are post alveolar stops with a very little retroflexion.

e.g.

M H
/tin/ [tin] 'Tin' /tap/ [t: p] 'cover'
/kat:hin/ 'difficult'

The alveolar voiceless stop /R/ of Malayalam has no equivalence in Hindi.

The stops /dh, jh, gh, ɻ/ are found in Hindi only. Of these the phoneme /ɻ/ very rarely occurs in Hindi and is found only in words of Persian origin.

2.2.2. Nasals

2.2.2.1 Malayalam

In Malayalam there are six nasals. The allophonic distribution of these six nasals are given below.

1. /m/ Bilabial nasal.

[ô, m]
Labio dental nasal occur medially before V.

\[ \text{e.g. } /\text{samvaram}/ [\text{samvaram}] \ 'reservation' \]

Bilabial nasal occurs initially, medially and finally

\[ \text{e.g. } /\text{masi}/ [\text{masi}] \ 'ink' \]
\[ /\text{umi}/ [\text{umi}] \ 'paddy husk' \]
\[ /\text{maram}/ [\text{maram}] \ 'tree' \]

2. /n/ Dental nasal occurs initially independently and medially in clusters.

\[ \text{e.g. } /\text{inn}/ [\text{inn}] \ 'today' \]
\[ /\text{nyam}/ [\text{nayam}] \ 'policy' \]
\[ /\text{nruttam}/ [\text{nuttam}] \ 'dance' \]
\[ /\text{cuntam}/ [\text{cuntam}] \ 'beauty' \]

3. /n/ Alveolar nasal

\[ [\text{n}] \text{Alveolar nasal occurs initially before } [\text{y}], \text{medially and finally.} \]

\[ \text{e.g. } /\text{nya:ym}/ [\text{nya:ym}] \ 'justice' \]
\[ /\text{vinayam}/ [\text{vinayam}] \ 'obedience' \]
\[ /\text{mi:n}/ [\text{mi:n}] \ 'fish' \]

4. /ŋ/ Retroflex nasal.

\[ [\text{ŋ}] \text{Retroflex nasal occurs medially and finally.} \]

\[ \text{e.g. } /\text{panam}/ [\text{panam}] \ 'money' \]
\[ /\text{juna}/ [\text{juna}] \ 'June' \]

5. /ɲ/ palatal nasal

\[ [\text{ɲ}] \text{palatal nasal occurs initially and medially.} \]

\[ \text{e.g. } /\text{na:n}/ [\text{na:n}] \ 'I' \]
\[ /\text{ma:niɲ}/ [\text{ma:niɲ}] \ 'dew' \]
6. /\n/ velar nasal.

[\n] velar nasal occurs medially with length or in clusters.
e.g. /ma:\n\n/ [ma:\n\n] 'mango'
/ta\n\n/ [ta\n\n] 'stayed'

2.2.2.2 Hindi

There are four nasal consonants in Hindi. Their occurrence and allophonic distribution are given below.

1. /m/ [\m\'] bilabial, voiced, orally unreleased nasal finally after a vowel, elsewhere before consonant.
e.g. /na:m/ [na:\m\'] 'name'
/am\bar/ [\m\’b\r] 'sky'

[m\'] bilabial, voiced orally released nasal occurs finally after a consonant.
e.g. /khatm/ [kh\atm\'] 'end'

[m\.\'] bilabial, voiced, orally unreleased, relatively long nasal occurs medially before /l/, /r/, /y/ and after a vowel.
e.g. /hamla:/ [h\m:\la:] 'attack'
/sam\ra\t/ [s\m:\ra\t] 'king'

[m] Bilabial, voiced nasal stop occurs elsewhere.
e.g. /ma:la:/ [ma:la:] 'garland'
/kama:l/ [k\ma:l] 'persecution'

2. /n/ Alveolar voiced nasal consonant
[n\', n\', n\', n]
[n’] Alveolar, voiced, orally released nasal occurs finally after a vowel or elsewhere before a consonant.
  e.g. /ma:n/ [ma’n] ‘prestige’

[n’] Alveolar, voiced, orally released nasal occurs finally after a consonant.
  e.g. /vikhn/ [vikhn] ‘an obstacle’

[n’] Alveolar, voiced, orally unreleased relatively long nasal occurs medially before /v/, /y/ and after a vowel.
  e.g. /ənya:y/ [ən’ya:y]

[n] Alveolar, voiced nasal occurs elsewhere
  e.g. /na:k/ [na:k’] ‘nose’
  /vinay/ [vinay] ‘modesty’

(23) /ə/ post-alveolar, voiced, flap nasal.

[n’, n’, n]

[n’] post-alveolar, voiced, orally released nasal occurs medially before a post-alveolar stop.
  e.g. /cənt/ [cənt] ‘strong’

[n’] post-alveolar, voiced, orally unreleased relatively long, nasal consonant occurs medially fore /y/, /v/ and after a vowel.
  e.g. /ərəny/ [ərən’y] ‘forest’

[ə] post-alveolar, voiced, flap nasal occurs inter-
  vocally and finally.
  e.g. /gəne:ʃ/ [gəne:ʃ] ‘a pr. name’
  /gaŋ/ [gəŋ] ‘group’
(24) /ɔ/ [ⁿ] palatal, voiced, orally unreleased nasal occurs medially before palatal consonants.

  e.g. /pañci/ [pʃi:] 'bird'

[ⁿ] velar, voiced, unreleased nasal occurs finally after a vowel, medially before a consonant.

  e.g. /rang/ [rɔn] 'colour'
  /ungali/ [ũli:] 'finger'

2.2.2.3 Similarities and dissimilarities

The nasals /m, n, ŋ/ are similar in both Malayalam and Hindi.

  e.g. M H
/mala/ [ma:la] 'garland' /ma:la:/ [ma:la:] 'garland'
/rangam/ [raŋɔm] 'part' /raŋ/ [raŋt] 'colour'

The nasals /p, ŋ/ in Malayalam are partially similar to Hindi sounds /p, n/ /ŋ/ is retroflex nasal in Malayalam whereas in Hindi the /ŋ/ is post alveolar nasal with a flap quality.

  e.g. M H
/gunam/ [gunɔm] 'merit' /gɔŋ/ [gɔŋ] 'group'

/ŋ/ in Malayalam is partially similar to Hindi /ŋ/ because the similarity is in the allophonic level. One of the allophones of the Hindi phoneme /ŋ/ is the palatal voiced stop [ⁿ] thus it shows similarity with Malayalam /ⁿ/.
The dental voiced nasal phoneme /n/ in Malayalam has no equivalence in Hindi.

2.2.3 Laterals

2.2.3.1 Malayalam

In Malayalam there are three laterals. Their allphones and distribution are given below:

1. /l/ Alveolar lateral

[l] Alveolar lateral occurs initially, medially and finally.

- e.g. /la:bham/ [la:bm] 'profit'
- /ka:lam/ [ka:lm] 'season'
- /ka tal/ [ka:tl] 'sea'

2. /ɾ/ Retroflex lateral occurs medially and finally.

- e.g. /va l/ [v]la] 'bangle'
- /av al/ [a va] 'she'

3. /ɾ/ palatal lateral

[ɾ] prepalatal retroflex lateral with slight friction occurs medially.

- e.g. /ka li v/ [ka li v] 'ability'

2.2.3.2 Hindi

In Hindi there is only one lateral /l/. Its allophones and their distribution are as follows:

1. /l/ Alveolar voiced lateral consonant.

[l', 1', 1', 1]
[l'] Alveolar voiced unreleased lateral occurs finally after a vowel or before a consonant.

  e.g.  /pal/ [pal'] 'moment'
        /ulṭi/ [ulṭi:] 'inverted'

[l'] Dental voiced released lateral occurs finally after a consonant.

  e.g.  /ṣukli:/ [ṣukli:] 'white'

[l'] alveolar voiced relatively long, unreleased lateral occurs medially before /y/ and after a vowel.

  e.g.  /kalyaːŋ/ [kɔl.yaŋ] 'we/here'

[l] Alveolar voiced lateral occurs elsewhere.

  e.g.  /loːɡ/ [loːɡ'] 'people'
        /kalaː/ [kalaː] 'art'

2.2.3.3 Similarities and dissimilarities

The alveolar lateral /l/ is similar in both Malayalam and Hindi.

  e.g.

M       H
/laːpham/ [laːbhɔm] 'profit' /laːbh/ [laːbh'] 'profit'

The retroflex voiced lateral /ɾ/ and the palatal voiced lateral /l/ in Malayalam have no equivalence in Hindi.

2.2.4 Trills

2.2.4.1 Malayalam

In Malayalam there is only one trill /ɾ/.

/ɾ/ Alveolar trill

[r] Alveolar flap with slight trilling occurs initially and medially.
The trill consonants present in Hindi are /r, r, rh/.

### 1. /r/ Alveolar voiced trilled consonant.

[r, r, r]

[r] Alveolar voiced trilled consonant occurs medially after a consonant.

**e.g.** /kram/ [kram] 'order'

/namrata:/ [namrata:] 'humblessness'

### 2. /r/ post-alveolar retroflex flap occurs medially and finally.

**e.g.** /pe:t/ [pe:r] 'tree'

/paṭa:/ [pa:ra:] 'laid'

### 3. /rh/ post-alveolar voiced lightly aspirated retroflex flap

[rh] post-alveolar voice lightly aspirated retroflex flap occurs medially and finally.

**e.g.** /paṭh/ [parh] 'reed'

/paṭha:/ [parha:] 'studied'
2.2.4.3 Similarities and dissimilarities

Alveolar voiced trill /r/ of Malayalam is partially similar to Hindi /r/ because one of the allophones of Hindi /r/ shows similarity.

\[ /\text{co:ra}/ \rightarrow [\text{co:ra}] \text{ 'blood'} \]
\[ /\text{co:ri}/ \rightarrow [\text{co:ai}] \text{ 'theft'} \]

The post-alveolar voiced trills /r/, /rh/ of Hindi have no equivalence in Malayalam. However, one of the allophones of the alveolar voiceless stop /R/ of Malayalam, i.e [R] has similarity with Hindi alveolar trill.

2.2.5 Fricatives

2.2.5.1 Malayalam

The four fricatives of Malayalam and their allophonic distribution are shown below:

1. /s/ Alveolar voiceless fricative

   [s] Alveolar voiceless fricative occurs initially and medially.

   \[ /\text{samam}/ \rightarrow [\text{samawm}] \text{ 'equal'} \]
   \[ /\text{vista:ram}/ \rightarrow [\text{vista:ram}] \text{ 'area'} \]

2. /ʂ/ Retroflex voiceless fricative.

   [ʂ] Retroflex voiceless fricative occurs initially and medially.

   \[ /\text{samukham}/ \rightarrow [\text{samukham}] \text{ 'a rtl. name'} \]
   \[ /\text{visham}/ \rightarrow [\text{visham}] \text{ 'poison'} \]
   \[ /\text{kaštam}/ \rightarrow [\text{kaštam}] \text{ 'difficulty'} \]
3. /ʂ/ palatal voiceless fricative.

[ʂ] palatal voiceless fricative occurs initially and medially.

  e.g. /ʂakti/  [ʂakti]  'strength'
       /vaʂam/  [vaʂəm]  'side'
       /viʂvam/  [viʂvəm]  'world'

4. /h/ velar voiceless fricative.

  [x, h]

[x] velar voiceless fricative occurs medially after nasals.

  e.g. /simham/  [sImxəm]  'lion'

[h] velar voiceless fricative occurs initially and medially.

  e.g. /ha:ram/  [ha:rəm]  'garland'
       /de:ham/  [de:həm]  'body'

2.2.5.2 Hindi


   occurs in all positions.

  e.g. /fu:l/  [fu:l]  'flower'

2. /s/ Alveolar voiceless fricative.

  [s., s]

[s.] Alveolar voiceless, relatively long fricative occurs medially before /l/, /r/, /v/, /y/ and after a vowel.

  e.g. /rahasy/  [rəhəs.y]  'secret'

[s] Alveolar voiceless fricative occurs elsewhere.

  e.g. /saməy/  [səməy]  'time'
3. /ʂ/ palatal voiceless fricative.

[ʂ, ʂ]  
[ʂ] palatal voiceless relatively long grooved fricative occurs medially before /l/, /r/, /v/, /y/ and after a vowel.

e.g. /viʂra:m/ [viʂ.ra:m] 'rest'
    /viʂva:s/ [viʂwa:s] 'faith'

[ʂ] palatal, voiceless grooved fricative occurs elsewhere.

e.g. /ʂo:r/ [ʂo:r] 'noise'
    /nakʂa:/ [nəkʂa:] 'a map'

4. /z/ [z] pre-palatal voiced fricative occurs in all positions.

e.g. /zya:da:/ [zya:da:] 'more'
    /ra:z/ [ra:z] 'a sum'

5. /h/ Glottal frictionless continuant [h, h]  
   [h] Glottal frictionless continuant occurs finally.

   e.[h] Glottal voiced frictionless continuant occurs elsewhere.

e.g. /kahta:/ [kəhta:] 'saying'

2.2.5.3 Similarities and dissimilarities

The fricatives /s, s/ are similar in both Malayalam and Hindi.

e.g.

M

/H

/samayam/ [samayəm] 'time'    /sam/ [səm] 'equal'
Fricative /ʃ/ is present only in Malayalam. /h/ in Malayalam is voiced velar fricative whereas that in Hindi is voiced glottal fricative.

The fricatives /f, z, x, y/ have no equivalents in Malayalam.

The sound /f/ is present in Malayalam but it is restricted to a few English words borrowed to Malayalam and that too amongst the educated people and hence not considered as a separate phoneme in Malayalam.

2.2.6 Semivowels

2.2.6.1 Malayalam

The two semivowels of Malayalam are /v, y/. Their allophonic distribution is as follows:

1. /v/ Labio-dental voiced continuant.
   
   [v] Labio-dental voiced continuant occurs initially and medially.
   
   e.g.  /vara/ [vara] 'line'
         /avan/ [avən] 'he'

2. /y/ [y] palatal voiced continuant occurs initially medially and finally
   
   e.g.  /ya:tra/ [ya:tra] 'journey'
         /viyarppɔ/ [viyarːɔ] 'sweat'
         /va:y/ [va:y] 'mouth'
2.2.6.2 Hindi

The two semivowels of Hindi are /v, y/.

1. /v/ labio-dental voiced frictionless continuant.
   
   [w, u, v, v]
   
   [w] Bilabial voiced frictionless continuant occurs medially after a consonant.
   
   e.g. /svi:ka:r/  [swi:ka:r]  'acceptance'
   /aśv/  [aśw]  'horse'
   
   [U] Devoiced, Back, Short, non-syllabic vowel occurs finally after a vowel.
   
   e.g. /bha:v/  [bha:u]  'existence'
   
   [V] labio-dental voiced frictionless relatively long continuant occurs medially before /v/, /y/ and after a vowel.
   
   e.g. /ka:vy/  [ka:v.y]  'a poem'
   
   [v] labio-dental voiced, frictionless continuant occurs elsewhere.
   
   e.g. /a:va:z/  [a:va:z]  'noise'

2. /y/ palatal voiced frictionless continuant.
   
   [y] palatal voiced, frictionless continuant occurs everywhere.
   
   e.g. /ya:tri/  [ya:tri:]  'traveller'

2.2.6.3 Similarities and dissimilarities

The two semivowels /v, y/ are similar in both Malayalam and Hindi.

  e.g.
  
  M /ya:tra/  [ya:tra]  'journey'  /vara/  [vara]  'line'
  H /ya:tri/  [ya:tri:]  'traveller'  /vastu/  [vastū]  'thing'
2.3 Clusters

In both Malayalam and Hindi consonant clusters are found in the initial and medial positions. Word final clusters are found only in Hindi. Vowel clusters are found only in Hindi. In Hindi vowel clusters are found in the word initial, medial and final positions. These vowel clusters in pronunciation may be replaced with y or v, but in standard writing system they are retained as sequence of vowels only. In Malayalam clustering of vowels does not exist.

2.3.0 Consonant Clusters

2.3.1. Initial Clusters

2.3.1.1. Malayalam

pl - / pla:və / 'Jack fruit tree'
pl - / plə:stɪk / 'plastic'
pr - / pra:və / 'Dove'
bl - / bləvəsə / 'blouse'
br - / bra:hmanan / 'Brahmin'
bhr - / bhra:ntə / 'madness'
tr - / tripura / 'Tripura'
tv - / tvəkə / 'skin'
ty - / tya:gam / 'Sacrifice'

dr - / drutagati / 'in a speedy manner'
dv - / dvə:ɡəm / 'hatred'
dy - / dyutɪ / 'brightness'
dhv - / dhvamsanam / 'suppression'
dhy - / dhya:nam / 'meditation'
jn - / jña:nam / 'knowledge'
jv - / jva:la / 'flame'
jy - / jyo:ti / 'brightness'
kl - / kłę:šam / 'difficulty'
kr - / kru:ram / 'horrible'
ks - / kše:tram / 'temple'
ky - / kya:mpa / 'camp'
khy - / khya:ti / 'fame'
gl - / gla:sə / 'glass'
gr - / gra:mam / 'village'
ghr - / ghra:ṇam/ 'smell'
mł - / mła:nata / 'silence'
ny - / nya:yam / 'justice'
sp - / sparśam / 'touch'
sph - / sphuraṇam / 'sparking'
št - / stambhanam / 'stopage'
sth - / sthalam / 'place'
sk - / sku:l / 'school'
skh - / skhalanam / 'stumbling'
sm - / sma:rakam / 'memorial'
sn - / sne:ham / 'affection'
śl - / sle:R:ə / 'state'
sr - / sra:və / 'a fish'
sv - / svabha:vam / 'character'
śm - / śmaśa:nam / 'funeral place'
śl - / ślo:kam / 'poetry'
śr - / śrad:ha / 'attention'
2.3.1.2 Hindi

pr - / prave:Ś / 'entrance'
py - / pya:r / 'affection'
br - / bra:hmin / 'brahmin'
by - / bya:j / 'marriage'
bhr - / bhra:ta:/ 'brother'
tr - / tra:s / 'terror'
tv - / tvōra: / 'speed'
sh - / dvōv / 'liquid'
dv - / dva:r / 'gate'
dy - / dyuti / 'brightness'
dhy - / dhyā:n / 'meditation'
dhv - / dhvani / 'sound'
jv - / jva:la:/ 'flame'
jy - / jyo:ti / 'light'
kr - / kriya: / 'action'
kl - / kle:d / 'moisture'
kv - / kva:ra: / 'unmarried'
kṣ - / kṣan / 'moment'
ky - / kya:ri: / 'flowerbed'
khy - / khyːt / 'famous'
gr - / graːm / 'village'
gv - / gvaːlə / 'cow-keeper'
gy - / gyaːn / 'knowledge'
ml - / mlaːn / 'faded'
ny - / nyəːj / 'justice'
sp - / spars / 'touch'
sph - / sphoːt / 'explosion'
st - / stambh / 'pillar'
sk - / skand / 'destruction'
śkh - / śkhalan / 'stumbling'
sm - / smaraŋ / 'memory'
śn - / snaːn / 'bathing'
sr - / sroːtaː / 'hearer'
sv - / svabhaːv / 'nature'
sy - / syaːhiː / 'ink'
zy - / zyaːda / 'more'
śr - / śroːtaː / 'hearer'
śl - / śloːk / 'sanskrit couplet'
śy - / śyaːm / 'black'
hr - / hrasv / 'short'
vr - / vrat / 'fasting'
vya - / vyaːpar / 'business'

Three consonant cluster
str - / striː / 'woman'
DIAGRAM SHOWING THE SIMILAR AND DISSIMILAR INITIAL TWO-CONSONANT CLUSTERS OF MALAYALAM AND HINDI.

Malayalam divergent second member
Malayalam first member
Second member common to both Malayalam and Hindi
Hindi first member
Hindi divergent second member

1. ... → p ← r → p → y

b ← r → b ← y

bh ← r ← bh

t ← v ← t

d ← v ← d

dh ← v ← dh
2.3.1.3. Similarities and Dissimilarities

Initial consonant clusters are found both in Malayalam and Hindi. The presence of initial consonant clusters are limited when compared to the medial clusters. The predominant pattern of initial consonant cluster is $C_1 C_2$ in both the languages. In the initial position $C_1 C_2 C_3$ type is also found in both Malayalam and Hindi but its number is very limited.

The major patterns found in the initial two consonant clusters are stop + trill, stop + lateral, nasal + semivowel, fricative + stop, fricative + nasal, fricative + lateral, fricative + trill, fricative + semivowel, semivowel + trill, semivowel + semivowel in both Malayalam and Hindi.

Thus in the initial position when stop is the first member, the second member can be trill, lateral, fricative or semivowel and when fricative is the first constituent stop, nasal, lateral, trill, fricative or semivowel can occur as the second constituent in both the languages. When semivowel occurs as the first constituent the second consonant may be a trill or a semivowel.

**Word initial two-consonant clusters**

In the word initial two-consonant clusters eighteen clusters are found similar in both Malayalam and Hindi with stop as first constituent. They are:
In the initial two-consonant clusters with stop as first constituent certain types of clusters are restricted to only one language. Those types are listed below:

Clusters found only in Malayalam are

\[ \text{pl} \] - / plə:v. / 'Jack fruit tree'
\[ \text{jñ} \] - / jña:nam / 'knowledge'
\[ \text{kś} \] - / kse:tram/ 'temple'

Clusters found only in Hindi are

\[ \text{pr} \] - / prave:š / 'entrance'
\[ \text{br} \] - / bra:hmin / 'brahmin'
\[ \text{tr} \] - / tra:s / 'terror'
\[ \text{tv} \] - / tvak:ə / 'skin'
\[ \text{ty} \] - / tya:gam / 'Sacrifice'
\[ \text{dr} \] - / drutagati/ 'in a speedy manner'
\[ \text{dv} \] - / dve:šam / 'hatred'
\[ \text{dy} \] - / dyuti / 'brightness'
\[ \text{dhy} \] - / dhyaanam / 'meditation'
\[ \text{jv} \] - / jva:la / 'flame'
\[ \text{ky} \] - / kya:mpa / 'camp'
\[ \text{khy} \] - / khya:ti / 'fame'
\[ \text{gr} \] - / gra:mam / 'village'
\[ \text{ghr} \] - / ghra:ṇam/ 'smell'

In the initial two-consonant clusters with stop as first constituent certain types of clusters are restricted to only one language. Those types are listed below:

Clusters found only in Malayalam are

\[ \text{pl} \] - / plə:v. / 'Jack fruit tree'
\[ \text{jñ} \] - / jña:nam / 'knowledge'
\[ \text{kś} \] - / kśaṇ / 'moment'
Clusters found only in Hindi:
py - / pya:r / 'affection'
by - / bya:j / 'marriage'
kl - / kle:d / 'moisture'
kv - / kva:ra:/ 'unmarried'
gv - / gva:la: / 'cow-keeper'
gy - / gya:n / 'knowledge'

In the word initial position with Nasal as first constituent, two types of clusters are found in both Malayalam and Hindi. They are similar in both the languages.

<table>
<thead>
<tr>
<th>Malayalam</th>
<th>Hindi</th>
</tr>
</thead>
<tbody>
<tr>
<td>ny - / nya:yam / 'justice'</td>
<td>ny - / nya:y / 'justice'</td>
</tr>
</tbody>
</table>

With fricative as first constituent, fifteen clusters are found to be similar in both the languages. They are:

<table>
<thead>
<tr>
<th>Malayalam</th>
<th>Hindi</th>
</tr>
</thead>
<tbody>
<tr>
<td>sp - / spar.§am / 'touch'</td>
<td>sp - / sparš / 'touch'</td>
</tr>
<tr>
<td>sph - / spho:tanam / 'explosion'</td>
<td>sph - / spho:t / 'explosion'</td>
</tr>
<tr>
<td>st - / stambhanam / 'stopage'</td>
<td>st - / stambh / 'pillar'</td>
</tr>
<tr>
<td>sth - / sthalam / 'place'</td>
<td>sth - / sthal / 'place'</td>
</tr>
<tr>
<td>sk - / sku:l / 'school'</td>
<td>sk - / skand/ 'destruction'</td>
</tr>
<tr>
<td>skh - / skhalanam / 'stumbling'</td>
<td>skh-/ skhalanam /'stumbling'</td>
</tr>
<tr>
<td>sm - / sma:arakam / 'memorial'</td>
<td>sm - / smaraŋ / 'memory'</td>
</tr>
<tr>
<td>sn - / sne:ham / 'affection'</td>
<td>sn - / sna:n / 'bathing'</td>
</tr>
<tr>
<td>sr - / sra:və / 'a fish'</td>
<td>sr - / sro:ta:/ hearer'</td>
</tr>
<tr>
<td>sv - / svabha:vam / 'character'</td>
<td>sv - / svabha:v / 'nature'</td>
</tr>
</tbody>
</table>
In the total initial two-consonant clusters with fricative as first constituent, dissimilar clusters are the following:

Clusters found only in Malayalam

\(\text{sl} - /\text{sle:R:a} / '\text{slate}'\)

\(\text{śl} - /\text{ślo:kam} / '\text{poetry}'\)

Clusters found only in Hindi

\(\text{zy} - /\text{zya:da:} / '\text{more}'\)

\(\text{śl} - /\text{ślo:k} / '\text{poetry}'\)

In both Malayalam and Hindi consonant clusters with semivowel as first constituent are similar. They are: eg.,

<table>
<thead>
<tr>
<th>Malayalam</th>
<th>Hindi</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\text{vr} - /\text{vratam} / '\text{fasting}')</td>
<td>(\text{vr} - /\text{vrat} / '\text{fasting}')</td>
</tr>
<tr>
<td>(\text{vy} - /\text{vya:pa:ram} / '\text{business}')</td>
<td>(\text{vy} - /\text{vya:pa:r} / '\text{business}')</td>
</tr>
</tbody>
</table>

Initial three-consonant clusters

In both Malayalam and Hindi initial three-consonant cluster pattern is same \((C_1 C_2 C_3)\). Occurrence of initial three-consonant cluster is very limited in both the language.
eg.,

Malayalam 

str - /stri:/ 'women'

Hindi

str - /strə:/ 'feminine'

2.3.2. Medial Clusters

2.3.2.1 Malayalam

- pt - /pra:ptan/ 'an able person'
- pn - /svapnam/ 'dream'
- pr - /korpora/ 'dry coconut'
- pl - /vipḷavam/ 'strike'
- py - /pra:pyam/ 'attainable'
- ps - /apsarasə/ 'a fairy'
- bd - /śata:bdī/ 'centenary'
- br - /subrabmaṇyan/ 'a prl. name'
- bhr - /paribhramam/ 'excitement'
- bhy - /davḷabhyam/ 'scarcity'
- tbh - /atbhutam/ 'wonder'
- tm - /a:tma:və/ 'souls'
- tn - /ratṇam/ 'a jewel'
- tr - /putran/ 'son'
- ts - /cikītsa/ 'treatment'
- tv - /tatvam/ 'principle'
- ty - /atya:vaṣyam/ 'necessity'
- db - /udbo:dhanam/ 'awakening'
- ddh - /siddha:ntam/ 'principle'
- dr - / samudram / 'sea'
- dv - / vidva:n/ 'scholar'
- dy - / udyo:gam / 'job'
- dhv - / pratidhvani / 'echo'
- dhy - / adhyakṣan / 'chairman'
- tr - / peṭro:ḷ / 'petrol'
- ṭy - / na:ṭyam / 'acting'
- dj - / jadji / 'judge'
- cch - / tuccham / 'mean'
- jñ - / yajñam / 'a vedic ritual'
- jr - / vajram / 'diamond'
- jy - / ra:jyam / 'Nation'
- kt - / vakta:və / 'spokesman'
- kṛ - / cakram / 'wheel'
- kṣ - / aksaram / 'letters'
- ky - / aṅkyam / 'unity'
- gd - / va:ga:nañ:əl / 'promises'
- gm - / yugmam / 'double'
- gn - / agni / 'fire'
- gy - / bha:gyam / 'luck'
- gr - / agram / 'tip'
- ghn - / vighnam / interruption
- ghr - / ṉi:ghram / 'suddenly'
- mp - / kampanam / 'vibration'
- mb - / sambaḷam / 'salary'
- mbh - / sambhavam / 'incident'
- mt - / samtruptan / 'A talented person'
- mr - / samrakṣaṇam / 'protection'
- mī - / amlam / 'acid'
- mś - / amsām / 'part'
- mṛv - / samvaraṇam / 'reservation'
- ms - / ma:msam / 'flesh'
- my - / samyuktam / 'united'
- np - / anapatə / 'fifty'
- nət - / panta / 'ball'
- nth - / grantham / 'book'
- ndh - / andhata / 'blindness'
- ng - / Pinga:mi / 'followers'
- nm - / .appspota / 'goodness'
- nR - / ṅinRe / 'yours'
- nv - / anvesaṇam / 'search'
- ny - / anya:yaṃ / 'injustice'
- nət - / raṅṭə / 'two'
- nəṭh - / śuṇṭhi / 'angry'
- nḍ - / ta:nḍavam / 'dance'
- nṛ - / puṇyaṃ / 'blessing'
- np - / eṇapatə / 'eighty'
- ṇc - / paṃcasa:ra / 'sugar'
- ṇj - / aṅjanam / 'black'
- lp - / kalpana / 'imagination'
- lb - / salbuddhi /
- lbh - / pragalbhan / 'eminent person'
- lm - / va:lmī:kam /
- ls - / va:lsalyam / 'affection'
- śph-. / niśphalam / 'without any use'
- śṭ - / naṣṭam / 'loss'
- śṭh - / adhiṣṭhitam / 'based in'
- śk - / pariṣkāram / 'development'
- śm - / u:šma:və / 'temperature'
- śy - / śišyan / 'student'
- śr - / viśramam / 'rest'
- śv - / viśvastan / 'trustworthy'
- śl - / viśle:šanam / 'analysis'
- hl - / a:hladam / 'happiness'
- hv - / a:hva:nam / 'call'
- hy - / ba:hyam / 'superficial'
- vr - / ti:vram / 'pungent'
- vy - / divyam / 'brilliant'
- yp - / va:ypa / 'loan'
- yt - / ceytu / 'did'

Word medial three-consonant clusters

Malayalam

C₁C₂C₂ type
- ttv - / tattvam / 'principle'
- jjv - / ujjvalam / 'bright'

C₁C₂C₂ type
- rkk - / tarkkam / 'dispute'
- rcc - / ce:rcca / 'suitability'
- rjj - / a:rrjitam / 'acquired'
- rṭṭ - / pa:rṭṭi / 'party'
- rtt - / avarttanam / 'repetition'
- rdd - / nirdde:šam/ 'suggestion
- rmm - / marmmam / 'nucleus'
- ṛṇṇ - / pakarṇṇu / 'poured'
- lpp - / kelppə / 'ability'
- ltt - / sultta:n / 'sultan'
- lkk - / ta:lkka:likam / 'temporary'
- _ltt - / ta:_lttal / 'lowering'
- ūkk - / uḷkoḷḷal / 'grasping'
- ykk - / jaṭaykka / 'arechenut'

C₁C₂C₃ type
- dhy - / sa:nnidhyam / 'pressure'
- dhv - / addhva:nam / 'hardwork'
- kṣm - / su:kṣmata / 'keenness'
- kṣy - / bhakṣyadhāmyam / 'eatable grain'
- mpr - / samprada:yaṃ / 'custom'
- mpy - / nampya:r / 'one caste name'
- msth - / samstha:nam / 'state'
- msk - / samska:ram / 'culture'
- msū - / samsle:ṣaṇam / 'uniting'
- ṇtr - / maṇtri / 'minister'
- ṇty - / aṇtyam / 'end'
- ndr - / candrika / 'moonlight'
- ndhr - / randhram / 'hole'
- ūkhy - / saṅkhya / 'number'
- rthi - / vidya:rthi / 'student'
- rddh - / va:rd:hakyam / 'oldage'
- lks - / talkṣaṇam / 'suddenly'
- lsy - / malsyam / 'fish'
- sty - / agastryan / 'name of a saint'
- str - / ūsa:stram / 'science'
- spr - / niśprabham / 'dim'
- ṣtr - / ra:ṭram / 'country'

**Word medial four-consonant clusters**

**Malayalam**
- gddhy - / vaydagdhyam / 'experience'
- ntry - / sva:tantryam / 'independence'
- rtthy - / ya:tha:rtthyam / 'truth'

**2.3.2.2. Hindi**
- pt - / kapta:n / 'captain'
- pr - / kuprayo:g / 'misuse'
- pl - / viplav / 'a riot'
- ps - / apsara: / 'a fairy'
- bd - / sata:bd: / 'a century'
- bhr - / paribhrama: / 'tour'
- bhy - / abhya:s / 'practice'
- tp - / utpatti / 'origin'
- tk - / camatka:r / 'astonishment'
- tkh - / utkhanan / 'excavation'
- tth - / jattha: / 'group'
- tm - / bha:vanamak / 'imaginative'
- tn - / patni: / 'wife'
- ts - / cikitsa: / 'treatment'
- ty - / paritya:ɡ / 'abandoned'
- db - / udbo:dhan / 'awakening'
- dbh - / aːdbhut / 'surprise'
- dm - / aːdmiː / 'man'
- dn - / ɐdnam / 'badname'
- dr - / vidroːh / 'mutiny'
- dv - / gurudva:raː / 'boulevard'
- dy - / udyam / 'business'
- dg - / udgam / 'root'
- dgh - / udghaːtan / 'disclosing'
- ddh - / uddharaː / 'quotation'
- dhy - / adhyakṣ / 'chairman'
- dhv - / pratidhvani / 'echo'
- ṭṭh - / cīṭṭhiː / 'letter'
- ṭy - / naːtykaːr / 'an actor'
- cch - / acchiː / 'good'
- jr - / vajraːghaːt / 'an astounding calamity'
- jy - / raːjyapaːl / 'king'
- kt - / upabho:ktaː / 'consumer'
- kr - / kaːryakram / 'programme'
- ks - / aksar / 'often'
- kʃ - / nakshaː / 'map'
- kʂ - / akṣar / 'alphabets'
- khʂ - / bakṣiː / 'grant'
- ggh - / ghugghi / 'a piece of cloth folded like a cap'
- gn - / agni / 'fore'
- gr - / agraːniː / 'fåre runner'
- gy - / bhagya:na / 'lucky person'
- mp - / kampani: / 'company'
- mbh - / sambhavy / 'possible'
- mr - / samraksa: / 'protection'
- ml - / samlagha / 'joined'
- my - / sa:myata: / 'similarity'
- ms - / ma:mspe:si: / 'muscle'
- mś - / samśo:dhan / 'revision'
- mh - / kumha:r / 'potter'
- my - / samyukt / 'united'
- nt - / cinta: / 'thought'
- nd - / kandara: / 'cave'
- ndh - / ba:ndhav / 'relations'
- nm - / unma:d / 'toxication'
- ns - / insa:n / human being
- nh - / inhi:m / 'of these'
- nv - / anve:sa / 'search'
- ny - / anya:y / 'injustice'
- nt - / gha:nta:/ 'time'
- āt - / kaţthi: / 'a string of beads'
- nd - / ma:ndap / 'a canopy'
- py - / pu:nyava:n / 'pious'
- nch - / pa:nci: / 'bird'
- nč - / pa:ncya:ya / 'village assembly'
- nj - / pa:ñjar / 'a cage'
- njh - / ja:ñjha:ra: / 'chain stitching'
- lp - / kalpanda: / 'plan'
- lm - / kalmaś / 'sin'
- lk - / ulka: / 'a meteor'
- lh - / kulha:di: / 'small axe'
- lv - / talva:r / 'sword'
- ly - / kalya:p / 'welfare'
- rp - / samarpan / 'dedication'
- rph - / nirphal / 'fruitless'
- rb - / nirbaś / 'childless'
- rbh - / durbha:gy / 'misfortune'
- rt - / nartak / 'dancer'
- rth - / a:rthik / 'financial'
- rd - / nirde:ś / 'command'
- rdh - / dhanudhar / 'an archer'
- rk - / tarkaś / 'a quiver'
- rc - / carca: / 'discussion'
- rj - / tarjan / 'anger'
- rg - / punargaṭhan / 'rearrangement'
- rm - / nirma:ṇ / 'construction'
- rn - / nirṇay / 'resolution'
- rn - / nirnime:ś / 'without winking the eyes'
- rl - / nirlo:bh / 'unselfishness'
- rś - / varṣaṇ / 'raining'
- ry - / niryā:t / 'turned out'
- sp - / paraspar / 'mutually'
- sph - / vispho:ṭ / 'explosion'
- sb - / kasba: /
- st - / isti:pha: / 'resignation'
- sth - / paristhitī: / 'surrounding'
- sk - / taskaṛ / 'thief'
- sm - / a:kasmik / 'ac:Ident'al
- sv - / a:sva:d / 'eo:jysle'
- sy - / tapasya: / 'penance'
- sp - / puṣpagandha:/ 'white jasmine'
- st - / puṣṭi:/ 'strength'
- sth - / ko:ṣṭhak / 'a bracket'
- sk - / a:vīṣka:r / 'discovery'
- sm - / u:ṣma: / 'summer season
- sy - / ṣīṣya: / 'female pupil'
- hr - / a:hrik / 'brought'
- hl - / a:hla:d / 'joy'
- hv - / a:hva:n / 'call'
- vr - / ti:vrata: / 'pungency'
- vy - / divyata: / 'brilliancy'
- śr - / viśra:nti / 'rest'
- śv - / viśvast / 'trustworthy'
- śl - / viśle:ṣaṇ / 'analysis'
- vy - / avyavasta / 'irregularity'

Word medial three-consonant clusters - Hindi

1. -gbhr- / digbhram/ 'a false knowledge 7 quarters'
2. -mpr- / samprada:y/ 'custom'
3. -msp- / samspar/ 'contact'
4. -msth- / samstha:/ 'institution'
5. -msk- / samska:r/ 'improvement'
<table>
<thead>
<tr>
<th>Word</th>
<th>Pronunciation</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. -msm-</td>
<td>/samsmaran/</td>
<td>'recollection'</td>
</tr>
<tr>
<td>7. -mšl-</td>
<td>/samsплеsa/</td>
<td>'joining'</td>
</tr>
<tr>
<td>8. -ntv-</td>
<td>/sa:ntvana/</td>
<td>'conciliation'</td>
</tr>
<tr>
<td>9. -nchy-</td>
<td>/sandhyá:/</td>
<td>'dusk'</td>
</tr>
<tr>
<td>10. -hkt-</td>
<td>/paňkti/</td>
<td>'line'</td>
</tr>
<tr>
<td>11. -ñks-</td>
<td>/sahkše:p/</td>
<td>'abstract'</td>
</tr>
<tr>
<td>12. -hṛ-</td>
<td>/saňgrah/</td>
<td>'a collection'</td>
</tr>
<tr>
<td>13. -ników-</td>
<td>/sahkhya:/</td>
<td>'number'</td>
</tr>
<tr>
<td>14. -rvy-</td>
<td>/durvyavaha:r/</td>
<td>'misconduct'</td>
</tr>
<tr>
<td>15. -ṣpr-</td>
<td>/duṣpra:pti/</td>
<td>'very difficult to attain'</td>
</tr>
</tbody>
</table>

Word final three-consonant clusters - Hindi

<table>
<thead>
<tr>
<th>Word</th>
<th>Pronunciation</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. -tmy</td>
<td>/ma:ha:tmy/</td>
<td>'greatness'</td>
</tr>
<tr>
<td>2. -kṣy</td>
<td>/sa:kṣy/</td>
<td>'evidence'</td>
</tr>
<tr>
<td>3. -ntr</td>
<td>/gañpantantr/</td>
<td>'republic'</td>
</tr>
<tr>
<td>4. -ndr</td>
<td>/ke:ndr/</td>
<td>'centre'</td>
</tr>
<tr>
<td>5. -yddh</td>
<td>/arddh/</td>
<td>'half'</td>
</tr>
<tr>
<td>6. -str</td>
<td>/astr/</td>
<td>'weapon'</td>
</tr>
</tbody>
</table>

2.3.2.3 Similarities and dissimilarities

In both the languages the number of word medial clusters are more than that of initial clusters. The common pattern of clusters in the medial position is $C_1C_2$. Three-consonant clusters are also found in the medial position in both Malayalam and Hindi.

The major types of medial two-consonant clusters found

Similar clusters in the word medial position with stop as first constituent are given below:

<table>
<thead>
<tr>
<th>Malayalam</th>
<th>Hindi</th>
</tr>
</thead>
<tbody>
<tr>
<td>-pt- /pra:ptam/</td>
<td>'attainable'</td>
</tr>
<tr>
<td>-pr- /kopra/</td>
<td>'dried coconut'</td>
</tr>
<tr>
<td>-ps- /apsarasə/</td>
<td>'a fairy'</td>
</tr>
<tr>
<td>-bd- /sada:bdi/</td>
<td>'centenary'</td>
</tr>
<tr>
<td>-br- /subrahma</td>
<td>'a prl. name'</td>
</tr>
<tr>
<td>-bhr- /paribhramam/</td>
<td>'exitement'</td>
</tr>
<tr>
<td>-bhy- /davr.labhyam/</td>
<td>'scarcity/'</td>
</tr>
<tr>
<td>-tp- /ulp/</td>
<td>'product/' /ulp/</td>
</tr>
<tr>
<td>-tk- /camatka:ram/</td>
<td>'astonish' /camatk/</td>
</tr>
<tr>
<td>-tkh- /utkhananam/</td>
<td>'exca-vation'</td>
</tr>
<tr>
<td>-tm- /a:tma:va/</td>
<td>'soul'</td>
</tr>
<tr>
<td>-tn- /ratŋam/</td>
<td>'jewel/'</td>
</tr>
<tr>
<td>-ts- /cikitsa/</td>
<td>'treatment'</td>
</tr>
</tbody>
</table>
In the word medial two consonant cluster with stop as first constituent some clusters are found only in one language. They are:

Clusters found only in Malayalam.

- **pn-** /svapnam/ 'dream'
- **pl-** /viplavam/ 'strike'
-py- /pra:pyam/ 'attainable'
-tv- /tatvam / 'principle'
-jñ- /yajñam / 'effort'
-kv- /pakhata/ 'maturity'
-ky- /aykyam / 'unity'
-gm- /yugmam / 'double'
-ghan- /vighnam/ 'obstruction'

Clusters found only in Hindi.

-pl- /viplav/ 'a riot'
-tth- /jattha:/ 'group'
-dbh- /adbhut/ 'surprise'
-dm- /a:dmip/ 'man'
-dn- /badnam/ 'badname'
-dg- /udgam/ 'root'
-dgh- /udghatan/ 'disclosing'
-tth- /citthi:/ 'letter'
-ks- /aksar/ 'always'
-ks- /nakśa:/ 'a map'
-kht- /sakhti:/ 'strictness'
-khś- /bakhśi:š/ 'donation'
-ggh- /ghugghi/ 'a piece of cloth folded like a cap'

Similar word medial two consonant clusters with nasal as first constituent. e.g.

<table>
<thead>
<tr>
<th>Malayalam</th>
<th>Hindi</th>
</tr>
</thead>
</table>
| -mp- /kampanam/    | -mp- /kampany/ 'company'
| -mb- /śambalam/    | -mb- /nambar/ 'number'
| -mbh- /sambhavam/  | -mbh- /sambhavvy/ 'possible' |
Word medial two-consonant clusters with nasal as first constituent. Examples of dissimilar clusters.

Clusters present only in Malayalam

-\textit{mt-} /samtruptan/ 'satisfied man'
-\textit{ml-} /am\textit{lam}/ 'acid'
-\textit{mv-} /samvara\textit{nam}/ 'reservation'
-\textit{np-} /anpat\textit{a}/ 'fifty'
-\textit{n\textit{th}-} /gran\textit{tham}/ 'book'
-\textit{ng-} /pinga:\textit{mi}/ 'follower'
-\textit{n\textit{R-}} /ninRe/ 'yours'
-\textit{np-} /en\textit{pata}/ 'eighty'
clusters found only in Hindi
-\text{-mh-} /\text{kumha:r}/ 'potter'
-\text{-ns-} /\text{insa:n}/ 'humanbeing'
-\text{-nh-} /\text{inhi:m}/ 'of these'
-\text{-\text{nch-}} /\text{pa\text{\-}nchi:}/ 'bird'
-\text{-\text{njh-}} /\text{ja\text{\-}njhi:ra:}/ 'chain stitching'

Similar two-consonant clusters in the word medial position with lateral as first constituent. eg.,
-\text{-lp-} /\text{kalpana}/ 'imagination'
-\text{-lm-} /\text{va:lmi:kam}/ 'sin'
-\text{-lv-} /\text{to:lvii}/ 'defeat'
-\text{-ly-} /\text{\-\text{\text{-}}alyam}/ 'nuisance'

Examples of dissimilar word medial two-consonant clusters with lateral as first member.

Clusters found only in Malayalam are:
-\text{-lb-} /\text{salbud:hi}/
-\text{-lbh-} /\text{pragalbhan}/ 'eminent person'
-\text{-ls-} /\text{va:lsalyam}/ 'affection'
-\text{-lv-} /\text{ke:lvii}/ 'hearing power'
-\text{-ly-} /\text{ja:lyata}/ 'shyness'
-\text{-\text{lkh-}} /\text{va:lkka}/ 'to live'

Clusters found only in Hindi
-\text{-lh-} /\text{kulha:di}/ 'small axe'

Word medial two-consonant clusters with trill as first constituent.

Similar clusters
Malayalam | Hindi
---|---
-rp /veːrpáːʈɔ/ 'departure' | -rp /samarpāṇ/ 'dedication'
-rb /nirbandhəm/ 'insistance' | -rb /nirbaʃ/ 'childless'
-rbh /nirbhaːgyam/ 'misfortune' | -rbh /nirbhaːgy/ 'misfortune'
-rl /nirloːbhəm/ 'liesurely' | -rl /nirloːbh/ 'liesurely'
-rṣ /varṣam/ 'year' | -rṣ /varṣən/ 'raining'
-ry /kaːryam/ 'affair' | -ry /niryaːt/ 'turned out'
-rv /durvṛutːi/ 'misconduct' | -rv /nirvaːh/ 'maintenance'

Dissimilar clusters

Clusters found only in Malayalam.
-rkh /muːrkhan/ 'cobra'
-rgh /diːrgham/ 'long'
-rh /arhata/ 'qualification'

Clusters found only in Hindi
-rph /nirphal/ 'fruitless'
-rt /nartak/ 'dancer'
-rth /aːrthik/ 'financial'
-rd /nirdeːʂ/ 'command'
-rdh /dhanurdhar/ 'an archor'
-rc /carcaː/ 'conversation'
-rj /tarjan/ 'anger'
-rm /nirmaːŋ/ 'construction'
-rn /nirṇay/ 'resolution'
-rn /nirṇimeːʂ/ 'without winking the eyes'

Word medial two-consonant clusters with fricative as
first constituent.

Similar clusters

<table>
<thead>
<tr>
<th>Malayalam</th>
<th>Hindi</th>
</tr>
</thead>
<tbody>
<tr>
<td>-sp- /parasparam/ 'in between'</td>
<td>-sp- /paraspar/ 'mutually'</td>
</tr>
<tr>
<td>-sph- /vispho:танам/ 'explosion'</td>
<td>-sph- /vispho:t/ 'explosion'</td>
</tr>
<tr>
<td>-st- /nistulam/ 'great'</td>
<td>-st- /isti:pha:/ 'resignation'</td>
</tr>
<tr>
<td>-sth- /dusthiti/ 'bad condition'</td>
<td>-sth- /paristhiti/ 'surrounding'</td>
</tr>
<tr>
<td>-sk- /taskaran/ 'thief'</td>
<td>-sk- /taskar/ 'thief'</td>
</tr>
<tr>
<td>-sm- /anusmarañãam/ 'memorising'</td>
<td>-sm- /a:ksmik/ 'accidental'</td>
</tr>
<tr>
<td>-sv- /asvasthan/ 'disturbed person'</td>
<td>-sv- /a:sva:d/ 'flavour'</td>
</tr>
<tr>
<td>-sy- /parasyam/ 'advertising'</td>
<td>-sy- /tapasya:/ 'penance'</td>
</tr>
<tr>
<td>-şp- /puşpam/ 'flower'</td>
<td>-şp- /puşpagandham/ 'white jasmine'</td>
</tr>
<tr>
<td>-şt- /naşţam/ 'loss'</td>
<td>-şt- /puştî/ 'strength'</td>
</tr>
<tr>
<td>-şth- /adhişţhitam/</td>
<td>-şth- /ko:şţhak/ 'bracket'</td>
</tr>
<tr>
<td>-şk- /pariška:ram/ 'development'</td>
<td>-şk- /a:viška:r/ 'discovery'</td>
</tr>
<tr>
<td>-şm- /u:şma:v / 'temperature'</td>
<td>-şm- /u:şma:/ 'summer season'</td>
</tr>
<tr>
<td>-şy- /şişyan/ 'student'</td>
<td>-şy- /şişya:/ 'female pupil'</td>
</tr>
<tr>
<td>-şr- /vişramam/ 'rest'</td>
<td>-şr- /višra:ti/ 'rest'</td>
</tr>
<tr>
<td>-şv- /vişvastan/ 'trustworthy'</td>
<td>-şv- /vişvast/ 'trustworthy'</td>
</tr>
</tbody>
</table>

Dissimilar clusters

Malayalam - clusters found only in Malayalam

<table>
<thead>
<tr>
<th>Malayalam</th>
</tr>
</thead>
<tbody>
<tr>
<td>-ş1- /isla:m/ 'Muslim'</td>
</tr>
<tr>
<td>-sph- /nişphalam/ 'in vain'</td>
</tr>
<tr>
<td>-şl- /višle:şaṇam/ 'analysis'</td>
</tr>
<tr>
<td>-h1- /a:ḥla:dam/ 'happiness'</td>
</tr>
</tbody>
</table>
-hy- /ba:hyam/ 'superficial'

Hindi clusters found only in Hindi
-

-sb- /kasba/
-

-śl- /visle:saŋ/ 'analysis'
-

-hr- /a:hri:k/ 'brouhgt'
-

-hl- /a:hla:d/ 'joy'

Word medial two-consonant clusters with semivowel as first constituent.

**Similar clusters**

<table>
<thead>
<tr>
<th>Malayalam</th>
<th>Hindi</th>
</tr>
</thead>
<tbody>
<tr>
<td>-vr- /tivram/ 'pungent'</td>
<td>-vr- /tivrata/ 'pungency'</td>
</tr>
<tr>
<td>-vy- /divyam/ 'brilliant'</td>
<td>-vy- /divyata/ 'brilliancy'</td>
</tr>
</tbody>
</table>

**Dissimilar clusters**

Clusters found only in Malayalam
-

-yp- /va:ypa/ 'loan'
-

-yt- /ceytu/ 'did'

**Word medial three-consonant clusters**

Word medial three-consonant clusters are found both in Malayalam and Hindi. In Malayalam and Hindi the most common pattern is \( C_1C_2C_3 \). But in Malayalam \( C_1C_1C_2 \) and \( C_1C_2C_2 \) type are also present in addition to \( C_1C_2C_3 \) type.

Similar clusters of Malayalam and Hindi in \( C_1C_2C_3 \) pattern are:

<table>
<thead>
<tr>
<th>Malayalam</th>
<th>Hindi</th>
</tr>
</thead>
<tbody>
<tr>
<td>-kṣm- /su:kṣmata/ 'keenness'</td>
<td>/su:kṣmata:/ 'keenness'</td>
</tr>
<tr>
<td>-kṣy- /bhakṣyadhanyam/ 'grain'</td>
<td>/bhakṣydha:ny/ 'grain'</td>
</tr>
</tbody>
</table>
Clusters present only in Malayalam

-/ddhy- /sa:nnidhyam/ 'presence'
-/ddhv- /addhva:nam/ 'hard work'
-/mpy- /nampya:r/ 'a caste name'
-/mssth- /samstha:nam/ 'state'
-/msl- /samsle:sañam/ 'joining'
-/+nty- /antyam/ 'end'
-/rtth- /vidya:rtthi/ 'student'
-rrdh- /va:rddhakyam/ 'old age'
-ltkś- /talkasañam/ 'suddenly'
-1sy- /malsyam/ 'fish'

2.3.3 Final Clusters

2.3.3.1 Malayalam
Diagram showing the similar and dissimilar medial two-consonant clusters in Malayalam and Hindi.
In Malayalam there is no word final clusters.

### 2.3.3.2 Hindi

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Example</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>-pt</td>
<td>/gupt/</td>
<td>'hidden'</td>
</tr>
<tr>
<td>-pht</td>
<td>/mupht/</td>
<td>'free'</td>
</tr>
<tr>
<td>-bdh</td>
<td>/upalabdh/</td>
<td>'acquired'</td>
</tr>
<tr>
<td>-bhr</td>
<td>/adabhr/</td>
<td>'exceeding'</td>
</tr>
<tr>
<td>-bhy</td>
<td>/upalabhy/</td>
<td>'available'</td>
</tr>
<tr>
<td>-tph</td>
<td>/lutph/</td>
<td>'kindness'</td>
</tr>
<tr>
<td>-tm</td>
<td>/khatm/</td>
<td>'finished'</td>
</tr>
<tr>
<td>-tr</td>
<td>/citr/</td>
<td>'picture'</td>
</tr>
<tr>
<td>-ts</td>
<td>/bhi:bhats/</td>
<td>'cruel'</td>
</tr>
<tr>
<td>-tv</td>
<td>/tatv/</td>
<td>'principle'</td>
</tr>
<tr>
<td>-ty</td>
<td>/saty/</td>
<td>'truth'</td>
</tr>
<tr>
<td>-thy</td>
<td>/kathy/</td>
<td>'said'</td>
</tr>
<tr>
<td>-dy</td>
<td>/gady/</td>
<td>'prose'</td>
</tr>
<tr>
<td>-dhy</td>
<td>/ba:dhy/</td>
<td>'obliged'</td>
</tr>
<tr>
<td>-ty</td>
<td>/na:ty/</td>
<td>'act of dancing'</td>
</tr>
<tr>
<td>-thy</td>
<td>/pa:thy/</td>
<td>'worth studying'</td>
</tr>
<tr>
<td>-qhy</td>
<td>/a:qhy/</td>
<td>'rich'</td>
</tr>
<tr>
<td>-cy</td>
<td>/aalo:cy/</td>
<td>'thinkable'</td>
</tr>
<tr>
<td>-kt</td>
<td>/atirikt/</td>
<td>'extra'</td>
</tr>
<tr>
<td>-km</td>
<td>/hukm/</td>
<td>'order'</td>
</tr>
<tr>
<td>-kr</td>
<td>/jikr/</td>
<td>'mention'</td>
</tr>
<tr>
<td>-kl</td>
<td>/sakl/</td>
<td>'form'</td>
</tr>
<tr>
<td>-khm</td>
<td>/jakhm/</td>
<td>'a wound'</td>
</tr>
<tr>
<td>-khy</td>
<td>/mukhy/</td>
<td>'chief'</td>
</tr>
<tr>
<td>-khs</td>
<td>/šakhs/</td>
<td>'person'</td>
</tr>
<tr>
<td>Symbol</td>
<td>Pronunciation</td>
<td>Meaning</td>
</tr>
<tr>
<td>--------</td>
<td>---------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>-gdh</td>
<td>/mugdh/</td>
<td>'charming'</td>
</tr>
<tr>
<td>-gn</td>
<td>/samlaŋ/</td>
<td>'united'</td>
</tr>
<tr>
<td>-gy</td>
<td>/bha:ɡy/</td>
<td>'fortune'</td>
</tr>
<tr>
<td>-mp</td>
<td>/kamp/</td>
<td>'shivering'</td>
</tr>
<tr>
<td>-mb</td>
<td>/avilamb/</td>
<td>'delay'</td>
</tr>
<tr>
<td>-mbh</td>
<td>/a:rambh/</td>
<td>'beginning'</td>
</tr>
<tr>
<td>-mr</td>
<td>/umr/</td>
<td>'age'</td>
</tr>
<tr>
<td>-ms</td>
<td>/adhika:mš/</td>
<td>'majority'</td>
</tr>
<tr>
<td>-ms</td>
<td>/kams/</td>
<td>'bronze'</td>
</tr>
<tr>
<td>-nt</td>
<td>/turant/</td>
<td>'sudden'</td>
</tr>
<tr>
<td>-nd</td>
<td>/a:nand/</td>
<td>'pleasure'</td>
</tr>
<tr>
<td>-ndh</td>
<td>/kandh/</td>
<td>'shoulder'</td>
</tr>
<tr>
<td>-nm</td>
<td>/janm/</td>
<td>'birth'</td>
</tr>
<tr>
<td>-ny</td>
<td>/šu:ny/</td>
<td>'empty'</td>
</tr>
<tr>
<td>ōnc</td>
<td>/pa:ńc/</td>
<td>'five'</td>
</tr>
<tr>
<td>ōnj</td>
<td>/kańj/</td>
<td>'lotus'</td>
</tr>
<tr>
<td>-lp</td>
<td>/alp/</td>
<td>'very little'</td>
</tr>
<tr>
<td>-lph</td>
<td>/gulph/</td>
<td>'ankle bone'</td>
</tr>
<tr>
<td>-lm</td>
<td>/gulm/</td>
<td>'a kind of shrub'</td>
</tr>
<tr>
<td>-lk</td>
<td>/šulk/</td>
<td>'dry'</td>
</tr>
<tr>
<td>-ly</td>
<td>/mu:ly/</td>
<td>'value'</td>
</tr>
<tr>
<td>-lv</td>
<td>/khalv/</td>
<td>'baldness of head'</td>
</tr>
<tr>
<td>-sp</td>
<td>/dilcasp/</td>
<td>'attractive'</td>
</tr>
<tr>
<td>-st</td>
<td>/cust/</td>
<td>'tight'</td>
</tr>
<tr>
<td>-sth</td>
<td>/anasth/</td>
<td>'a kind of snuff'</td>
</tr>
<tr>
<td>-sj</td>
<td>/rasj/</td>
<td></td>
</tr>
<tr>
<td>-sm</td>
<td>/rasm/</td>
<td>'custom'</td>
</tr>
</tbody>
</table>
-sy /upa:gy/ 'worthy of worship'
-śt /gaśt/ 'wandering'
-śy /udde:śy/ 'intension'
-śt /pariśiśt/ 'supplementary'
-śth /karlavaniśṭh/ 'dutiful'
-ṣy /bhaviṣy/ 'future'
-ṣk /jyotiṣk/ 'a star'
-śm /bhi:ṃ/ 'big'
-ṛt /śart/ 'condition'
-ṛth /pada:ṛth/ 'material'
-ṛd /dard/ 'pain'
-ṛc /mirc/ 'spicy'
-ṛj /sarj/ 'a pine tree'
-ṛk /tark/ 'argument'
-ṛm /carm/ 'skin'
-ṛś /a:darś/ 'ideal'
-ṛv /pu:ṛv/ 'east'
-ṛy /ka:ry/ 'work'
-ḥn /cihn/ 'sign'
-ṛy /ka:vy/ 'a poem'
-ṛr /ti:vr/ 'sharp'

2.3.3.3 Similarities and dissimilarities

Word final clusters are found in Hindi only and in Malayalam they are totally absent. In Hindi the maximum number of constituents that can join together to form word final consonant cluster is there.

2.4 Syllabic structures

The *nucleus of a syllable is con*
2.4.1 Monosyllabic

2.4.1.1 Malayalam

There are five types of syllables in monosyllabic words of Malayalam. They are,

e.g 1. VV /i:/ 'this'
   2. CVV /ni:/ 'you'
   3. CCCVV /stri:/ 'lady'
   4. VVC /a:n/ 'male'
   5. CVVC /mi:n/ 'fish'

2.4.1.2 Hindi

1. VV /a:/ 'come'
2. CV /na/ 'don't'
3. VC /un/ 'those'
4. CVV /ve:/ 'they'
5. VVC /a:p/ 'you'
6. CVC /kam/ 'very little'
7. VCC /umr/ 'age'
8. CCVC /vrat/ 'fasting'
9. CVVC /na:m/ 'name'
10. CCVVC /pra:n/ 'life'
11. CCCVV /stri:/ 'lady'

2.4.1.3 Similarities and dissimilarities

In both Malayalam and Hindi syllables are marked by the relative prominence of the peaks. In a syllable both onset (O) and coda (C) are optionals and nucleus (N) is obligatory is S = (O) N (C)

The nucleus of a syllable is constituted by any vowel,
short or long. There are as many syllables in a word as there are vowels. In Malayalam complex peaks are absent whereas in Hindi it is only allophonic. In Malayalam the coda of a syllable will contain only a single consonant but in Hindi coda contains one or more consonants. In both languages a minimum syllable contains the nucleus only.

On the basis of monosyllabic words five types of syllables are found to be similar in both Malayalam and Hindi. They are:

<table>
<thead>
<tr>
<th>Eg. Mal.</th>
<th>Eg. Hindi</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. VV</td>
<td>/i:/ 'this'</td>
</tr>
<tr>
<td>2. CVV</td>
<td>/ni:/ 'you'</td>
</tr>
<tr>
<td>3. CCCVV</td>
<td>/stri:/ 'lady'</td>
</tr>
<tr>
<td>4. VVC</td>
<td>/a:ŋ/ 'male'</td>
</tr>
<tr>
<td>5. CVVC</td>
<td>/mi:n/ 'fish'</td>
</tr>
</tbody>
</table>

Syllable types found only in Hindi

| 1. CV    | /na/ 'don't' |
| 2. VC    | /un/ 'those' |
| 3. CVC   | /kam/ 'very little' |
| 4. CCVC  | /vrat/ 'fasting' |
| 5. VCC   | /umr/ 'age' |
| 6. CCVVC | /pra:ŋ/ 'life' |

2.4.2 Polysyllabic

2.4.2.1 Malayalam

In Malayalam the number of syllables in any one word may vary from one to eight. The Polysyllabic words in Malayalam are:
1. Disyllabic word
   e.g. /iva/ 'these'

2. Trisyllabic word
   e.g. /apa:yam/ 'danger'

3. Quadrisyllabic word
   e.g. /saho:darar/ 'brother'

4. Penta syllabic word
   e.g. /parila:lanam/ 'care'

5. Hexasyllabic word
   e.g. /avasa:nikkuka/ 'to end'

6. Septisyllabic word
   e.g. /avasa:nippikkunna/ 'ends'

7. Octosyllabic word
   e.g. /paryavasa:nippikkunnu/

2.4.2.2 Hindi

In Hindi the number of syllables in one word may vary from one to six. These polysyllabic words in Hindi are,

1. Disyllabic word
   e.g. /isi/ 'this'

2. Trisyllabic word
   e.g. /ci:riya/ 'bird'

3. Quadrisyllabic word
   e.g. /la:bhaka:ri/ 'beneficial'

4. Penta syllabic word
   e.g. /rajani:pati/ 'moon'

5. Hexasyllabic word
   e.g. /paro:paka:rita/ 'benevolence'
2.4.2.3. Similarities and dissimilarities

The number of syllables in any one word may vary from one to eight in Malayalam and one to six in Hindi. The polysyllabic words in Malayalam and Hindi are,

1. Disyllabic word
   M. /iva/   'these'
   H. /isi:/   'this'

2. Trisyllabic word
   M. /apa:yam/   'danger'
   H. /ciriya:/   'bird'

3. Quadrisyllabic word
   M. /sahodaran/   'brother'
   H. /labhaka:ri:/   'beneficial'

4. Penta syllabic word
   M. /parila:lanam/   'care'
   H. /rajani:pati/   'moon'

5. Hexasyllabic word
   M. /avasa:nikkuka/   'to end'
   H. /paro:paka:rita/   'benevolence'

Polysyllabic words found only in Malayalam

1. Septisyllabic word
   M. /avasa:nippikkunu/   'is ending'

2. Octosyllabic word
   M. /paravasamippikkunu/   'is ending ceremoniously'
2.5. Supra-segmental features

2.5.1. Intonation

2.5.1.1. Malayalam

In Malayalam stress and tone are not phonemic.

**Pitch levels**
1. /4/ Extra high
2. /3/ High
3. /2/ Mid
4. /1/ Low

**Terminal contours**

- /\ / Rising
- /v/ Falling
- /l/ Level

There are three significant combinations of the pitch levels and terminals in Malayalam. They are:

1. Low pitch and a falling terminal.
   e.g. mu:tta kutṭi\(\) 'this is my) eldest child'

2. High pitch level and rise in terminal
   e.g. mu:tta kutṭi\(\) 'what is your) eldest child'

3. Mid pitch and a level terminal occurs in the middle of an utterance.
   e.g. mu:tta kutṭi\(\) 'my) eldest child (is...)' 

In Malayalam the pitch level /4/ i.e. extra high pitch occurs with vocatives.

   e.g. /amme: / 'mother (voc.)'
2.5.1.2. Hindi

In Hindi the rhythm unit coincide with the intonation contour and these units are bound by terminal junctures or silence. Hindi intonation has four pitch levels and three terminal contours.

**Pitch levels**

1. /4/ Extra high
2. /3/ High
3. /2/ Mid
4. /1/ Low

**Terminal contours**

/↑/ Rising
/↓/ Falling
/∥/ Level

The most commonly used intonation pattern is / (2) 3 1 ↓/ in Hindi.

_e.g._ yāh e:k mēka:n hā ↓

The other patterns are

_e.g._ voː ghar jāː rōhaː hāl

'Is he going home?'

_yā hāː:_ aːo ↓ (command)

'come here'

_yā hāː:_ aːo / (appreciative tone)

'come here'

The level contour in Hindi is used mostly to express angry tone.

_e.g._ kyaː khaːː↓ 'what you said'
2.5.1.3. Similarities and dissimilarities

Intonation is defined as the variation which takes place in the pitch of the voice in connected speech. In both Hindi and Malayalam the intonation, have four pitch levels and three terminal contours. They are pitch levels - Extra high, High, Mid and Low and terminal contours - rising, falling and level. In both Malayalam and Hindi extra high pitch is used and it occurs with vocatives.

2.5.2. Juncture

2.5.2.1. Malayalam

Juncture marks the word-boundary in a sentence.

e.g.
\[ /ra:\text{tri}v\text{\text{"a}ntikku\ vantu}/ \quad \text{'came for asking the vechicle in the night time'} \]

\[ /ra:\text{triv\text{"a}nti\text{"a}kkku\ vantu}/ \quad \text{'came by night train'} \]

However, in Malayalam there exists two types of significant word junctures - close juncture (+) and open juncture (-).

e.g. a:na + ku\text{"u}ti > a:naku\text{"u}ti
nalla + ka:lam > nallaka:lam 'good season'

2.5.2.2. Hindi

In Hindi juncture marks the word boundary in a sentence.

e.g.
\[ /cal\text{"a}na/ \quad \text{'cause to walk'} \]
\[ /cal\text{"a}na/ \quad \text{'come by walk'} \]
2.5.2.3 Similarities and dissimilarities

In both Malayalam and Hindi juncture marks the word boundary in a sentence and its distribution is mostly similar except for the fact that Malayalam distinguishes two types of low junctures.

* 
[c] palatal voiceless released stop with slight friction occurs finally after a consonant.
e.g. /mirc/ [mirc] 'Spieg'
/kharc/ [kh rc] 'expense'
[c.] palatal voiceless unreleased, relatively long stop occurs medially before /y/ and after a vowel.
e.g. /acyut/ [əc. 'y Ut'] 'eternal'
[c] palatal, voiceless, unreleased stop with slight friction occurs elsewhere.
e.g. /ca:ca:/ [ca:ca:] 'paternal uncle'
/vica:r/ [vIca:r] 'thought'