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A Preliminary Study of Pahari and Its Sound System

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The present study is an introduction to the Pahari Language, spoken in Azad Jammu and Kashmir, Pakistan. It is a neglected language, which has rarely been explored by linguists in the past. It has neither a written a grammar nor a compiled dictionary. The aims of the study are twofold. First, it is intended to present an introduction to Pahari language, which includes its historical background, language classification, geography, dialects, population, sociolinguistic situation and steps being taken to promote it. Second, it provides a detailed phonemic analysis of consonantal and vocalic systems of the language. The study establishes 30 consonants, 12 oral vowels, 4 nasal vowels and 6 diphthongs in Pahari.

1. Pahari Language

1.1. Historical Background of Pahari

The Pahari language is one of the ancient languages of South Asia. Historically, it remained a very prestigious language, promoted by the Buddhist dynasty of the Harappa civilization. King Ashoka took personal interest in promoting this language. He established the first university of South Asia at Sharda in Neelam Valley near Muzaffarabad, Azad Jammu & Kashmir and made it the official language of his state. At that time Pahari was written in the Sharda script which was named after the place where the university was established (Karnai, 2007). Masoodi (1985) makes the following claims about the origin of Pahari:

> "*Historical happenings and factors prove it that Pahari is not a new language, but it is a thousand year old language. This language is spoken since man laid his foot in Himalaya. When we try to find the origin of Pahari, we come to know that this language was spoken in the reign of King Ashoka almost two and half thousand years ago. This shows that it might be originated at least one thousand years before this period*".

From Alexander the Great's invasion in 326 BC to the Fifth century AD, most of the Pahari-Potohwari area was part of the Taxila Empire. Different parts of the area were under the control of the kingdoms based in Kashmir, especially around the seventh century AD. Later, in the fourteenth and fifteenth centuries the northern part of the Punjab was under the Timurid Empire. From 1526 until British control in 1849, several powers rose and fell including the Mughals, the Sikhs, and Dogras. The British ruled until the partition of India and Pakistan in 1947(Lothers and Lothers, 2010).

Along with other languages, Pahari has suffered at the hands of foreign invaders. Pahari erosion started with the fall of Buddhist Empire. In the lower regions the style of writing started changing with the Greek invasion followed by a number of invasions but in Kashmir until 10th century AD, the Nagri alphabets survived. The Nagri script survived until the Muslim invasion. Subsequently the script was changed and it became Persian from 1819-1846 while during Sikh regime Punjabi script was adopted. Finally the same was replaced by Urdu.
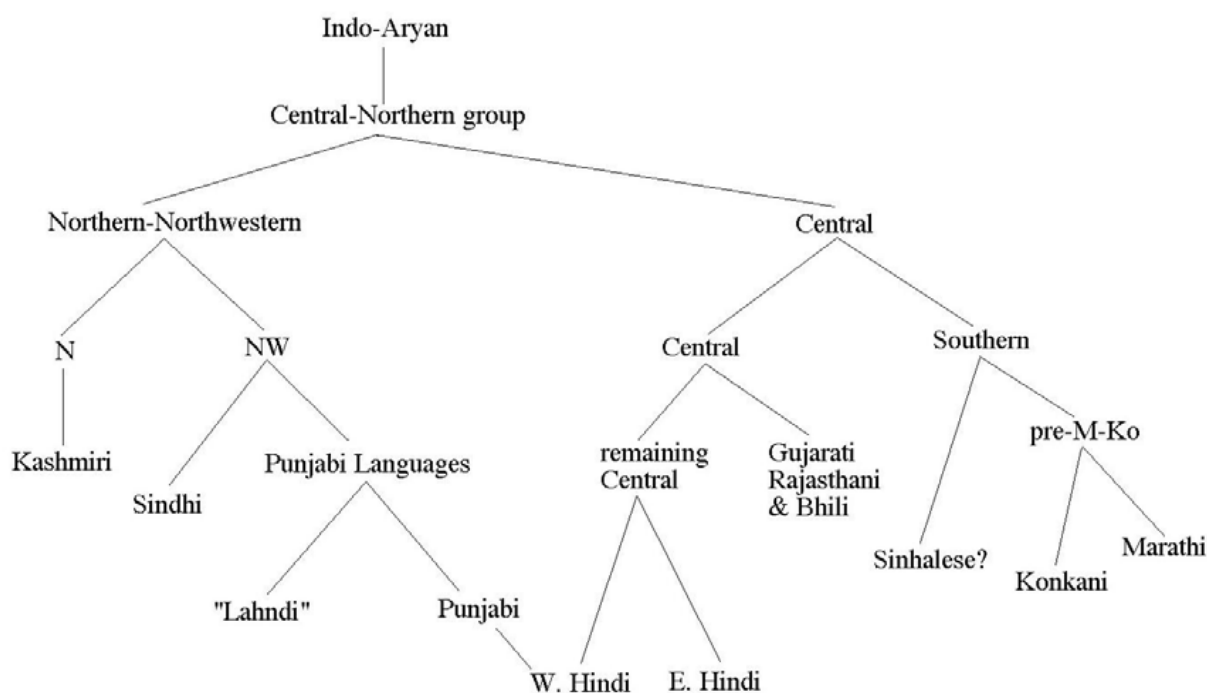
1.2. Language Classification

The Pahari language belongs to the family of Indo-Aryan languages that is a sub-branch of Indo-European languages. It is classified with some other Indo-Aryan languages in a group called 'Lahnda'. Grierson (1917) gave this name 'Lahnda' to Western Punjabi. Lahnda is the Punjabi word for 'western'. Grierson (1917) claims:

> *"The Pahari language falls into three main groups. In the extreme east there is Khas-Kura or Eastern Pahari, called Nepali, the Aryan language spoken in Nepal. Next in Kumaon and Garhwal, we have the central Pahari languages Kumaoni and Garhwali. Finally in the West we have the west Pahari spoken in Jaunsar, Bawar, the Simla Hill, Kulu, Mandi and Suket, Chamba, and Western Kashmir."*

Nigram (1972) divided Indo-Aryan languages into two groups: the central northern group and the eastern group. Classification of the central-northern is shown in figure 1.

Figure 1: Nigram's (1972) classification of the Indo-Aryan languages (central-northern group)

Pahari is included within 'Lahndi' under 'Punjabi Languages' in figure 1. According to Lothers and Lothers (2010), this classification leaves some questions still unanswered. What is Lahndi? What is grouped together with Pahari under the name 'Lahndi'? Masica (1991) includes Riyasati, Bahawalpuri, Multani, Jhangi-Jatki,and Thali in Southern Lahndi. Northern Lahndi (which includes Pahari) consists of the languages which are spoken in the north of the Salt Range. Lothers and Lothers (2010) have given the following classification of Northern Lahnda.

Figure 2: Lothers and Lothers (2010) classification of the Indo-Aryan languages
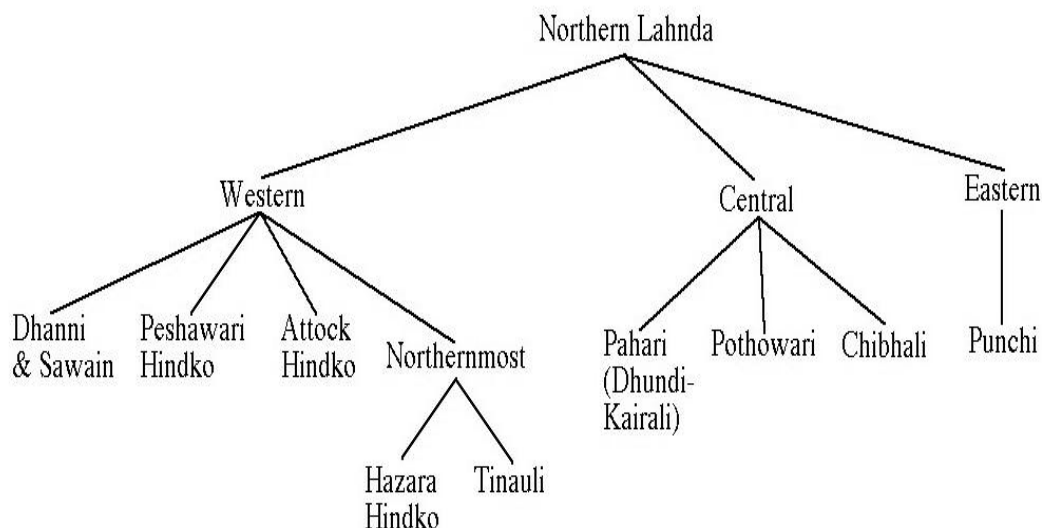
Lothers and Lothers (2010) state that there are still some dialects with unconfirmed classification. For instance, Grierson (1917) formulated 12 distinguishing characteristics between northern and southern Lahndi. However, in his phonology of Awankari, Bahri (1962) attempts to prove 11 of these 12 distinguishing characteristics as incorrect. Shackle (1979) confirms that Bahri's arguments are valid and calls Grierson's classification into question.

Shackle (1979: 91) summarizes the 'Lahndi' classification problem as 'one [which] has all the ingredients for confusions which are sufficient to cast a dense fog over the area for those who are not specialists and a fairly thick haze for quite a few who are!' Karnai (2007) has presented the following classification of Pahari:

Figure 3: Classification of Indo-Aryan languages by Karnai (2007)
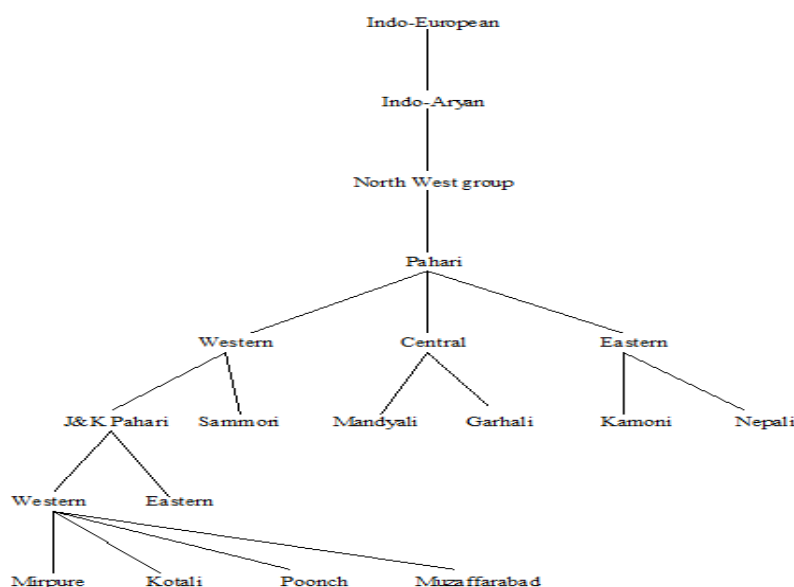
Karnai (2007) states that Western Jammu and Kashmir Pahari is classified into four dialects namely Mirpure, Kotali, Poonch and Muzaffarabad dialects. The focus of the study is the Poonch dialect of Pahari that is spoken in Poonch division in Azad Jammu and Kashmir.

1.3. Geography

The linguistic situation in Pakistan presents a very fruitful setting to investigate comparative linguistic Phenomena. According to the 16th edition of Ethnologue of World languages, there are seventy-seven languages spoken in Pakistan. Out of these seventy-two are indigenous languages (Lewis 2009). It is said that language changes every 12 kilometers. This is, no doubt, due to the mountainous region which has given birth to dozen of the varieties known collectively as Pahari. Even within the same town, members of different caste groups usually speak slightly different varieties. It is one of the two-dozen languages spoken in the State of Jammu and Kashmir. It derives its name from 'Pahar' meaning "hills and mountains". It is spoken over a large area starting from Nepal and running through the foothills of the Himalayas, in the Himachal Pardesh, Indian administered part of Kashmir, Azad Jammu & Kashmir and in the Northern Pakistan. It is also spoken in the United Kingdom (UK) by the people who originate from Azad Kashmir. About six hundred thousand people speak Pahari in UK. The Pahari language which was once a thriving written language became extinct not only from the classroom but also lost its written form.

1.4. Dialects of Pahari

Grierson (1917) states that Western Pahari consists of a great number of dialects varying almost from hill to hill. Karnai (2007) in his book *'Urdu aor Pahari ke Taqabli Jaeza'* discussed four dialects of Western Pahari: Muzaffararabadi, Poonch, Kotli and Mirpuri. He further claims that the Muzaffarabadi dialect is spoken in Muzaffarabad and the same is also spoken with slight difference in Anantnag, Baramula and Srinagar. This dialect is influenced by Hindko and Kashmiri. Mirpuri dialect is spoken in Mirpure, Bhimber and Kotali districts. It is also spoken in Jammu and Rajori. It is influenced by Gojri and Punjabi. Third dialect is spoken in Kotali, Nikyal, Khoiratta and Nibaa valley and it is also influenced by Gojri and Potohari. The fourth dialect is spoken in Poonch, Bagh, Sudhanhoti and Hawaliyaan districts. It is also called the central dialect. Of the four dialects of Western Pahari spoken in Pakistani administered Kashmir, the focus of the study is the variety known as Poonch dialect. This dialect is spoken in Poonch division which includes district Poonch, Bagh, Haveli and Sudhonhoti. There has been very little work done on Western Pahari and its dialects. The reason of choosing this dialect is that it is considered the central dialect of Western Pahari by most of the Pahari linguists. The reason is that the other dialects are influenced by other regional languages like Hindko, Punjabi and Gojri.

1.5. Population

According to the 1998 census, Pahari is spoken by 3.5 million people living in the Pakistani administered part of Kashmir and a projected rate showed in 2004 that the speakers of Pahari are around 3.8 million. Lothers and Lothers (2010) report that District Census Reports of Abbottabad and Rawalpindi as a guide, there are over one million Pahari speakers living in District Rawalpindi and District Abbottabad. It is also spoken in UK by the people who migrated from Kashmir. Lothers and Lothers (2003) state that there are over half a million immigrants from this language group, mostly from district Mirpur. These reports show that estimated population of Pahari speakers today, is around five million.

1.6. Promotion of Pahari

Movements toward language development already exist among the Pahari community. One such movement has begun in England for the promotion and development of Pahari. Immigrants from Kashmir have developed a magazine named *Chitka*, which was first published in December 1993 (Rahman 1996, Lothers and Lothers 2003). Lothers and Lothers (2010) reported that Pahari and Potohari books have also been published in Pakistan. Karnai (2007) also published a book entitled, "Pahari aor Urdu ka ek Taqabli Jaiza. Lothers and

Lothers (2010) made a great contribution in the promotion of Pahari language by publishing their book entitled 'A Sociolinguistic Survey: Pahari and Potohari'. A radio program is broadcast out of Muzaffarabad, and people within range of the station listen to it. Radio Trar Khal is also broadcasting programs in Pahari language. University of Azad Jammu and Kashmir has also established an Institute of Languages in 2008 to promote research on local languages. Many M.Phil and PhD students are also working on different aspects of Pahari. The author of the present work is also working on the compilation of a Pahari-English bilingual digital dictionary. Open University Islamabad has started an M.Phil program in Pakistani regional languages and Pahari language is also included in their Syllabus.

1.7. Sociolinguistic Situation

Most of the population of Pakistani administered part of Kashmir is bilingual, trilingual or multilingual. Each person speaks an indigenous language (Pahari/Gojri/ Kashmiri /Hindko, etc.) as is his/her mother tongue and Urdu as his/her second language. Pahari is not taught in schools and the medium of   instruction in public sector schools is Urdu and English is taught as a compulsory subject while in private sector schools, the medium of instruction is English and Urdu is taught as a compulsory subject. Urdu is the official language of Azad Jammu & Kashmir.

Kashmiri society is divided into different classes. The affluent class favors speaking and learning English as compared to other regional languages. This class usually occupies high position in civil service and politics. In rural areas Urdu is also considered as a status symbol. Educated people prefer to speak English and Urdu. Pahari speakers incorporate Urdu, Pahari and English words and expressions in their everyday speech. Most people use words like *driver*, *hotel*, and *bus* in their speech, and the elderly people still use the typical Pahari words for vegetables and fruits. The indigenous and regional languages are stigmatized and therefore, their transmission to next generation has declined considerably in recent years in Pakistan (Abbasi 2010).

As Pahari is not taught in schools it does not exist in written form. It is limited to rural areas and people are migrating from rural to urban areas where they come across communities speaking different languages and prefer Urdu as lingua franca. This shift is causing decay of the Pahari language. The role of media and advancement in technology is also damaging the language as it is not the language of science and technology. It is being influenced by English as an international language, Urdu as a national language and Punjabi and Hindko as regional languages. Hence there is a dire need to document this language and save it from extinction. So the present study is an effort to document its phonological system by focusing its phonemic inventory, syllable structure and stress patterns.

2.   Consonant System

Maddieson (1994) surveys 562 languages and shows that the range of consonant inventories extends from a low of 6 consonants to a high of 122. Rotokas, spoken in Papua New Guinea, has only six consonants. !Xóõ, spoken in Botswana has 122 consonants. The more typical consonant inventory size is in the low twenties. Consonant inventories close to this size (22 ± 3) have been categorized as average, and the remainder divided into the categories small (from 6 to 14 consonants), moderately small (15-18), moderately large (26-33), and large (34 or more consonants).

2.1. Pahari Consonants

Thirty consonant phonemes are identified and established after completing phonemic analysis that includes minimal pairs, voicing and aspiration contrasts and distribution of

segments in word initial, medial and final positions. This section presents the results of the analysis.

2.1.1. Minimal Pairs
Table 1: Minimal Pairs

p	pʊl	bridge	pʰʊl	flower
pʰ	pʰət	strike with axe	pət	pull
b	ba:lnã:	to burn	pa:lnã:	look after
ʈ	ʈa:li:	clapping	ʈʰa:li:	plate
ʈʰ	ʈʰəknã:	tire	ʈəknã:	stare
ɖ	ɖa :l	pulse	ʈ a:l	dance
t	to:ka:	cutter	tʰo:ka:	fix
tʰ	tʰəknã:	to dip	dəknã:	stop some body
d	dæl	part	tæl	delay
k	kətta:	calf	kʰətta:	bitter
kʰ	kʰo:l	open	ko:l	near
g	gã:nã:	song	kã:nã:	blind
f	fa:lʈu:	spare	pa:lʈu:	pet
v	ve:la:	time	be:la:	spare
s	sətnã:	throw	rətnã:	cramming
z	zo:r	power	to:r	gait
ʃ	ʃo:k	interest	ro:k	stop
x	xa:li:	empty	ma:li:	gardener
ɣ	ɣəm	sorrow	xəm	not straight
ɦ	ɦətti:	shop	pətti:	strip
tʃ	tʃən	moon	tʃʰən	a type of sound
tʃʰ	tʃʰa:p	ring	ra:ʈ	night
dʒ	dʒəʈ	hair	ləʈ	leg
m	ma:l	animal	pʰa:l	blade of plough
n	nã:nã:	grandfather	pã:nã:	get

ŋ	məŋ	fiancee	mən	desire
l	lo:ta:	mug	to:ta:	piece
r	rʊlnã:	miserable condition	dʒʊlnã:	go
ɽ	mo:ɽ	turn	Mo:r	peacock
j	ja:r	friend	ba:r	turn

Following table presents the summary of Pahari consonant phonemes.

Table 2: Pahari Consonant Phonemes

	Bilabial	Labio-dental	Dental	Alveolar	Retroflex	Palatal	Velar	Uvular	Glottal
Stops	p b pʰ		t̪ d̪ t̪ʰ	t d tʰ			k g kʰ		
Nasals	m			n			ŋ		
Fricatives		f v		s z		ʃ	x ɣ		ɦ
Lateral				l					
Trill				r					
Flap					ɽ				
Affricates						tʃ dʒ tʃʰ			
Glides						j			

2.1.2. Voicing contrast and word level distribution
2.1.2.1. Stops

The essential articulatory feature of a stop is a momentary blockage of vocal tract forming an articulatory occlusion at different places of articulation and then a sudden release of the blocked air. Following section illustrates the contrasts that exist between the stops phonemes as well as their equal distribution-word initially, word medially and word finally.

Table 3: Voicing Contrast

p vs b	pa:lnã:	to look after	ba:lnã:	to make something burn
	kəpnã:	to cut	ləbnã:	to find
	t̪a:p	fever	kɪt̪a:b/v	book
t̪ vs d̪	t̪rɪkʰa:	sharp	d̪ær	door

	t̪ət̪t̪a:	hot	hɪn̪d̪vã:nã:	water melon
	bʊt̪	idol	d̪ʊd̪	milk
t vs d	tɪknã:	jump	dæli:	slice/piece
	kʊtnã:	beat	kədnã:	extract
	kʰət	bed	la:d	affection
k vs g	ka:la:	black	gəbbʊn	pregnant
	sʊkka:	thin	ʊgnã:	grow
	nək	nose	əg	fire

Table 4: Aspiration Contrast

p vs pʰ	pʊl	bridge	pʰʊl	flower
	kʰəppʊr	a bird	rəpʰpʰʊɽ	dispute
		NA		
t̪ vs t̪ʰ	t̪a:l	dance	t̪ʰa:l	big plate
	po:t̪ra:	grandson	mət̪ʰt̪ʰa:	slow
	lət̪	Leg	hət̪ʰ	hand
t vs tʰ	to:ka:	cutter	tʰo:ka:	fixed
	ko:ta:	quota	ko:tʰa:	house
	lʊt	loot	pətʰ	young goat
k vs kʰ	ko:l	near	kʰo:l	open
	rʊkka:	stopped	rʊkʰkʰa:	dry
	mək	corn	məkʰ	big fly

Table 5: Word level distribution of the Phonemic stops

	Initial		Medial		Final	
p	po:t̪ra:	Grandson	kʰəppʊr	kind of bird	kʰəp	Rrush
pʰ	pʰu:k	Blow	rəpʰpʰʊr	grass	------	-----
b	bo:s	Race	kʰəbbʊl	grass	kɪt̪ab/v	book
t̪	t̪ʊkka:	Guess	kʰo:t̪a:	donkey	lət̪	leg

t̪ʰ	t̪ʰəm	Pillar	mət̪ʰt̪ʰa:	forehead	hət̪ʰ	hand
d̪	d̪a:l	Puls	ləd̪nã:	load	d̪ənd̪	teeth
t	ta:l	Branch	lʊtnã:	loot	kʰət	bed
tʰ	tʰɪl	Peak	sʊtʰtʰa:	right	sətʰ	sixty
d	da:da:	Hard	kʰədda:	ditch	la:d	affection
k	ko:l	Near	t̪əkɽa:	strong	tʊk	piece
kʰ	kʰən	Dig	məkʰkʰʊn	butter	lɪkʰ/lɪx	write
ɡ	ɡəbbʊn	Pregnant	ləɡnã:	relative	əɡ	fire

The analysis identifies twelve oral stops in Pahari. Table 2 shows that Pahari has 12 stops articulated from four different places of articulation: bilabial /p, b, pʰ/, dental /t̪, d̪, t̪ʰ/, alveolar /t, d, tʰ/ and velar /k, ɡ, kʰ/. It further shows that the stops have three way voicing contrast namely voiced /b, d̪, d, ɡ/, voiceless un-aspirated /p, t̪, t, k/ and voiceless aspirated /pʰ, t̪ʰ, tʰ, kʰ/. All the voiceless stops have contrast between un-aspirated and aspirated phonemes but voiced unaspirated phonemes do not have voiced aspirated counterparts. The voiced aspirated phonemes are generally found in Indo-Aryan languages. Hussain (2010) states that voiced aspirated plosives are found in Urdu which is the second language of Pahari speakers. The cognate words in Urdu that have voiced aspirated consonants at the word initial position are realized by low tone voiceless sounds in Pahari. Following table shows the correspondences of voiced aspirated consonants in Urdu as used in Pahari and Punjabi:

Table 6: Voiced aspirates in Urdu, Pahari, and Punjabi

Urdu	Pahari	Punjabi
bʰul 'forget'	pɦʊl [pʊ̀l] 'forget'	pɦʊl [pʊ̀l] 'forget'
ɡʰoɽa 'horse'	kɦo:ɽa: [kò:ɽa:] 'horse'	kɦoɽa [kòɽa] 'horse'
dʰol 'dust'	t̪ɦu:l [t̪ù:l] 'dust'	t̪ɦu:l [t̪ù:l] 'dust'

Urdu has voiceless fricative /h/ that does not exist in Pahari. Instead, Pahari has a tone producing voiced glottal consonant /ɦ/.

2.1.2.2. Fricatives

Fricatives are articulated when the active articulator comes close to the passive articulator but does not make a contact and the air is forced through a narrow passage between the two articles producing friction. Tables 7 and 8 illustrate the voicing contrast that exist between fricatives and their distribution word initially, word medially and word finally respectively.

Table 7: Voicing Contrast

f vs v	fi:ʈa:	tape	væs	control
s vs z	so:xa:	easy	zo:r	power
x vs ɣ	xu:n	blood	ɣəm	sorrow

Table 8: Word level distribution of the Phonemic Fricatives

	Initial		Medial		Final	
f	fɪʈna:	dispute	mæfʊl	gathering	sa:f	clean
v	ve:la:	time	ləssi:	leben	gæ:v	cow
s	sʊkka:	thin	ma:si:	aunt	ma:s	meat
z	zo:r	power	mezza:	enjoyment	ra:z	secret
ʃ	ʃək	doubt	rɪʃʈa:	relation	la:ʃ	dead body
x	xa:li:	empty	sexʈi:	hardship	li:x	lice
ɣ	ɣossa:	anger	tʃẽ:ɣʊn	tomato	ba:ɣ	garden
ɦ	hæl	plough	-------	------	------	------

There are eight fricatives produced from five places of articulation namely labio-dental /f, v/, alveolar/s, z/, palatal /ʃ/, velar /x, ɣ/ and glottal /ɦ/. There exists voicing contrast at three places of articulation i.e. labio-dental /f, v/, alveolar /s, z/ velar /x, ɣ/ whereas palatal /ʃ/ and glottal /ɦ/ don't have voicing contrast. This shows that Pahari has four voiceless fricatives /f, s, ʃ, x/ and four voiced fricatives /v, z, ɣ, ɦ/. The labio-dentals /f/ and /v/, the alveolar /s/ and /z/, the palatal /ʃ/ and the velars /x/ and /ɣ/ occur in all positions in Pahari (i.e. word initially, word medially and word finally). However, the distribution of glottal /ɦ/ is restricted in Pahari. The glottal fricative /ɦ/ occurs only at word initially.

2.1.2.3. Affricates

Affricates are produced like stops because they involve a closing stage, a closure stage and a release stage. The difference lies in the nature of release: for stops, the active articulator is lowered rapidly, allowing a sudden explosion of air, for affricates the active articulator remains close to the passive articulator, resulting in friction as the air passes through them (Davenport & Hannahs 2005).

Tables 9 and 10 illustrate the voicing contrast that exists between affricates and their distribution word initially, word medially and word finally respectively.

Table 9: Voicing Contrast

tʃ vs dʒ	tʃəm	kiss	dʒəm	Freeze
	rætʃnã:	pile up	rædʒnã:	Satiate
	kətʃ	glass	kədʒ	Cover

tʃ vs tʃʰ	tʃaːlaː	mischief	tʃʰaːlaː	Pimple
	kətʃtʃaː	raw	bətʃʰtʃʰaː	Calf
	vɪtʃ	in	rɪtʃʰ	Bear

Table 10: Word level distribution of the Phonemic Affricates

	Initial		Medial		Final	
tʃ	tʃəm	kiss	rɪmtʃaː	spoon	sætʃ	Truth
dʒ	dʒəpʰi:	fight	sɪdʒnã:	wet	kədʒ	cover
tʃʰ	tʃʰa:p	ring	mətʃʰtʃʰa:	soft	mʊtʃʰ	a lot of

Pahari has only three affricates, voiceless palatal /tʃ/, voiced palatal /dʒ/ and voiceless aspirated palatal /tʃʰ/. All three are articulated at palatal region. Like oral stops, unaspirated /tʃ, dʒ/ exhibit voicing contrast, but voiceless aspirated affricate /tʃʰ/ has no voiced counterpart. Urdu aspirated voiced affricate /dʒʰ/ is realized as low tone voiceless sound in Pahari. All the three affricates appear in all positions; word initially, word medially and word finally.

2.1.2.4. Nasals, Liquids and Glides

Nasals are produced by lowering the velum allowing the air to pass through nasal cavity. All the nasals are voiced. According to Davenport & Hannahs (2005) liquid is a cover term given to many 'l' and 'r' sounds (laterals and rhotics) in the languages of the world. They further clarify that liquids are produced with unhindered airflow but nonetheless involve some kind of obstruction in the oral tract. They are sonorant and are voiced. In the articulation of glides the active articulators come close to the passive articulators and instead of contact gradually glide away. Glides are more like vowels than consonants as there is no contact between the articulators, but they behave like consonants because they do not make syllable nuclei (Davenport & Hannahs 2005).

Table 11: Nasals, Liquids and Glides

m vs n	mũ:	mouth	nũ:	daughter in law
	rɪmtʃa:	spoon	kənda:	thorn
	t̪ʰəm	pillar	t̪ʰən	teats
n vs ŋ	NA	NA		
	lʊnnã:	cut grass	ləŋnã:	pass
	bən	jungle	məŋ	fiancée
l vs r	ləssi:	leben	rəssi	rope
	mælnã:	rub	mærnã:	die

	ba:l	hair	ba:r	Saturday
l vs ɽ	lo:pa:ɽa:		ɽi:k	seed
	ka:la:	black	ka:ɽa:	whose
	ko:l	near	kʰo:ɽ	cave
r vs ɽ	ri:k	particles of sand	ɽi:k	seed
	sa:ra:	whole	sa:ɽa:	pain
	ba:r	turn	ba:ɽ	fence
j vs v	jo:	this	vo:	that
	ro:peja:	rupee	əgva:l	lawn
	NA			

Table 12: Word level distribution of the Phonemic Nasals, Liquids and Glides

	Initial		**Medial**		**Final**	
m	ma:s	meat	rɪmtʃa:	spoon	t̪ʰəm	pillar
n	na:s	nostril	sɪnna:	wet	bən	jungle
ŋ	-----	------	ləŋnã:	pass	məŋ	fiancée
l	lo:ka:	light	bo:li:	rice cooked in milk	mʊl	cost
r	ro:tʃ	cheating	əxro:t	walnut	zo:r	power
ɽ	ɽi:k	seed	t̪a:ɽi:	clapping	pi:ɽ	pain
j	jo:	this	ma:ja:	song	-----	-----

Tables 11 and 12 demonstrate that Pahari has three nasal stops: bilabial /m/, alveolar /n/ and velar /ŋ/. Nasals are sonorant thus all are voiced. The bilabial /m/ and alveolar /n/ occur word initially, word medially and word finally but the velar nasal /ŋ/ does not occur word initially. There are three liquids in Pahari: lateral /l/, trill /r/ and alveolar flap /ɽ/. Pahari alveolar lateral /l/ appears word initially, word medially and word finally. /r/ is an alveolar trill in Pahari, with which the tongue blade vibrates repeatedly against the alveolar ridge (Davenport & Hannahs 2005). /r/ is pronounced in all contexts so it is rhotic. It occurs at word initially, medially and finally. It is pronounced both prevocalic and post vocalic positions as in [rotti] *'bread'* and [*bu:r*] *'fur'*. Retroflex flap /ɽ/ is also voiced and appears word initially, word medially and word finally, but its occurrence at word initial position is very limited. Pahari has one glide palatal /j/. It is voiced and occurs word initially and word medially.

3. Vowel System
Vowel inventories in the world's languages differ considerably in size. According to the

UPSID corpus of 317 languages (Maddieson 1984), there are approximately six contrastive vowel categories per language. Of the languages surveyed, 5.7% languages have only three vowel phonemes, while, at the other extreme, 4.1% have 17 or more contrastive vowel categories. The most common vowels are: /a/, /i/, /u/. On the basis of the number of vowels in a language, Maddieson (1984) divides the vowel inventories into: small vowel inventory (2-4), average vowel inventory (5-6) and large vowel inventory (7-14).

In the small amount of literature previously written about Pahari, only a short description (Karnai 2007) is found. It addresses the topic of vowels. In terms of vowel inventory, Pahari is an interesting case to study, as it has nineteen oral and nasal vowels (Karnai 2007). But he did not use IPA symbols for vowels, rather he uses Urdu alphabets. The following section aims to identify monophthongs, diphthongs and nasalised vowels providing minimal pairs, vowel contrasts and distribution of vowels in words.

3.1. Monophthongs

As given below, twelve oral vowels have been identified after phonemic analysis (Minimal pairs and distribution).

3.1.1. Minimal Pairs
Table 13: Minimal Pairs of Oral Vowels

i:	si:na	breast	sɪnna	wet
ɪ	lɪt̪	a piece of wood	lət̪	leg
e:	be:lnã:	to roll	belnã:	to ignite
e	tʰel	dislocate	t̪ʰɪl	steep mountain
æ:	mæ:l	dirt	mæl	rub
æ	t̪æl	fry	t̪ɪl	mole
a:	ba:l	hair	bəl	alright
ə	bəlnã:	to peel a tree	ba:lnã:	to ignite
o:	bolnã:	speak	bolanã:	to call someone
o	kʰos	hole	kʰəs	snatch
u:	pu:l	grassy sandals	pʊl	bridge
ʊ	ʊtʰt̪ʰa:	got up	ətʰt̪ʰa:	belt

3.1.2. Contrast of Oral Vowels
Table 14: Contrast of Oral Vowels

i: vs u:	i:di:	eid gift	u:r	there
	t̪i:li:	stick	t̪u: t̪	a kind of fruit
	xa:li:	empty	bu:	smell

ɪ vs ʊ	ɪt	brick	ʊllu:	owl
	tɪl	mole	pʰʊl	flower
		NA		
e: vs o:	e:ɽa:	like	o: tʰ	lip
	me:l	interaction	mo:ɽ	turn
	mɪle:	met	lo:	light
æ: vs a:	æ:si:	average	a:la:	to call someone
	mæ:l	dirt	ma:l	cattle
			pʰa:la:	kind of vegetable
æ vs ə	ælsi:	typical fruit	əl	kind of vegetable
	kʰæl	stop	bəl	fine/ok
		NA		

Table 15: Long – Short Contrast

i: vs ɪ	si:lnã:	to plough crops	sɪlnã:	to sew
e: vs e	be:lnã:	to roll	belnã:	rolling
æ: vs æ	mæ:l	dirt	mæl	to rub
a: vs ə	ba:n	rope	bən	pond
o: vs o	bo:lnã:	to speak	bolã:nã:	to call
u: vs ʊ	pu:l	sandal made of grass	pʊl	bridge

3.1.3. Word Level Distribution
Table 16: Word level distribution of oral vowels

	Initial		Medial		Final	
i:	i:r	here	ʈi:li:	match stick	ma:ɽi:	mine
ɪ	ɪ tti:	sport-stick	bɪlli:	cat	----	----
e:	e:	sirrah	ʈe;l	oil	pẽse:	money
e	eʈæn	here	tʰelnã:	dislocate	----	----
æ:	æ:ve	useless	pæ:se:	money	ræ:	live

æ	æɽknã:	stuck	t̪æl	fry	----	----
a:	a:xa:ɽa:	a kind of fruit	ka:ɣ	crow	tʃʰotta:	short
ə	əg	fire	nək	nose	----	----
o:	o:xa:	difficult	tʃo:ki:	a stool	lo:	light
o	opla:t̪a:	superficial	motta:	fat	----	----
u:	u:r	there	bu:s	drizzling	a:lu:	potato
ʊ	ʊbbi	a kind of bird	bʊt̪t̪i:	mark	----	----

The above Table 16 shows that Pahari has twelve oral vowels. The vowel system basically consists of six basic vowels to which a distinction of length is applied. There is a quantitative length difference between adjacent vowel pairs (e.g. [i:] ~ [ɪ], [u:] ~ [ʊ]), [e:] ~ [e], [o:] ~ [o], [æ:] ~ [æ] and [ɑ:] ~ [ə]), but these vowels are also distinguishable on the basis of vowel quality as well. Minimal pairs in Table 3.1 and the distribution of vowel sounds in the words in Table 3.2 shows that the distinction between long and short pairs is contrasting. The analysis further shows that long vowels /a:, æ:, u:, i:, o:, e:/ occur at word initial, medial and final position, while short vowels /ɪ, e, æ, ə, o, ʊ/ occur only at word initial and medial position. It indicates that Pahari words do not end with a short vowel. The research on other local languages like Punjabi and Urdu show ten vowel systems where this vowel length contrast is not phonemic. In this respect, Pahari is unique.

Table 17: Oral Vowel Phonemes

	Front	Central	Back
Close	i: , ɪ		ʊ, u:
Mid	e: , e		o , o:
	æ: , æ	ə	
Open		a:	

3.2. Diphthongs

The majority of languages of the world do not use diphthongs in their phonological inventory (Laver, 1994). Clark & Yallop (1992) state "if a language distinguishes more than ten vowels, then it may be exploiting diphthongal combinations". Karnai (2007) discusses the possibility of diphthongs in Pahari. He gives a list of some words on the basis of which, as he states, a study can be taken in future to identify diphthongs in Pahari. As discussed above, Pahari has twelve oral and four nasal vowels, it is expected that Pahari makes use of diphthongs as well.

3.2.1. Minimal Pairs
Table 18: Minimal Pairs

ɔɪ	klɔɪ	a slab of stone	klaɪ	wrist
oə	lɔɪ	Iron	lɔɪ	quilt made of wood
oe	soe	a kind of vegetable	sui	needle
aɪ	paɪ	a penny	peo	father
ae	pae	a typical local soup	paɪ	a penny
ao	t̪ao	Twist	t̪aɪ	aunt

3.2.2. Word level distribution

Table 19: World level distribution of diphthongs in Pahari

	Initial		Medial		Final	
ɔɪ	-----	-----	-----	-----	lɔɪ	quilt made of wood
					klɔɪ	a slab of stone
oə	-----	------	-----	-----	loə	iron
					tʃoə	a small pond
oe	-----	-----	-----	-----	soe	a kind of vegetable
					goe	dung
aɪ	-----	-----	-----	-----	kaɪ	a kind of tree
					paɪ	a penny
ae	-----	-----	-----	-----	pae	a typical local soup
					tʃopae	animals with four legs
ao	-----	------	-----	-----	t̪ao	twist
					plao	rice cooked in onion

Table 18 shows the minimal pairs for Pahari diphthongs. There are 6 diphthongs identified on the basis of minimal pairs. It was quite difficult to establish minimal pairs, as Pahari gender and number markers are based on vowels changes. When they are added with an open syllable, it is always not sure whether the syllable is hiatus or diphthong. In Pahari, /i:/ is feminine singular marker, /a:/ is masculine singular marker and /e:/ is masculine plural marker. Most of the minimal pairs discussed are based on root words.

3.3. Nasalization

Phonetic nasalization can take place in the vicinity of nasal consonants (Cohn 1990; Ladefoged & Maddieson 1996). Many languages, e.g. English, exhibit phonetic nasalization. Nasalization is also phonemic in some languages of the world e.g. French. Chang (2008) claims that in Taiwanese oral-nasal distinction is phonemic, whereas oral and nasal vowels

can distinguish minimal pairs, for example, [i] *'to play gamble'* and [ĩ] *'yard'*; [pe] *'father'* and [pẽ] *'sick'*.

Regarding the source of nasal vowels, many arguments are put forward by many scholars. Greenberg (1966) states that nasalized vowels derive from earlier states of oral vowels in proximity with nasal consonants. According to him, the typical sequence of event from one point in the evolution of nasalized vowels to the final stage can be represented as: VN > ṼN > ṼN-coda is deleted. It then implies that an oral vowel assimilates the nasal feature of a syllable-final N and the latter (i.e. the N-coda) is deleted. The following data show that nasalization is allophonic as well as Phonemic in Pahari.

3.3.1. Minimal Pairs
Table 20: Minimal Pairs of Nasalized Vowels

ĩ:	pĩ:	swing	pi:	drink
ẽ:	ẽːt̪aːr	Sunday	oːt̪aːr	drop
ã:	bã:	arms	ba:	arm
ũ:	tʃũːtiː	pinch	tʃoːtiː	peak

Table 21: Contrast of oral and nasalized vowels

i: vs ĩ̃ :	maːsiː	Aunt	maːxi:̃	honey
e: vs ẽ:	beːteː	sons	Kẽteː	
a: vs ã:	aːsraː	support	ã:xaːlnã:	clean
u: vs ũ:	bu:	bad smell	aːrũ:	peach

This suggests that nasalization in long vowels is phonemic in Pahari as four out of six long vowels have their nasal counterparts. No example of contrasts between /æ:/ and /o:/ and their nasal counterparts is found in the data corpus.

Table 22: Nasals vowels in CV syllables

ĩ:	pĩːze	pieces of clothes	maːxĩː	honey
ẽ:	ẽːt̪ ar	Sunday	æːvẽ:	useless
ã:	t̪ã̪ːzuːr	oven	grã:	village
ũ:	tʃ ũːti	pinch	dʒũ:	lice

The above examples show that Pahari nasalization is phonemic because oral long vowels have their nasal counterparts in different contexts. On the other hand, short vowels show allophonic nasalization. In contrast to this, short oral vowels don't have their nasal counterparts, but in nasal context, three short vowels /ɪ, ə, ʊ/ have their nasalized counterparts.

Table 23: Oral and Nasalized contrast

ɪ vs ɪ̃	lɪʈ	A small piece of wood	lĩm	nosy
ə vs ə̃	ətt	A fencing wall	ə̃m	mango
ʊ vs ʊ̃	gʊp	darkness	gʊ̃m	lost

3.3.2. Regressive Nasalization

Several languages exhibit regressive nasalization of vowels before nasal consonants. Narang & Becker (1971) claim that Hindi-Urdu exhibit regressive nasalization in _____N# and _____ NC environments. In Pahari, oral vowels are nasalized before a nasal consonant as shown in Table 3.11. VN and CVN syllables are legal in Pahari.

Table 24: VN and CVN syllables in Pahari

ə̃m	VN	mango
kə̃n	CVN	ear
mə̃n	CVN	40 kg

3.3.3. Progressive Nasalization

Schourop (1972) states that a number of languages (English, Portuguese, Yoruba, etc.) show progressive nasalization. Progressive Nasalization occurs in NV or NVC environments. Languages with progressive nasalization do not necessarily inhibit regressive assimilation and vice versa. Both types are attested for Portuguese, Icelandic and Thai (Schourop, 1972). Pahari data does not show progressive nasalization; oral vowels are not nasalized in NVC context as in [na:l] *'with'*. This shows that close syllables do not show progressive nasalization. On the other hand, nasalization in open syllables is phonemic as in [ma̰ː] 'mother'. Phonemic status of nasal vowels is discussed in the following section.

3.3.4. Nasalization and Nasal Loss

In Pahari, there are instances where apparently there is no nasal consonant but vowels are nasalized as in pĩ:ze,a:rũ:, gã:nde, gẽ:ʈi: This sort of nasalization process which causes VN sequence to be released as long nasalized vowel occurs in many languages. Lightner (1970) considers three alternative analyses for this phenomenon:

- Nasalization of vowel; loss of nasal; compensatory lengthening of the vowel.
- Nasalization of the vowel; lengthening of vowel; loss of the nasal.
- Nasalization of vowel; complete assimilation of the nasal to the nasalization of the vowel.

Schourop (1972) supports the compensatory lengthening of the vowel and presents the principle of migration in nasalization. According to this principle, nasals are lost to the left, they are lost through migration of the oral closure component of the nasal towards the following consonant or word boundary, leaving the nasalization behind on the vowel, as the information bearing component.

In Pahari final /n/ loss is a common phenomenon, almost all verbs have final vowel nasalized as in *lã:nã:,pã:nã:,sĩ:nã:*. This sort of nasalization occurs at word initial, medial and final position of words, but always at syllable final position. The data show that there are four

nasalized vowels where /n/ is lost. These are all long vowels /ã:, ẽ:, ã:, ũ:/. The examples are: [a:rũ:] 'peach' ; [gẽ:ʈi:] 'digging tool'; [lã:ɣa:r] 'badly torn clothes'; [ma:xĩ:] 'honey'.

As it is clear from the above data presented, four Pahari nasalized vowels /ã:, ẽ:, ã:, ũ:/ occur without nasal context, so it is argued here that nasalization in Pahari is Phonemic as well. On the other hand, data presented in 3.3.2 show those vowels preceding nasals are nasalised, so they exhibit regressive nasalization. Progressive nasalization is not allowed in Pahari. In addition to this allophonic nasalization, examples in 3.3.4 indicate that there is also phonemic nasalization caused by the loss of the historical syllable final nasals. This type on nasalization is clearly heard, because these phonemic nasal vowels are typically long. All long oral vowels have their nasal counterparts except /æ:/and /o:/. As the focus of the study is to give a descriptive account of the language, so it does not deal with the loss of N- coda in detail. There is a need to conduct a diachronic study in future to explore the loss of N- coda in Pahari.

Based on the contrastive examples shown in Tables 20, 21 and 22, the study posits the nasal phonemes in Table 25.

Table 25: Nasal Vowels in Pahari

	Front	Central	Back
Close	ĩ:		ũ:
Mid	ẽ:		
Open		ã:	

4. Conclusion

As mentioned earlier, the chapter started with two main aims: First, was to introduce the language, and second was to present its consonant and vowel inventories. The first aim was achieved by discussing the historical background, language family, geography, dialects, population, sociolinguistic situation and steps being taken to promote Pahari. Second aim was achieved, as the study identifies and establishes Pahari consonant and vowel inventories after extensive phonemic analysis which includes minimal pairs, voicing and distribution of sounds word initially, medially and finally. It is established that Pahari has 30 consonants articulated from seven places of articulation namely bilabial, labio-dental, dental, alveolar, palatal, velar and glottal. Three way voicing contrast (i.e. voiceless un-aspirated, voiceless aspirated and voiced un-aspirated) is also found in Pahari. Unlike Urdu, Pahari does not have aspirated voiced consonants, rather cognate words with voiced aspirated consonants surface in Pahari as voiceless unaspirated counterparts with low tone. The study also identifies 12 oral vowels, 4 nasal vowels and 6 diphthongs. It is also found that nasalization is both phonemic and allophonic in Pahari.

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