THE MAITHILI CONSONANTS

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Introduction

Consonants can be defined in terms of both phonetics and phonology. Phonetically, consonants are sounds made by a closure or narrowing in the vocal tract so that the air flow is either completely blocked or so restricted that some audible frication is produced. Consonant articulations are relatively easy to feel and determine by such means as palatography or x-rays, and as a result are most conveniently described in terms of place and manner of articulation. From a phonological point of view, consonants are those units which typically function at the margins of syllables, either singly or in clusters.

The present paper looks into all types of phonologically distinctive consonant sounds in a variety of the 'standard' dialect of Maithili (see, Jha, 1984: 26-30, for more details this dialect), and puts forward a description, classification and phonemic analysis of the consonants of this language.

Description, classification and phonemic analysis of the Maithili consonants

Like consonants of other language, the Maithili consonants are formed when the airstream through the vocal tract is obstructed in some way. These consonants can, therefore, be described and classified primarily according to the place and manner of this obstruction. When classified according to their places of articulation, the Maithili consonants can be grouped into the following eight main categories: (1) bilabial, (2) dental, (3) alveolar, (4) retroflex, (5) palato-alveolar, (6) palatal, (7) velar, and (8) glottal; when classified according to their manners of articulation, these consonants can appropriately be grouped into the following five main categories: (1) stops, (2) affricates, (3) fricatives, (4) nasals, and (5) approximants.

The stops in Maithili: 'Stop' refers to any speech sound which is produced by a complete closure in the vocal tract, and thus traditionally includes the

class of plosives. The complete articulation of stop consonants consists of three stages: (1) the closing stage, (2) the compression stage, and (3) the release or explosion stage. The closing stage is the one during which the articulating organs move together in order to form the obstruction; the compression stage is the one during which lung action compresses the air behind the closure–this stage may or may not be accompanied by vibration of the vocal cords; the release or explosion stage is the one during which the organs forming the obstruction part rapidly, allowing the compressed air to escape abruptly. The stops in Maithili may be grouped into four main categories in accordance with their different places of articulation in the vocal tract: i.e. bilabial, dental, retroflex and velar.

The bilabial stops: Bilabial consonants are those that are produced by a combined movement of both lips- that is, in their articulation the two lips closely approach or touch each other. There are four phonologically distinctive bilabial stops in Maithili: /p/, /pʰ/, /b/ and /bʰ/. In the production of each one of them the soft palate is raised and the nasal resonator is shut off, the primary obstruction to the airstream is provided by the closure of the lips. Lung air is compressed behind this closure, during which stage the vocal cords are held wide apart for /p/ and /pʰ/, but they vibrate for all or part of the compression stage for /b/ and /bʰ/ according to their situation in the utterance. Teh air escapes with force when the lip closure is released. All the four bilabial stops /p pʰ b bʰ/ show full phonological contrast in all word positions: initial, medial and final. For example:

Initial	Medial	Final
/par/ "end"; "across"	/ə' per/ "upper"	/sap/ "snake"
/pʰar/ "ploughshare"	/ə' pʰer/ "suffocate"	/sapʰ/ "clean"
/bar/ "light" (imp.)	/sə' bek/ "task"	/jib/ "soul"; "live"
/bʰar/ "weight"	/sə" bʰek/ "of everyone"	/jibʰ/ "tongue"

The dental stops: Dental consonants are those that are produced with the tip and/or blade of the tongue touching the upper front teeth and alveolar ridge. There are four phonologically distinctive dental stops in Maithili: /t/, /tʰ/, /d/ and /dʰ/. In the articulation of these dental stops the velum is raised and the nasal resonator is shut off, the primary obstruction to the airstream is formed by a closure made between the tip, blade and rims of the tongue and the upper front and side teeth and the alveolar ridge. Lung air is compressed behind this closure, during which stage the vocal cords are wide apart for /t/ and /tʰ/, but they vibrate for all or part of the compression stage for /d/ and /dʰ/ according their situation in the utterance. All the four dental stops in Maithili, /t tʰ d

dʰ/, show full phonological contrast in all word positions: initial, medial and final. For example:

Initial	Medial	Final
/tan/ "pull"	/'patǝr/ "thin"	/pat/ "leaf"
/tʰan/ "roll of cloth"	/'patʰǝr/ "stone"	/patʰ/ "shape" (imp.)
/dan/ "charity"	/u'dar/ "generous"	/bad/ "after"
/dʰan/ "paddy"	/u'dhar/ "on credit"	/badʰ/ "lands surrounding a village"

The retroflex stops: Retroflex consonants are those that are made when the tip of the tongue is curled back in the direction of the front part of the hard palate -- i.e. just behind the alveolar ridge. There are four phonologically distinctive retroflex stops in Maithili: /ṭ/, /ṭʰ/, /ḍ/ and /ḍʰ/. In the articulation of these stops the velum is raised and the nasal resonator is shut off, the primary obstruction to the airstream is formed by a closure made between the tip and rims of the tongue and the upper hard palate and side teeth. Lung air is compressed behind this closure, during which stage the vocal cords are wide apart for /ṭ/ and /ṭʰ/, but they vibrate for all or part of the compression stage for /ḍ/ and /ḍʰ/ according to their situation in the utterance. Of the four retroflex stops in Maithili, /ṭ/ and /ṭʰ/ show full phonological contrast in all word positions, but the remaining /ḍ/ and /ḍʰ/ show phonological opposition mainly word-initially. For example:

Initial	Medial	Final
/ṭop/ "helment"	/'paṭi/ "wooden board"	/kaṭ/ "cut" (imp.)
/ṭʰop/ "drop" (n)	/'paṭʰi/ "she goat"	/kaṭʰ/ "wood"
/ḍah/ "jealousy"	....	....
/ḍʰah/ "knock down"	....	....

It has to be mentioned that even though /ḍ/ and /ḍʰ/ do not show phonological contrast in word-medial and word-final positions, /ḍ/ does nevertheless occur in those word positions. And, be it word-medially or word-finally, /ḍ/ is usually preceded by the nasal consonant /n/, which is assimilated to the retroflex place of articulation of /ḍ/. For example:

Medial	Final
/'ǝnḍa/ "egg"	/kanḍ/ "canto"
/'pǝnḍa/ "a priest"	/kʰǝnḍ/ "part; piece"
/'gǝnḍa/ "useless"	/pinḍ/ 'homage to the dead"

The velar stops: Vilar consonants are those that are made by the back of the tongue against the soft palate. There are four phonologically distinctive velar stops in Maithili; /k/, /kʰ/, /g/ and /gʰ/. In the articulation of these stops the velum is raised and the nasal resonator is shut off, the primary obstruction to the airstrean is formed by a closure made between the back of the tongue and the soft palate. Lung air is compressed behind this closure, during which stage the vocal cords are wide apart for /k/ and /kʰ/, but they vibrate for all or part of the compression stage for /g/ and /gʰ/ according to their situation in the utterance. All the four velar stops /k kʰ g gʰ/ show full phonological contrast in all word positions: initial, medial and final. For example:

Initial	**Medial**	**Final**
/kas/ "a kind of large grass"	/sə'kar/ "confession"	/sik/ "reed"
/kʰas/ "special"	/sə'kʰar/ " a big wooden box"	/sikʰ/ "learn" imp.)
/gam/ "village"	/'ugrəl/ "surplus"	/bag/ "garden"
/gʰam/ "sweat"	/'ugʰrəl/ "open"; "unveiled"	/bagʰ/ "tiger"

The affricates in Maithili

The term 'affricate' is used (e.g. see, Abercrombie, 1967; Gimson, 1970; Ladefoged, 1971 and 1982) in the classification of consonant sounds on the basis of their manner of articulation. It refers to a speech sound that is made when the air-pressure behind a complete closure in the vocal tract is gradually released; the initial release produces a plosive, but the separation which follows is sufficiently slow to produce audible frication–i.e. frication sufficiently audible to be used contrastively in the phonology–and there is thus a fricative element in this kind of speech sound. However, the duration of the frication is usually not as long as would be in the case of an independent fricative consonant. It is thus the combination of 'plosive' and 'frication' which identifies an affricate. There are four phonologically distinctive affricate consonants in Maithili: /c/, cʰ/, /j/ and /jʰ/.

In the articulation of these Maithili affricates the velum is raised and the nasal resonator is shut off, the obstruction to the airstream is formed by a closure made between the tip, blade, and rims of the tongue and the palate-alveolar region and side teeth. At the same time, the front of the tongue is raised towards the hard palate in readiness for the fricative release. The closure is released slowly, and the air escapes in a diffuse manner over the whole of the central surface of the tongue with friction accuring between the blade/front region of the tongue and the palato-alveolar section of the roof of the mouth. During both stop and fricative stages, the vocal cords are wide apart for /č/ and /čʰ/, but they vibrate for all or part of /ǰ/ and /ǰʰ/ according to

their situation in the utterance. All the four affricates in Maithili show full phonological contrast in all word positions; initial, medial and final. For example:

Initial	Medial	Final
/čor/ "thief"	/ə'čar/ "pickle"	/bič/ "centre"
/čʰor/ "edge"	/ə'čʰar/ "shower"	/bičʰ/ 'pick up" (imp.)
/jor/ "strength"	/'bajəl/ "spoke"	/bij/ "seed"
/jʰor/ "soup"	/'bajʰəl/ "trapped"; "entangled"	/kijʰ/ "rust"

The fricatives in Maithili

A fricative consonant is one that is made when two speech organs come so close together that the airstream escaping between them produces frication sufficiently audible to be used contrastively in the phonology. There is no complete closure between the organs. Indeed, there is simply a stricture, or narrowing of the organs. Maithili has two phonologically distinctive fricative sounds; i.e. the alveolar fricative /s/ and the glottal fricative /h/.

In the articulation of the Maithili alveolar fricative /s/ the velum is raised and the nasal resonator is shut off, the tip and blade of the tongue make a light contact with the upper alveolar ridge, and the side rims of the tongue make a close contact with the upper side teeth. The airstream escapes by means of a narrow groove in the centre of the tongue and causes frication between the tongue and the alveolar ridge. There is very little opening between the teeth and the frication is voiceless.

In the articulation of the Maithili glottal fricative /h/ the air is expelled from the lungs with considerable pressure, causing some frication throughout the vocal tract, the upper part of which is shaped in readiness for the articulation of the following vowel. In other words, as regards the position of the tongue, lips, soft palate, and the configuration of the pharynx, the Maithili /h/ is simply the voiceless counterpart of the following speech sound. Thus differing types of frication will be heard for /h/ in the Maithili words with such sequences as, for example;

/hit/ "friendly"; "benefit"
/hatʰ/ "hand"
/hur/ "thrust"

The frication is therefore largely of the mouth cavity type–in most cases, associated with the nature of the following vowel. Both Maithili fricatives /s/ and /h/ show full phonological contrast in all word positions; initial, medial and final. For example:

Initial	Medial	Final
/sat̤/ "paste" (imp.)	/o'sar/ "corridor"	/rəs/ "juice"
/hat̤./ "market"	/o'har/ "cover" (n)	/rəh/ "stay" (imp.)

The Nasals in Maithili

The term 'nasal' refers to those speech sounds that are produced while the soft palate is lowered to allow an audible escape of air through the nose. Both consonants and vowels may be articulated in this way. Nasal consonants occur when there is a complete closure in the mouth, and all the air escapes through the nose. There are three phonologically distinctive nasal consonants in Maithili: /m n ŋ/. In the articulation of /m/, /n/ and /ŋ/, the closures occur in bilabial, alveolar and velar positions, respectively.

In the articulation of the Maithili bilabial nasal /m/ the lips form a closure as for /p pʰ b bʰ/; the soft palate is lowered, adding the resonance of the nasal cavity to those of the pharynx and the mouth chamber closed by the lips; the tongue generally anticipates or retains the position of the adjacent speech sound. In the articulation of the Maithili alveolar nasal /n/ the tip and rims of the tongue form a closure with the upper alveolar ridge just behind the teeth ridge and upper side teeth; the soft palate is lowered, adding the resonance of the nasal cavity to those of the pharynx and of that part of the mouth chamber behind the alveolar closure; the lip position depends upon that of adjacent vowels. In the articulation of the Maithili velar nasal /ŋ/ a closure is formed in the mouth between the back of the tongue and the velum as for /k kʰ g gʰ/. The actual point of closure will depend on the type of vowel preceding /ŋ/- for example, the contact is more advanced in the Maithili /hiŋ/ "a kind of spice" than in /taŋ/ "leg; hang". In addition, in the articulation of the Maithili /ŋ/ the soft palate is lowered, adding the resonance of the nasal cavity to that of the pharynx and the above-mentioned part of the mouth chamber behind the velar closure; the lip position depends upon that of the preceding vowel. Of the three nasals /m n ŋ/, /m and /n/ show full phonological opposition in all word positions: initial, medial and final. For example:

Initial	Medial	Final
/mam/ "mother's brother"	/'nami/ "famous"	/tam/ "copper"
/nam/ "name"	/'nani/ "mother's mother"	/tan/ "pull"

But the velar nasal /ŋ/ shows phonological opposition with /m/ and /n/ only in two positions: i.e. word-medially and word finally. For example:

Medial	Final
/ˈkəŋhi/ "comb" (n)	/səŋ/ "together"
/ˈkəmhi/ "the period of being away from work"	/səm/ 'equal"
/ˈkənhi/ 'a one-eyed female"	/sən/ "similar"

The approximants in Maithili

Approximant is a general term used by some phoneticians (e.g. Ladefoged, 1971 and 1975/1982) in the classification of speech sounds on the basis of their manner of articulation, and corresponding to what in other approaches (e.g. Abercrombie, 1967; Gimson, 1970) would be called 'frictionless continuants'. The term is based on the articulations involved, in that one articulator approaches another, but the degree of narrowing involved does not produce audible frication. Approximant consonants may be classified into two further groups; 'central' and 'lateral'. Maithili has both central and lateral approximant consonants.

The central approximants: A central approximant is one that is made by the approach of one articulator towards another, but without the oral tract being narrowed to such an extent that a turbulent airstream is produced. There are four phonologically distinctive approximant consonants in Maithili: /w y r ṛ/. Of these, /w/ and /y/ are semi-vowels: /r/ is a tap and /ṛ/ is a flap.

Semi-vowels are sometimes called 'glides' because they are produced by gliding the tongue toward or away from a more prominent adjacent vowel. Maithili has two phonologically distinctive semi-vowels: i.e. the bilabial /w/ and the palatal /y/. Their articulation involves a constriction of the oral cavity which is greater than that for the highest vowels (i.e. /i/ and /u/) but not great enough to produce frication.

In the articulation of /w/ the tongue assumes the position for a back half-close to close vowel–depending upon the degree of openness of the following speech sound–and moves away immediately to the position of the following speech sound; the lips are rounded (more closely when followed by /u/ than when preceding a more open or front vowel); in those cases where /w/ precedes /u/, the lip rounding for /w/ is close and more energetic than that associated with /u/; the soft palate is raised and the vocal cords usually vibrate.

In the articulation of /y/ the tongue assumes the position for a front half-close to close vowel–depending on the degree of openness of the following speech sound-and moves away immediately to the position of the following speech sound; the lips are generally neutral or spread, but may anticipate the lip-rounding of the following vowel in such cases as /ˈpiyu/ "(please) drink",

/'jiyu/ 'live", and so on; the soft palate is raised and the vocal cords usually vibrate.

Both /w/ and /y/ show phonological opposition in word-initial and word-medial positions. For example:

Initial	Medial
/war/ "strike; hit"	/pwar/ "straw"
/yar/ "friend"	/pyar/ "lovel"

It should be stated that both /y/ and /w/ are mostly used by educated Maithili speakers. In colloquial speech, however, most uneducated native speakers of Maithili often replace the pronunciations of /y/ by /ǰ/ and of /w/ by /b/ or /o/. To take the case of /y/ first, there àre three main phonological contexts in which /y/ is realised as (ǰ): i.e. first, when /y/ occurs word-initially as:

/ˌy∂s/ ～ (ǰ∂:s) "fame"

/y∂'di/ ～ (ǰ∂'di:) "if"

This fact can be stated in a low level informal rule as given below:

(1)

y ——→ ǰ / # _____

There are, however, exceptions to this generalisation–e.g. the Maithili word /yar/ is always pronounced as (ya:r), and not as *(ja:r). Secondly, /y/ is realised as (j) when it occurs immediately after /r/. For example:

/'sury∂/ ～ ('su:rǰ∂) 'the sun"

/'k∂ry∂/ ～ ('k∂:rǰ∂) "debt"

This fact can also be stated in a low level informal rule as given below:

(2)

y ——→ǰ / r ---

Thirdly, /y/ is realised as (ǰ) when it occurs immediately after /h/. For example:

/'s∂hy∂/ ～ ('s∂:hǰ∂) "tolerable"

This fact. too, can be stated in a low level informal rule as given below:

(3)

y ——→ǰ / h ---

All the above-mentioned rules can in fact be collapsed into just one informal rule as given below:

(4)

$$y \longrightarrow \breve{j} \quad / \quad \left\{ \begin{array}{l} \# \text{---} \\ r \text{---} \\ h \text{---} \end{array} \right\}$$

The above Rule (4) says that in Maithili /y/ is realised as (ǰ) whenever it occurs either word-initially, or after /r/, or after /h/. In all other contexts, /y/ is always realised as (y). For example:

/ˈgədyə/	(ˈgɑ:dyə) "prose"
/ˈayə/	(ˈa:yə) "income"
/səˈməyə/	(səˈmɑ:yə) "time"

Similarly, whenever /w/ is spoken in colloquial speech, especially in words of CV, VC or CVC syllable structure, it is usually realised either as (b), if the words in which it occurs are of Sanskrit origin, such as:

/ˈwidya/	(ˈbidya:) "learning"; "education"
/ˈnəwə/	(ˈnə:bə) "new"

or as (o), if the words where it occurs are of non-Sanskrit origin, such as:

/wəˈkil/	(oˈki:l) "a lawyer"
/wəˈǰəh/	(oˈǰə:h) "reason"

But whenever /w/ occurs in words of CwV syllable structure–that is, whenever it is preceded by a consonant and followed by a vowel within one and the same syllable–it is always realised as (w). For example:

/ˈtətwə/	(ˈtətwə) "element"
/əmˈrətwə/	(əmˈrətwə) "immortality"

In addition, in all those syllables where /w/ is followed by /a/, it is always realised as (w), although in the traditional writing system of Maithili (w) is never written. For example:

/ˈkhowa/	(ˈkho:wa:) "milk cream"
/ˈǰuwa/	(ˈǰu:wa:) "gambling"

Unlike S. Jha (1941 and 1958) who includes /y/ and /w/ in his inventory of Maithili phonemes, some later Maithili scholars (e.g. G. Jah, 1974: p. 81-84, and 1979: p. 14-15) do not include /y/ and /w/ in their Maithili phonemic inventories, nor do they give sufficient reasons why they exclude these phonemes from their phonemic inventories. R. Yadav (1984) includes them in his study but only as 'marginal phonemes,". as he calls them (Yadav, 1984: 26) and he, too, does not sufficiently discuss what motivated him to treat /y/ and /w/ as only the marginal phonemes of Maithili. Since both /y/ and /w/ show significant phonological contrasts and since there are phonological contexts in which both of them appear as irreplaceable (we have already presented some examples above), in the present study both /y/ and /w/ are therefore included as two different phonemes of the Maithili language.

Turning to the Maithili tap and flap, the term 'tap' refers to a speech sound produced by an obstruction which the tongue makes in a single tap against the alveolar ridge. In Maithili /r/ is a tap. The term 'flap' refers to a speech sound produced by a single rapid contact of the tongue with the retroflex. In Maithili /ɽ/ is a flap. Since both /r/ and /ɽ/ do show phonological contrats in word-medial and word-final positions, as in the following examples:

Medial	Final
/'k∂ru/ "(please) do"	/har/ "necklace"
/'k∂ɽu/ "hot"	/haɽ/ "bone"
/k∂'rah/ "groan"	/p∂r/ "on"
/k∂'ɽah/ "a big cooking pan"	/p∂ɽ/ "lie down" (imp.)

These speech sounds are regarded in the present study as two different phonemes of maithili.

The lateral approximants: The term 'lateral' refers to a consonant sound which is articulated by means of a partial closure, on one or both sides of which the airstream is able to escape through the mouth. In Maithili /l/ is a phonologically distinctive consonant phoneme. In the articulation of the Maithili /l/ the soft palate is in a raised position, shutting of the nasal resonator, the tip and blade of the tongue come in contact with the alveolar ridge, allowing the air to escape on both sides or, in the case of unilateral tongue-rim closure on the upper side teeth, on one side. Both /l/ and /r/ show phonological opposition in all word positions: initial, medial and final. For example:

Initial	Medial	Final
/laj/ "shame"	/mala/ "garland"	/mal/ "cattle"; "goods"
/raj/ "nation/state"	/mara/ "a kind of fish"	/mar/ "beat" (imp.)

Summary

To summarise, we have established that Maithili has a total of the following 30 consonant phonemes: /p ph b bh t th d dh ṭ ṭh ḍ ḍh k kh g gh č čh ǰ ǰh s h m n ŋ w y r ṛ l/. The chief Maithili consonantal articulations discussed so far are summarised and presented in a chart given in Figure 1. The customary chart includes: (1) the place of articulation parameter shown horizontally, (2) the manner of articulation parameter shown vertically, and (3) a pairing of consonantal types to show the voiceless variety on the left and the voiced variety on the right.

Places of Articulation	Stops		Affricates		Fricatives	Nasals		Approximants			
								Central		Lateral	
Manners of Articulation	Unaspirated	Aspirated	Unaspirated	Aspirated		Unaspirated	Aspirated	Unaspirated	Aspirated	Unaspirated	Aspirated
Bilabial	p b	ph bh				m		w			
Dental	t d	th dh									
Alveolar					s	n		r		l	
Retroflex	ṭ ḍ	ṭh ḍh						ṛ			
Palato-alveolar			č ǰ	čh ǰh							
Palatal								y			
Velar	k g	kh gh				ŋ					
Glottal					h						

Figure1: Chief Maithili consonantal articulations

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