"A Comparative Analysis of Retroflexion in Romani and Lasi"

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ABSTRACT

The purpose of this paper is to bring forward the phonological processes taking place in Romani compared to Lasi. Both languages are related to Indo Aryan Branch of Indo-European Family. Phonological process is a vast term having sub processes into it, out of which only retroflexion in Romani as compared to Lasi, is descriptively analyzed through Optimality Theory. Feature geometry is also used to explain the features involved and certain changes into features which bring forward this phonological process. This study focuses on phonological changes occurring in Romani compared to Lasi dialect of Sindhi. Moreover, this study reveals that Romani language does not accept the phonological rules of Lasi. The analysis of the data shows that pattern of the recipient language in the retroflexion process, Romani speakers do not speak retroflex sounds; it seems that either Roma people loss retroflexion or they do not have in their phonetic inventory, so they replace retroflex nasal /ŋ/ with alveolar nasal /n/. The Basic aim of this study is to find out the reasons behind the phonological changes in Romani as compared to Lasi.

Introduction

This study aims to explore different phonological processes of Romani as compared to Lasi. Though language is a universal phenomenon, however every language of the world has its own phonological rules and limitations. When two different languages come into contact, each of them tries to impose its phonological rules over the other, but it is not necessary for a language to conform to the rules of the source language. In this study Romani is considered the target language and Lasi is the source language. Phonological processes are cross linguistically a common process. Before we proceed to investigate phonological processes in Romani let us discuss Phonological processes and its types.

Romani Language

Romani belongs to Indo-Aryan group of Indo-European Family. Romani is the language of the Roma people, who currently exist in Europe and the America, although not in Asia. Commonly, Romani is recognized to be a Central Indo-Aryan language. The Roma language is the obvious sign of origin of the Romani population. Gypsies' rich history is familiarized because of linguistics. The history of gypsies' people was distinctive from people of Europe in terms of race and culture, however, the similarity was found between the spoken language of Gypsies and Sanskrit in comparative philology in 18th Century. The prime cause of Gypsies' migration from their native land is unknown and age of the first migration is also unknown. The primordial Gypsies' history leaves no identification. The language is very much linked to early modern languages of northern and central India, who separated from them in the 2nd half of the 1st millennium CE (Matras, 2011, p. 1). This is generally the period when the family of Roma population departed from India. After some time, they reached southeastern Europe and Anatolia, afterwards they scattered into different areas of the European continent.

Romani language is the one and single Indo Aryan language (linked to Sindhi, Hindi, Punjabi, Bengali, Saraiki and Kashmiri etc.) that has been spoken totally in Europe since the Middle Ages. For different foundation, no New Indo Aryan language can be said to be significantly associated to Romani. Turner (1926) describes that Romani shares a mix sound changes with every Central Indo Aryan language, not at all only with single language, as a result of that Romani is not vastly connected to any single Central Indo Aryan language. According to Miklosic the Roma first moved to Afghanistan and Persia, where they remained for a long time. After that they went over from Iran to Armenia, Turkey, Greece and Byzantium. One more group of Roma traveled to Syria, Egypt, North Africa and Spain.

Sindhi Language

Sindhi belongs to Indo-Aryan of Indo-European Family (Jatoi, 1996; Jennifer, 2006). Sindhi is the language of Sindh, which is currently a province of Pakistan. The remaining speakers are found around

many areas of the world (mostly other parts of India) to which members of an ethnic group travelled when Sindh came to be a part of Pakistan through the separation of British India in 1947. Sindhi belongs to Indo-Aryan group of Indo-European family, associated to the languages of the northwest Indian subcontinent (Mahar & Memon, 2009). The Sindhi Language is commonly categorized into six main dialects (Keerio, 2010): Vicholi, Thari, Laari, Sarili/siro, Kachi and Lasi. The current study is related with Lasi dialect of Sindhi, so the background of this dialect is further detailed.

The Lasi Dialect

Lasi dialect is spoken in Lasbela district. In the state of Lasbela, the main language is a form of Sindhi called Lasi (Grierson, 1919, p. 158). Lasbela was a princely state until 1954. It was separated from Kalat on 30 June 1954 after getting district status. The name originates from combination of two terms Las (plain), and Bela (Jungle). The district is sharing its borders in the west with Gwadar and Awaran, to the east Sindh Province, and in the north with Khuzdar. The territory consists of a region of 7,048 square miles (18,254 sq. k) in the south east of Balochistan with a wide coastline to the south (Hazara, 2011). Lasi is different from other dialects as Baloch says that there is always separate color and effect of the area on the language (Baloch, 2008, p. 73). Lasbela became the linguistic part of Sindh politically, socially, religiously, educationally and literally. Sindhi spoken at Sibi is known as Fraki. Similarly, Sindhi

spoken at Las is known as Lasi (Allana, 1995).

Objectives of the study

The objectives of the study are to find out and explore different structural and phonological changes and the reasons that cause to change Romani phonemes as compared to Lasi. According to researcher's knowledge no research has yet been done in Romani language regarding phonological processes of Lasi using Optimality Theory (OT).

Research questions

This study attempts to answer the following Questions:

1. Is retroflexion operative in Romani language?
2. How is Romani different from Lasi with reference to this phonological process?

Review Of Literature
Phonological Processes

Each language has a unique phonological system that makes use of phonological process that is specific to itself. The types of processes, however, are finite. This explains the universality of the processes and the phonological systems they give rise to. Many disciplines, such as psycho-neurolinguistics, historical linguistics, language acquisition, etc., deal with phonology. Although they differ in their approaches, the processes are common to them. For a phonologist, it is thus necessary to know them to describe them in those disciplines. In the study of the phonological

system of a language, students are expected to name the phonological processes that they discover while their study. Phonological rules as mappings between two different levels of sounds representation (John Goldsmith, 1995). Phonological processes are "relatively natural" and "automatic" and are found commonly in the world's languages (Spencer, 1996, p. 45). According to Hayes (2009), phonological processes are "generalizations" about the different ways a sound can be uttered in different situations. Phonological processes are variations between sounds in related words, which have been categorized as instances of retroflection, desperation, insertion, deletion, Substitution, metathesis, debucalization, spirantiztion, and many more. A great majority of sound change occurs due to the phonetic motivation. Many of these processes occur within words and many others come across the word boundary (Ibid, p. 201).

Retroflexion

The word retroflex originates from Latin word rētrōflexus, it is a past participle of rētrōflectere, rētrō means back and flectere means bend, turn retrofex alludes to something specifically twisted in reverse. In linguistics retroflexe indicates a set of speech sounds that are produced by curling or twisting the tip of the tongue in reverse. The term retroflexion refers to the "turning back" or "curling in" of the tip of the tongue while producing apical consonants, or some-what rarely, vowel sounds as well. The point of articulation and the amount of

curling of the tip of the tongue are two other variables occurring in the articulation of the retroflexed sounds. The point of articulation also appears to vary from dental to medio palatal (Thomas, 1971).

Hamann (2003) identifies several articulatory properties of retroflexion, three of which correspond to distinctive features commonly employed in the literature: posteriority ([–anterior]), apicality ([–distributed]) and retraction ([+back]). Apicality and posteriority correspond to [–distributed] and [–anterior], respectively. The property of tongue retraction corresponds to the tongue body feature [+back] (Hamann 2003, p. 36). Various people have proposed [+back] for retroflexes because the pattern with back vowels in many languages (e.g., Lin, 1989; Gnanadesikan, 1994; Hamann, 2002, 2003; Boersma & Hamann, 2005). We find patterns of retroflexion like /t/ becomes /ʈ / in context a, o, u, where a denti-alveolar becomes retroflex in the context of back vowels (see Hamann 2003: 90ff.). There are two views on the relationship between retroflexion and tongue retraction in the literature. One view suggests that retroflexes are only preferentially backed, for ease of articulation (e.g., Bhat, 1974; Flemming, 2003). A second view argues that retroflexes are inherently backed in much the same way that Hall (1997) sees palato-alveolars as inherently fronted.

Retroflex consonants are typically described as postalveolar. However, palatographic studies of Indo-Aryan

languages have discovered that there is important intra speaker distinction in their place of pronunciation. This variation is conditioned by vocalic context. For instance, a study by Khatiwada (2007) exposed that the retroflex stops of Nepali are post-alveolar (and apical or sub-apical) only in the context of back vowels and apical alveolar in the context of front vowels.

(1) Variation of retroflex / ʈ / in Nepali

(i)   mu[ʈ]u   'heart'
(ii)   ba[ʈ]a   'vessel'
(iii) mi[t]I   (nonsense word)

Dixit & Flege (1991) found that the degree of retroflexion declines thoroughly from the context of /a/ to /u/ to /i/ and that the Hindi' retroflex stops range after post alveolar to dental. By comparison Hindi dental stops, show little or no variation based on vocalic context (Dixit, 1990). The same pattern of variation has been reported in Sinhala. Gair and Paolillo (1997, p. 11) reported that the retroflex consonants of Sinhala are "pronounced as retroflex when followed or preceded via back vowels, and as alveolar in most other environments" (cf., Karunatillake 1992, p. x).

Another source of evidence that bears on the phonological representation of retroflexes comes from the domain of loanword adaptation. All languages of Indo-Aryan that keep dissimilarity between retroflex and dental stops exhibit a consistent pattern in their adaptation of

English loanwords: the apical alveolar stops of English are always adapted as retroflex, not as dental. This is exemplified below with representative examples from Hindi (Ohala, 1978; Koshal, 1978).

			English	Hindi
(2) T > ʈ		(i)	hotel	/hoʈəl/
		(ii)	taxi	/ʈæksi/
		(iii)	coat	/koʈ /
(3) d > ɖ		(i)	soda	/soɖa/
		(ii)	doctor	/ɖaktər/
		(iii)	pad	/pɛɖ/

Retroflexion is a familiar areal feature of South Asia. Utmost South Asian languages, irrespective of their genetic connection, contrast retroflex consonants with their non-retroflex dental and/or alveolar counterparts (Ramanujan and Masica, 1969; Emeneau, 1969; Bhat, 1973). Corsslinguistically, the greatest common diachronic source of retroflexion is the class of liquids, most notably rhotics (*r*-sounds) but also laterals (*l*-sounds) (Bhat, 1973; Hamann, 2003, 2005). Similarly, retroflexion has developed via progressive assimilation from liquids and back vowels in Indo-Aryan (Misra, 1967; Bhat, 1973; Hamp, 1996; Tikkanen, 1999) and Australian (Dixon, 2002), South Asian languages provide important insight into the origins of retroflex phonotactics. The evidence from South Asia indicates that different (and even contradictory) phonotactic restrictions on retroflexion can emerge as a straight effect of the development of retroflexion in a language, the Dravidian type pattern in particular, which avoids initial retroflexion, results

directly from progressive assimilation in liquid plus consonant sequences (e.g., -rt > -rʈ > -ʈ), while the Tibeto-Burman type pattern, which avoids retroflexion in codas, results directly from regressive assimilation in consonant and liquid sequences (e.g., tr- > ʈr- > ʈ-).

Sanskrit an Old Indo-Aryan had triple coronal framework: retroflex, palatal, dental. In a word retroflex consonant didn't take place at first (Masica, 1991; Schwarzschild, 1973). The Several western Himalayas' Tibeto-Burman Languages differentiate retroflex and dental plosives. From syllable codas these lot of retroflex segments are disallowed. Dental /t̪/ is normally acknowledged while glottal [ʔ] in codas of syllable in Lhomi (Vesalainen and Vesalainen, 1976).

(4) Lhomi, retroflex and Dental plosives in onsets of syllable (that is, CV positions of prevocalic)

	Retroflex /ʈ/	English	Dental /t̪/	English
(i)	pʰi̥.ʈa	Wild cat	sà. t̪u	To eat
(ii)	ʈák	Bbutton	t̪á	Horse
(iii)	sip.ʈok	Comb of chicken	sóp. t̪o k	Hring

(5) There are no retroflex consonants in syllable codas in Lhomi specifically, VC positions of postvocalic.

	Retroflex /ʈ/	Dental /t̪/	
(i)	pèʈ	pèt̪	is
(ii)	sóriʈ	sórit̪	stomach (hon.)
(iii)	líʈ.maŋ	lít̪.maŋ	He did not come

A similar example is validated in other western Himalayas' Tibeto-Burman dialects including: Nar Phu (Noonan, 2003), Tamang (Mazaudon, 2003), Tshangla (Andvik, 2003), Dolpo (Kevin Kopp, p.c.), Dolakha Newar (Genetti, 2007), and Humla (Wilde, 2001), amongst others.

Retroflexion initially rose phonically in the kind of fluids and spread out fluids to completing plosives and nasals dynamic osmosis crosswise over morpheme limits (Tikkanen, 1999; Levitt, 2010; Zvelebil, 1970, pp. 101-104, 174-175).

(6) Retroflex plosives from Cr-groupings in Tibetan (Bhat, 1973, p. 34)

Classic Tibetan composed
Central Tibetan   Gloss

	Classic Tibetan composed		Central Tibetan	Gloss
(i)	[drung-du]	⟶	/ʈung-du/	before
(ii)	[grod-pa]	⟶	/d̥ö-pa/	belly
(iii)	[phru-gu]	⟶	/ʈʰu-gu /	child

There are many instances in which /r/ induce retroflexion in an immediately following consonant. In Middle Indo-Aryan, dental stops became retroflexed after /r/ (Burrow, 1955). In Yidgha (Iranian), /rt/, /rn/, and /rs/ became /ʈ/, /ɳ/, and /ʂ/ respectively (Morgenstierne, 1938). In Sanglechi (Iranian), /rt/ and /rd/ became /ɭ/, and /rn/ became /ɳ/ and later /ɭ/ (Morgenstierne, 1938). In Pashi (Iranian) /r/ plus dental stop results in a retroflexed consonant, but dental stop plus /r/ remains unaltered (Morgenstierne, 1938).

In certain Australian languages like Tiwi, Tindjiparndi and Ngarluma, /rt/ becomes /ʈ/ (Oates, 1967). In Burera (Australian), /t/, /n/, /1/ and /r/ are retroflexed after /r/ (Glasgow, 1967). In Kunjen (Paman family, Australia), /t/ and /d/ are retroflexed after /r/ (Sommer, 1969). In Trondheim Norwegian /t/, /d/, /n/, /1/ are retroflexed after /r/, and /r/ is deleted (Vanvik, 1966). A similar change took place in Swedish too. In Faroese (Indo European) /rs/ became /ʂ/ finally or before consonants (Lockwood, 1955).

The changes that affect the retroflex stops intervocally are markedly different from those that affect other intervocalic stops. Generally, stops tend to become spirantized and then get elided in the intervocalic position. However, as seen in Middle Indo-Aryan and certain Munda and Dravidian languages, the retroflex stops intervocally tend to become flaps, and change further to taps, trills or laterals. In certain Australian languages such as Mantjiltjara and Wal-Matjari and in the Melanesian Iai the change of intervocalic retroflexed stop to flap or tap corresponds to the spirantization of non-retroflexed stops in that position. Similarly, in the Panjgur dialect of Balochi intervocalic /d/ becomes /ʒ/ but /ɖ/ becomes /r/.

However, such reconstructions of retroflexion are becoming increasingly suspicious. The tendency, a few decades back, was to reconstruct a full series of retroflexed consonants even when it is found only marginally in the daughter languages. Such a tendency could be seen in the reconstructions of Common Indonesian (Dempwolff), Ural-Altaic (Collinder), Bantu (Meinhof), and other Languages. The recent tendency, however, is to suspect such reconstructions (see Stampe,1966 for Munda; Oates,1967 for Austra-Lian; Handricourt, 1965 for Austronesian; Raun, 1971 for Finno-Ugric; Kaufman, 1969 for Mayan).The geographical contiguity of languages with retroflexed sounds appears to indicate that this recent trend in reconstruction is moving in the right direction: languages rarely lose retroflexion once they acquire it, and hence it is easier to postulate its introduction into a language rather than its loss from a daughter language.

In Armenian (Allen, 1950) and in Pitta Pitta (Blakeand Breen, 1971) loss of retroflexion is said to occur in rapid speech. In Cham (Vietnam) retroflexion is confined to men's speech only: /ʈ/ of men's speech corresponds to ty of women's speech (Blood, 1967). In the Comachuen dialect of Taras-Can /ʈ/ becoming /l/ is a regular change for women and children (Friedrich, 1971). In San Felipe dialect of Otomi, a dimunitive style of speech exists (used when talking to a small child) in which all sounds in a word are retroflexed (Bartholomew, 1960).

The most commonly occurring retroflexed sounds (from the point of view of languages) are the flap, voiced and voiceless stop, fricative or sibilant (mainly voiceless), nasal, lateral and affricate.

Secondly, the text frequency of retroflexed sounds in the following five languages examined is considerably lower than that of the corresponding non-retroflexed consonants: Bengali (Ferguson, 1960), Ostyak (Gulya, 1966), Marathi (Bhagawat, 1961), Tulu (Bhat, 1967), Hindi (Ghatage, 1964). Thirdly, the total number of retroflexed consonants is never greater than that of the non-retroflexed apical consonants in any of the languages examined.

According to Chomsky and Halle (1968), the distinction between retroflexed and non-retroflexed (alveolar) obstruents could be correlated with a distinction in the articulators used: tongue-tip (- distributed) for the former and blade (+distributed) for the latter. Advance cases for such an improvement can be found in Munji (SkjærvΘ, 1989a), and in Sanglici, Iskasmi, and Wakhi (Payne, 1989). The Sindhi an Indo-Aryan language retroflexes created from dentals prior /r/, however at this time the rhotic continued, Old Indo-Aryan draka means grape or traya means 'three' replaced to Sindhi [ɖra: kha] and [ʈre:] (Masica, 1991, p. 210).

A rhotics creating an alteration to its left segment into a retroflex (such as in Swedish, Norwegian, Watjarri and Ndjebbana) is a process that occurs cross linguistically frequently compared with a rhotic triggering a change to its right segment, such as in the Indo-Aryan Sindhi & the Iranian Pashto. The Cham, communicated in Vietnam is additional

examples for this last assimilatory way (Bhat, 1973, p. 36), in those retroflexes were historically presented through a front coronal and next /r/. The progressions that happened at this point were /sr/ > /ʂ/ and /tr/ > /ʈ/, /tr/ > /ʈ. In few Dravidian language' Southern dialects like Tamil a comparable procedure can be seen, which acknowledges literately Tamil /nr/ in place of [ɳɖ], e.g., /mu: nru/ means 'three' [mu: ɳɖu] or in Ceylon Tamil, anru means 'that day' is [aɳɖu] (Zvelebil, 1970, p. 173).

According to Bhat (1973, p. 40), the retroflexion of the voiced coronal stops sometimes found in some central African languages, by a following /r/ this retroflexion is partly triggered as e.g., where the stops in /dr/ & /tr/ could retroflexed except removal of the rhotic in the Nilo Saharan Lugbara. He presents models of this diachronic progress of retroflex could observed in the Tibetan' Sino-Tibetan language and its nearly linked adjacent languages, which occurred in first consonant clusters of syllables, (Ibid, p. 34). For example

(7)

	Class. Tibetan	Gloss	Recent languages	
(i)	/drung-du/	before	Central Tibetan	/ʈung-du/
(ii)	/grod-pa/	belly	Central Tibetan	/dʰΘ-pa/
(iii)	/gru/	ship	Jad	/ʈu/
(iv)	/pʰru-gu/	child	Central Tibetan	/ʈʰu-gu/
(v)	/kʰron-pa/	a spring	Spiti	/ʈʰon-pa/
(vi)	/bran/	slave	Jad	/ʈan/
(vii)	/skra/	hair	Jad	/ʈa/
(viii)	/krad-pa/	leather	Spiti	/ʈad-pa/

In these examples, velars and labials plus rhotics changed into a retroflex, but not just coronals plus rhotics. As a matter of first importance the segment can be laminal altered in the rhotic environment doesn't have to be an apical coronal, for example in Swedish and Norwegian or even non-coronal suggest by the progresses in the Tibetan languages. Next Svantesson's dialect of Southern Swedish shows indication that the rhotic triggering is the alteration can be non-coronal.

Proto-Dravidian does not have alveolar & retroflex consonants in word starting place, namely not any word starts with these /ɳ/, /ɭ/, /ɻ/, /r/, /ɽ/, /ʈ/, /ʈ/ (Zvelebil 1970, p. 77). Many recent Dravidian languages hold this conduct, for example Toda (Shalev, et al., 1993 p. 101), Koḍagu (Ebert, 1996), Iruḻa (Diffloth, 1975) and Tamil (Christdas, 1988). The Punjabi an Indo Aryan language allows characters in starting place of word, separately from the retroflex nasal [ɳ] and the liquids [ɭ, ɻ]. In any case, Punjabi, permits [ɭ] and [ɻ] definite individuals in word-inward three consonantal collections for example [lombɻi:] 'fox' and word-last clusters for example [nɖ, kʈ, rɖ, lʈ] (Bhatia, 1993, p. 340).

In a Dravidian language of Kanarese or Kannada, spoken in the South India's territory Karnataka, the arrangements of a retroflex (stop, nasal or lateral) and a nonretroflex coronal frequently demonstrate progressive adjustment of the non_retroflex (Schiffman, 1983, pp. 8, 16). The examples demonstrate bellow.

(8)

(i)	/he:ɭ-al-ila/	[he:ɭɭila]	did not say
(ii)	/ka:ɳ-d-e/	[ka:ɳɖə]	I saw
(iii)	/koɭ-d-e/	[koɭɖə]	I obtained
(iv)	/tɔʈɭilu/	[tɔʈɭlu]	cradle

Research Methodology

Research methodology is a way to find out answers to research questions. It is a procedure which gives a systematic way to answer the research problem. It provides scientific way for studying; how a research is conducted scientifically. Research methodology is the back bone of the study. The subject for the current research is the Lasi language which will be compared to Romani. The researcher himself is Lasi speaker of Sindhi dialect. For the Romani language the researcher will use online dictionary of Angloromani http://romani.humanities.manchester.ac.uk/angloromani/dictionary.html. In this research primary data are collected by the researcher as a native speaker of Lasi.

The research is a descriptive and analytic type of study, which defines, elaborates and analyses its findings qualitatively. A Romani dictionary was also found and concerned, and help has been taken from the existing literature including papers and dictionaries of Romani language. The researcher finds out such Romani words with their English spelling and meaning from Romani dictionaries which are related to Lasi words. To interpret and analyze the differences between phonemes of Lasi and

Romani language, and to discuss and analyze the results the researcher has used Optimality Theory which is the most compatible tool in phonological studies and has been used in many cases of Phonological studies worldwide. There are many theories to describe and analyze data, in which feature geometry and Optimality Theory are very important. Both are briefly defined in the following sections.

Optimality Theory

Optimality Theory is a theory that describes how a language resolves its phonological conflicts. OT is the linguistic theory of 1990s. In April 1991 OT was introduced at the University of Arizona phonology conference in Tucson by Paul Smolensky and Alan Prince. They presented a paper entitled 'Optimality' (Archangeli, 1997, p. 1; Arsenault, 2012). OT is designed to show the ways how a language deals with foreign words that are not grammatically attested in a specific language. Through OT we can distinguish the ranking of constraints within a language.

Optimality Theory is designed as other linguistic theories containing an input and an output. The input goes through some stages to give an output, which sometimes is not as the input is. OT explains the relationship between input and output through a complete procedure which have a generator and an evaluator. There is a sort of Generator (GEN) that creates many possible candidates for an input and then the next mechanism called evaluator

(EVAL) selects one among those candidates which is more economic and optimal and rejects all others. An optimal candidate is selected on the bases of less violation of the existing constraints (CON). Every language has its own ranking of these constraints, the loser candidates violate higher ranked constraints and the winner is the one which has violated lower ranked constraint. The following diagram illustrates this.
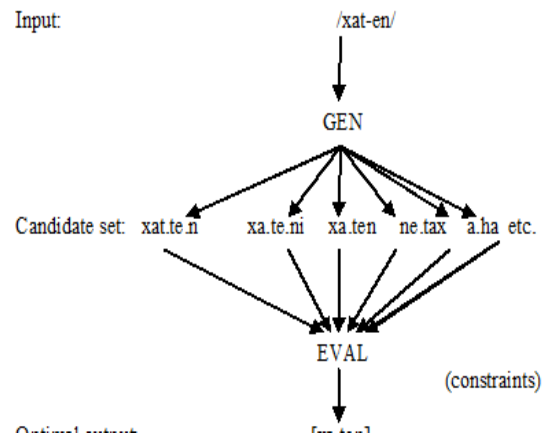

Figure 3.1: A Schematic of OT (Archangeli, 1997, p. 14)

GEN, as can be seen in the above diagram, is a creator, which creates different candidates by adding, deleting or re syllabifying. GEN is free to construct as many candidates as possible but the relevance to the input is essential. All these candidates go through a set of constraints. Constraints are universal. There are two main families of Constraints in Optimality Theory that is Faithfulness and Markedness constraints. The markedness constraints

want that the input must be changed into an unmarked structure and the faithfulness constraints want the output should be as like the input as possible. One of the constraints is to be violated to satisfy the other one.

EVAL is the procedure which selects the optimal candidate. For this procedure EVAL best uses the ranking of the violable constraints and picks up the candidate which has violated the least. There could be ties among the candidates which may be resolved by considering the violations of the lower ranked constraints. All this procedure of evaluation is presented through the following tableau.

Tableau 3.1: A Tableau for simple domination

INPUT	CON 1	CON 2	CON 3
CANDIDATE 1	*!	*	
CANDIDATE 2		**!	
CANDIDATE 3 ☞			*

In the target language the constraints ranking is as under in which the CON 1 and CON 2 are higher ranked than CON 3. The candidate 3 is the winner as it has violated a lower ranked constraint 3 and has satisfied both higher ranked constraints.

Constraint1, Constraint 2 >> Constraint3

The candidate 1 and candidate 2 are defeated as they have violated higher ranked constraints. The candidate 3 is optimal as it has satisfied the higher ranked constraints and only incurs violations of lower ranked constraint. The winner candidate is the one which has satisfied the higher ranked constraint and only incurs violations of lower ranked constraint. The hand sign (☞) indicates the winner candidate. The constraints are universal, but the ranking is language specific. In the current study, the data is analysed through OT, while feature geometry is also used at some places to explain accordingly. These are used to find out the reasons behind phonological processes taking place in Romani. OT is the most competent theory to show the relationship between input and output and can highlight the reasons for changes occurring in a language.

Feature Geometry

Feature geometry is based on features. In feature geometry the distinctive features like those of place, and voicing are presented hierarchically. FG has made understanding of broad categories such as PoA (Place of Articulation) and narrower terms for instance 'labial' grouped together and presented them through a hierarchical tree. Jakobson (1939) first proposed the idea of features. Later, it was modified by Chomsky and Hale in 1968 in 'The Sound Patterns of English'. A modified version was offered by Clements and Hume in 1995 (Moren, 2003). Long before Jackobson, it was considered that the basic units of phonology are segments, but later it was discovered that 'features' are the basic units and they formulate speech sounds in

combination. Feature geometry is the organization of phonological features in terms of tree structure (Davenport, Hannahs, 2013). Clements (2004) quotes that feature can be united into their relevant classes. In addition, these classes could function as a single body in phonological process. Later research by Clements (1985) and Padgett (2002) suggested that feature classes shape "higher-level" units, consonant and vowel segments. Clements and Hume (1995) divided these features under different nodes e.g. Laryngeal, Nasal, Oral, Place, Vocalic, etc. Feature tree adopted from Clements and Hume (1995) is reproduced below.
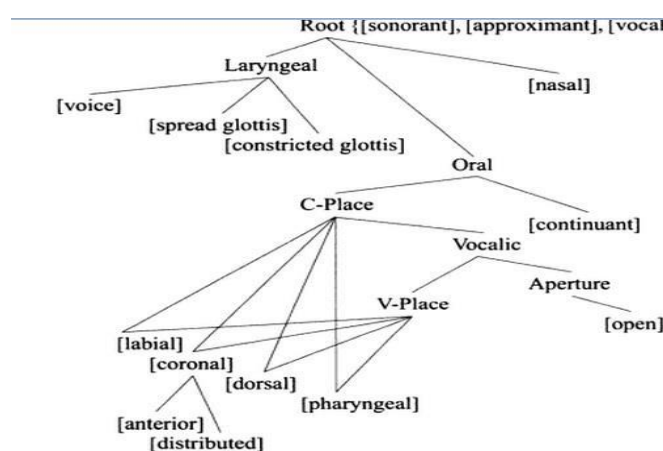

Figure 3.1: A Tree of Feature Geometry

In the above tree, the root dominates all features. The place nodes, laryngeal and oral cavity are intermediary class nodes and [voice], [spread glottis], and [constricted glottis] are also the laryngeal features. Each node forms a separate tier. Feature Nasal is directly connected with root node and it does not bear further dependents. The reason is that linguists believe nasals adopt

the place features of the phonemes they precede. They usually assimilate with the following feature. For example, a nasal /n/ followed by a labial /p/ would acquire the labial feature, e.g. 'impossible', and a nasal preceding a velar would get velar feature like in the word 'incomplete'. Vowel features (round, front and back) have been redefined as [labial], [coronal] and [dorsal] respectively. There is a relation built between vowels and consonants based on examples like the labial feature shift from consonant to the following vowel in /pi/ > /pu/. The phoneme /p/ yields its feature to the following vowel. Yet the controversy remains as linguists are also of the view that vowel /u/ already contains labial feature, so it is not consonant that shifts its feature. FG is used by phonologists all around the world to explain the phonological processes taking place in languages. In nut shell, this version of Feature Geometry is easy to understand and refined of complexity in Feature Geometry model that was presented by Chomsky and Halle in 1968. Data for the current study would be easy to explain through this version.

The current study aims to study retroflexion comparatively between Lasi and Romani using Optimality theory and Feature Geometry. The method that has been selected by researcher is suitable for data analysis.

Presentation and Analysis of Data

Romani is an Indo Aryan language, spoken by Roma population of Rom. The Roma people have migrated to different parts of the world. Lasi is a dialect of Sindhi which is also Indo Aryan language. The data is analyzed to present phonological processes in Romani as compared to Lasi. The collected data is to be analyzed through Optimality Theory and Feature Geometry.

Retroflexion

The term retroflexion refers to the "turning back" or "curling in" of the tip of the tongue while producing apical consonants, or some-what rarely, vowel sounds as well. The point of articulation and the amount of curling of the tip of the tongue are two other variables occurring in the articulation of the retroflexed sounds. Curling may range from "extremely strong" to "very slight", depending upon the language under study, the segment under consideration, and the environment in which it occurs. The point of articulation also appears to vary from dental to medio palatal (Thomas, 1971). Retroflexion is a familiar areal feature of South Asia. Utmost South Asian languages, irrespective of their genetic connection, contrast retroflex consonants with their non-retroflex dental and/or alveolar counterparts (Ramanujan and Masica, 1969; Bhat, 1973). Retroflexion is not operative in Romani, so where retroflex nasal /ɳ/ occurred in Lasi there Romani is replaced with alveolar nasal /n/. The following data is showing that:

4.1.1 Retroflexion of /n/ to /ɳ/

(3)

	Sindhi	Romani	Etymology	Sanskrit	Prakrit	Meaning
1.	Pāṇī	Pani	Pani	Paniya	Pāṇīya	Water
2.	Jaṇ	jan/ jin	Dzin/dzan	Janati	Janati	Know
3.	ḍanu	Gin	GIN	daṇāyati	daṇēi	Count
4.	lūṇu	lon/lonna	Lon	Lavana	Lūṇa	Salt
5.	Suṇ	Kek, shun	Kek, sun	Sṛ ṇōti	Sunēdi/Sunaï	Hear
6.	disan	Dikkin	Dikh	Dārsāna	Dassana	See
7.	māṇhǘ	Mannush	Manus	manusyò/ mònusa	manussa, manusa	Human

Interaction of the following constraints illustrate this process

*ɳ: segment /ɳ/ is not acceptable

MAX-C: DO not delete consonant
IDENT (Distance. Back): The specification of tongue back does not move form location retracted to fronted and vice versa must be preserved in its output correspondent

Table 4.3: Retroflexion

[loɳ]	*ɳ	MAX-C	IDENT (Distance. Back)
a. loɳ	*!		
b. Lo		*!	
☞c. lon			*

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In the above-mentioned tableau, the candidates (a), (b) and (c) are examined based on constraint ranking. As mentioned earlier that in OT optimal candidate is one that does not violate high ranked constraint (s) so in the above tableau candidate (c) arises optimal as it fulfills the requirements of high ranked Constraints *ŋ, MAX-C. Candidate (a) fails to be winner as it violates higher ranked CON *ŋ. Constraint *ŋ demands the language to avoid retroflexion. Candidate (b) fails to be winner because it violates higher ranked CON MAX-C. Constraint MAX-C demands the language do not delete. The ranking illustrates as

Romani   *ŋ, MAX-C >> IDENT (Distance. Back)

Lasi   IDENT   (Distance. Back)>>*ŋ, MAX-C

4.1.2 Retroflexion of /r/ to /ɽ/

The word retroflex originates from Latin word rētrōflexus, it is a past participle of rētrōflectere, rētrō means back and flectere means bend or turn that is to say retrofex alludes to something specifically twisted in reverse. In linguistics retroflex indicates a set of speech sounds that are produced by curling or twisting the tip of the tongue in reverse. Retroflex consonants sounds are generally depicted as sounds spoken with a post alveolar place of articulation and a twisted in reverse tongue tip, say by Trask (1996, p. 308) or Catford (1977, p. 150). Romani speakers do not speak retroflex

sounds, so they replace retroflex flap /ɽ/ with alveolar trill /r/, following data is showing that:

(4)

	Sindhi	Romani	Etymology	Sanskrit	Prakrit	Meaning
1.	bero	Baero/barra	Bero	Bedā	Beda	Ship
2.	ɓeri	Berry	Bero	-	-	Ship
3.	porho	Poro	Phuro	Praudha	Pavudha	Old
4.	pahāṛ	Bar	Bar	Pāhāda	-	Stone/rock
5.	ghoṛī	Gris/grasni/gras	Grasni	ghōta	ghōda, ghōdī	Mare

The relevant constraints are defined in the following lines.

*ɽ: segment / ɽ / is prohibited

MAX-IO: DO not delete
IDENT /ɽ/: The specification for the sound /ɽ/ of an input segment must be preserved in its output correspondent

Table 4.4: Retroflex

[beɽo]	*ɽ	MAX-IO	IDENT /ɽ/
a. beɽo	*!		
b. Beo		*!	
☞ c. bero			*

In the tableau candidate (a) violates the higher ranked constraint *ɽ and for this fatal violation fails to be optimal. Candidate (b) does not violate higher ranked CON *ɽ but violates another highly ranked CON MAX-IO, candidate (c) satisfies higher ranked constraint (s) *ɽ, MAX-IO but violates the lower ranked constraint IDENT/ ɽ /; therefore, candidate (c) appears as winner. The above examples confirm the ranking *ɽ, MAX-IO >> IDENT/ ɽ /. the ranking of Lasi is vice versa.

Conclusion

In the current paper, the researchers discuss different phonological changes such as retroflexion has been occurred between Lasi and Romani. We started questions regarding retroflexion in Romani. Several Romani words were collected which Lasi speakers of Lasbela use in their daily conversation. The analysis was carried through Optimality Theory (OT). A set of examples of phonological changes found in Romani was presented in sub sections. One example of every category was put in OT to be analyzed and discussed. A detailed discussion is presented after every tableau. Possible causes for change in phonology of source words are described after each example. This study is concerned with interaction of constraints of Romani and Lasi phonology. In this study Romani is treated the target language and Lasi the source language.

In retroflexion process, Romani speakers do not speak retroflex sounds; it seems that either Roma people lose retroflexion or they do not have these sounds in their phonetic inventory, so they replace retroflex nasal /ŋ/ with alveolar nasal /n/. In retroflex process, Roma people do not speak retroflex sounds because it does not exist in their phonetic inventory, it is acceptable belief in linguistics that sounds which do not exist in a language are usually replaced with their nearest sounds in terms of phonetics or phonology. Lasi flap retroflex /ɽ/does not exist in Romani which is replaced with trill alveolar/r/.

A question raised at the initial stage of this study was why these phonological processes occur? The general or simple answer to the question is that every language has its own phonological rules. Words of one language introduced to another language do not change if the latter language has structures identical to the former language. In case of unavailability of similar structures strange segments/ clusters of one language would probably undergo adaptation in other language. The same behavior we found in this study. Lasi words which are different from those of Romani corpora went through different changes, for example Romani speakers in the process of retroflexion the researcher found that it creates difficulties for Romani speakers. The option remains for speakers to replace with the nearest sound in their consonant inventory. In a nut shell, we can say that absence of some specific segments,

features and markedness are salient causes behind the changes that occur in Romani.

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