A Phonological Analysis of English Loanwords in Brahui

Abdul Waheed Shah[1]
Firdos Atta[2]
Saira Bano[3]
Nasir A. Syed[4]

Abstract

English language being lingua-franca of the world has given loanwords to most of the languages. Brahui is a language spoken in Balochistan. This study focusses on phonological changes occurring in loanwords of English in Sarawani dialect of Brahui. The basic aim of this study is to find out the reasons behind the phonological changes in English loanwords in Brahui. This study covers major phonological processes like substitution, deletion, insertion and metathesis, etc. Moreover, this study reveals that Brahui language does not accept the phonological rules of English, therefore, Brahui speakers modify English loanwords. The analysis of the data shows that the recipient language replaces those phonemes or structures of the foreign donor language which are unsuitable to its grammar. In the same way, most frequent and unmarked syllable types replace the unusual and marked ones. The data for the study was collected from the daily conversations of Brahui speakers. The study also provides a brief historical background of Brahui language, its origin and development.

Keywords: Brahui, Dravidian, English, loanword phonology, phonological processes

1. Introduction

This study aims to explore different phonological processes of Brahui in terms of loanword adaptation from English as a source language. Though language is a universal phenomenon however every language of the world has its own grammatical 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. This paper presents a similar scenario. In this

---

[1] Lecturer, Department of English, LUAWMS Uthal, Balochistan
[2] Assistant Professor, Department of English, LUAWMS Uthal, Balochistan
[3] PhD Scholar, University of Konstanz, Germany
[4] Associate Professor, Department of English, LUAWMS Uthal, Balochistan

study Brahui is the target language and English is the source language. This study also contributes to the controversies regarding the origin and development of Brahui. Before we proceed to investigate phonological processes in loanword adaptation let us discuss loanword and its types.

1.1 Loanwords

A loan word (borrowing) is a word which is taken into a language direct from another language or with a little translation. On the other hand, calque or translation is a related idea whereby it is the meaning or saying that is acquired instead of the lexical thing itself. Borrowing turns out to be more troublesome for a dialect that has less consonants and vowels in its phonological stock and also for the dialect which has very basic syllable structures. A listener also faces difficulty in perception if the source language has a diverse intonational system. "Loan words usually adjust their external form to the rules of grammar and phonetics of the receiving language; otherwise, they are generally considered foreign words" (Lehmann, 1962, p. 213). While studying loanwords sometimes we find two languages using same or a slightly different word which has the same meaning in both languages. We at the first sight think that one of these languages has borrowed that specific word from the other language, but it can be the case that both languages have the same ancestor, therefore, both dialects are using the same word. For instance the Hebrew word 'head' (roš) and the Arabic word for 'head' (ra's) are similar and both these emerged from the same ancestor (Proto-Semitic) (Haspelmatch, 2009, p. 44). If a word is same/similar in two languages and the both languages are not descendent of same predecessor, that specific word is expected to be a loan word. The Current study is concerned with such two languages namely Brahui which is considered to be a Dravidian language (cf Grierson, 1906) and English which is a West Germanic language. Brahui has a number of words that are of English origin.

1.2 Scope of the study

The nature of this study is purely phonological. It deals only with the phonological changes which occur in the adaptation of English loanwords in Brahui. Speakers of a single dialect of Brahui language (Sarawani dialect) were the contributors in this study. The data for this study have been collected from many people who speak Sarawani dialect of Brahui and use English loanwords in their conversations. Main focus of this study is to point out the possible phonological changes that occur in loan adaptation of English words in Brahui language. Secondly, it aims to find out the reasons behind those changes. Research on Brahui has been

conducted on various aspects but a gap in phonological realm of Brahui language motivated this study. This study will open several research options to the contemporary and future researchers.

2. Study of Related Literature
2.1 Loanword Adaptations

There are some possible perceptual as well as productive hindrances due to which loanwords are produced inaccurately but with a little or more changes. The attested clusters are maintained in loanwords but those which are new to the receiver language or are marked, assimilate with some similar categories of L1 clusters. Loanword adjustment is a consequence of coordinating non-local forms inside the scope of the borrowing language. This thought entails that the adjustment of loanwords cannot be understood as just a phonological or absolutely a perceptual process (Yip, 2006). According to Poplack et al. (1988), the level of nativization in a loanword relies on the quantity of speakers utilizing the word, which proposes that nativizations are being performed not just by the borrowers of a word, but also by those speakers who participated in transmitting the word. Moreover, diachronically changes, happen in loanword adjustment;for instance in Japanese an English word was loaned in nineteenth century with deletion of the word-final /d/ as *Lemonade*→ [ramwne] and the same word in recent borrowing adjusted with insertion of epenthetic vowel [o] after last /d/ as [remone:do] (Crawford, 2009, P. 15). Another such example is found in the data provided by Yip (2006) and Bauer & Wong (2008) which show that Hong Kong Cantonese has early borrowed the word *Place* as /pej.si /or /pʰej.si:/ and in recent times as /pej.lej.si / or /pʰej.lej.si:/. As indicated by Haugen (1950), loanwords acquired at earlier stage of contact between L1 and L2, commonly demonstrate a variety of repair methodologies for non-local words. Moreover, as the level of bilingualism in a discourse group builds, this introductory variety combines to a fixed system for adjusting non-native words.

Loanword adaptations are studied on the basis of phonological features and phonetic signals. As LaCharité and Paradis (2005) pointed out, in adjustment of loanwords a few instances can be found in which a part of the source language is supplanted by the phonologically nearest segment of the borrowing language, rather than that segment which is phonetically close to it. For instance, voiced stops in English are fully attested on onset and without voicing on coda. The short-lag VOT of English are phonetically closer to voiceless stops of Spanish language which are unaspirated with short-lag VOT, not to voiced stops of Spanish which are strongly pre-voiced

with negative VOT. In case of English loanwords in Spanish, English stops with short-lag VOT should be mapped to voiceless stops of Spanish if they are adapted phonetically but instead they are mapped to phonologically nearest voiced stops in Spanish.

2.2. Approaches in loanword adaptations

Silverman (1992) suggests that loanword is an "acoustic sign" which is handled on two levels; Perceptual and Operative level; in perceptual level, non-etymological information is broken into parts, and those parts are mapped onto native language. Silverman says this process is all about a basic representation of the incoming perceptual raw structures. The information that has been reshaped in the perceptual level is pushed tothe Operative level in which the local phonological requirements are forced upon it. Subsequent to inspecting Cantonese loanwords, Silverman asserted that phonological information of the source language is disregarded in loanwords.

LaCharite and Paradis (1997) proposed a theory of Constraints and Repair Strategies (TCRS). Their hypothesis holds fast to two fundamental standards. One is named as the Preservation Principle, and other is Repair Strategy. According to the principle of preservation, segmental data is maximally saved inside the Threshold Principle. The Threshold Principle is that World languages have a flexibility of preserving segments and this flexibility is performed at two stages (or two repairs) inside of a given controlled area.In the TCRS, a remote segment that does not match to the phonological requirement of the local dialect is systemized through a transformation, or by an additional insertion, or finally by deletion. On the other hand, if the quantity of repairs important to save a segment surpasses the edge of two repairs a segment is omitted, the segments that require three or more repair options, will be removed. Usually a solid inclination for preservation of a segment is anticipated instead of its deletion. The phonetic input of L2 goes through a twofold phonemic channel to end up the information to the loanword phonology.

Kenstowicz (2001) recommends that there are two kinds of grammars, grammar of perception and that of production. As per his hypothesis, phonological differences for example, of /l/and /r/ are hearable to speakers without any refinements in L1, but still they cannot articulate them differently, because of the opposition of semantic ability and execution. Alternatively, other refinements will be elided in a situation in which strong signals are unclear or perceptually undetectable.

2.2.1 Production based factors of change in adaptation of loanwords

There are several changes in loanword adaptation caused by production based factors. One of the factors is sonority in syllables. Sonority of a sound is its loudness relative to that of other sounds with the same length, stress, and pitch (Ladefoged, 2006). Among consonants there is a universal scale of hierarchy in which after vowels, the most sonorant sounds are glides, then are the liquids, then nasals and the less sonorant are the obstruent phonemes. There is ageneralization, known as the Sonority Sequencing Principle (SSP), a generalization which expresses that in all languages, vowels and consonants that are joined to frame syllables, are organized so, that sonority is the most elevated in the nucleus of the syllable and it diminishes from the nucleus towards the edges (Clements, 1990). In rising sonority clusters, a vowel is inserted into the clusters in loanwords; for instance English 'fruit' in Hindi becomes [firut] (Broselow 1999). In order to be faithful to sonority sequencing principle, borrowing languages bring changes in loanwords during adaptation. Most often, they insert a vowel to maintain sonority in loanwords. According to the studies of Gouskova (2001), in a falling/flat sonority situation, languages insert vowels before initial edge and in cases of rising sonority, they do internal epenthesis.

Markedness is another factor motivating phonological change in loanword adaptation. Hume (2010) relates the term (markedness) to Prague School especially Trubetzkoy and Roman Jakabson. Trubetzkoy (1939) used this term to show resistance between two sounds. A sound of any language, if articulatorily more complex than other sounds of that language, is more marked as compared to the other sounds. To make the marked words unmarked, the recipient languages bring changes into the loanwords of a source language(s). The syllables with more clusters are more marked than others with lesser clusters. Thus, a CV sequence in a language is easier than CCV or CVCC clusters of that language. By consequences of universally positioned constraints, front vowels are more marked compared to back vowels, and the round vowels are more marked because of their roundness. Languages might change the ranking between low and non-low vowels. Among consonants there are four scales for measuring markedness, the scale of markedness in regard of manner of articulation, place of articulation, position and voicing. Some consonants are more marked than others for specific position. For example, stops are more unmarked than fricatives for onset position but for coda position, fricatives are more unmarked. On the scale of place of articulation, dorsal sounds are more

marked than labial sounds while labials are more marked than coronal sounds. In language acquisition the markedness scale for manner of articulation is Stop > Fricatives > Nasals > Laterals > Glides. The symbol [>]shows that left ones are more unmarked than the succeeding class of consonants. In contrast of voicing, voiced sounds are more marked than voiceless ones. Markedness also plays a very significant role in loanword adaptation.

2.2.2 Perception based factors of change in adaptation of loanwords

From psycholinguistic point of view, changes in loanwords occur because of errors of perception. It is to say our processing system works according to our existing phonotactic patterning. Therefore we assimilate sounds of foreign language with similar sounds of our own language when we borrow some word. It means presence or absence of segments in our L1 system affects the perception of phonemes of loanwords. There are a number of researchers who argue that speech perception and phonetic distance, both are responsible in adaptation of loanwords. Researchers particularly those who credit to perception in loanword adjustments, have contended that the decision between two or more phonologically comparable repairs is characterized by a rule of phonetic insignificance. For example, in Cantonese, the voiced fricative [v] does not exist. In loanwords from English, [v] is changed into [w], not [f], apparently in light of the fact that [w] more nearly approximates the acoustic properties of English [v]. In a comparative vein, it has been contended that the choice for deletion as opposed to epenthesis in adjustments of illicit consonant cluster can rely on the phonetic usage of the particular clusters in the source dialect. When phonetic decoding takes place, an incoming sound will be mapped onto a segment that is similar to it on the basis of articulatory signals or acoustic similarity. Moreover the Phonetic decoding, goes through a filtration in which some un- attested acoustic elements of speech sounds are deleted because they are mapped onto phonetic classifications. The nonnative syllable types are often mapped onto the closest native ones. In an interesting study, Peperkamp, Vendelin & Nakamura (2008) demonstrate that the coda nasal in French is adjusted into Japanese as a nasal in addition to an epenthetic vowel but the coda nasal in English is adjusted just as a nasal coda in Japanese, and contend that phonetic contrasts, i.e. solid coda nasal release in French versus powerless or little coda nasal release in English, add to the diverse adjustments. Inaccurate perception of a phoneme can be, because of co-articulation of various phonemes where in isolation those phonemes can be identified but in combination cannot be identified by a listener. An example supporting this idea is found in the studies of

Liberman, Delattre and Cooper (1952). They found that an acoustic structure focused at 1440 Hz put before the vowels /i/or /u/ was recognized transcendently as /p/. However before /a/, it was recognized as /k/. In this manner, an invariant piece of acoustic structure prompts distinctive percepts. To deliver that bit of acoustic structure before /i/ or /u/, a speaker has to make the closure at the lips; to create it before/a/, s/he needs to make the narrowing at the soft palate. There are languages in the world which have pairs of different clusters in their phonology but when they borrow words, they adopt different strategies for those clusters and many other languages are found which do not allow distinct sounds of their native phonology on a specific place in word formation but adapt such clusters with addition of an epenthetic vowel. Korean and Fula are languages discussed in Peperkamp (2004), where Korean does not allow /s/ on coda in native language and changes it with /t/ but in loanwords from English, it adapts final /s/ with insertion of /i/ e.g. [glass] > /kirasi and [mouse] > /mausi/. Fula accepts clusters neither on onset nor on coda; while taking French loanwords, Fula speakers insert a vowel next to the second consonant in a case of liquid+obstruent clusters [force] > /forso/ and in case of obstruent+liquid insertion takes place between the clusters [teɪ.bl] > /taːbal/. On the other hand there are languages which contain a sort of clusters on specific positions in native phonology but change those clusters when found in borrowed words. Examples can also be found from Japanese in Kang (2003) where Japanese has words ending in voiceless stop e.g. [pat] for /field/ and [kaek] for /guest/ but when it receives a loanword, it adds into it aspiration and because Japanese does not allow coda, therefore it inserts a vowel after final consonant e.g. English [bat] as /pætʰi/. Paperkamp (2004) calls this process "unnecessary adaptation".

2.3 Phonological processes in loanword adaptation

Loanwords of the source language go through various phonological processes in order to fit in the recipient language's grammar, otherwise they are considered foreign. Phonology is not a static framework in which a set up unit stays unaltered in every one of its events. It is a dynamic system in which units of one specific type change when they are in contact with different units in a context. We allude to such changes as phonological processes.The alteration of sounds appears to take after regular standards identified with physiological and mental techniques. Some phonological procedures may be clarified as muscle coordination inside of the vocal component. Others may be because of perceptual techniques that upgrade successful correspondence.There can be three types of explanations for the changes in loanword adaptation i.e. the orthographic, phonological and

phonetic differences between source and borrowing language. While adapting loanwords some languages do deletion others assimilate, dissimilate, do epenthesis, substitution, metathesis, fortition or lenition according to phonological needs. We shall see similar phonological processes also occur in English loanwords in Brahui.

2.4 Brahui Language

There is such a strong influence of Dravidian on Aryan that in the words of Sjoberg (1990, pp. 43-44), 'majority of the ancestors of Indo-Aryan speakers must at one time have spoken non-Aryan languages, mainly those belonging to the Dravidian family.' In the opinion of Sjoberg, many Dravidians were merged into Aryan tribes as a result of amalgamation of both cultures. This is established from a large number of Dravidian words and names of Dravidian gods in old Vedic literature. Hock, (1975) traces back the origin of non-Aryan elements in the Aryan literature to Munda language and culture. Another view is that Dravidian culture is an amalgamation of different cultures (Sjoberg, 1990, p. 48). Talking about the Dravidians Sjoberg (1990, p.47) says that their languages may be related to Elamite, which had been spoken in Iran. The relationship between other Dravidian languages and Elamite is a very significant linchpin for researchers of Dravidian languages (McAlpin, 1974, 1981; McAlpin & Cragsmoor, 2005). A long list of proto-Dravidian vocabulary consisting of agriculture related words indicate that the speakers of proto-Dravidian were quite familiar with agriculture and perhaps they mainly depended on farming for the food requirements. Talking about the origin of the Dravidian family of languages, Krishnamurti says that Dravidians were very civilized people but their origin is not yet known. That is why he considers India as the home of Dravidians declaring them the originators of Harappan civilization (2003, p. 15). All such ideas on the origin of the Dravidian languages may be conflated into the following major views namely, the idea of indigenous Indian origin of the Dravidians and the foreign origin view.

2.4.1 Indigenous origin of Dravidians

A group of researchers claim that Dravidian speakers are the ancient indigenous people of the Indus Valley or the subcontinent (Tripathy et al., 2008). According to Parpola (2010), a radiocarbon analysis of the seals found in the Indus valley city of Harappa indicates that these seals date back to 2600-1900 BCE which confirm the existence of the Indus Valley civilization in the third millennium BCE. Parpola (2010) also claims that there is a strong reason to believe that Indus script is Dravidian. Sjoberg

(1990, p.51) assumes that the existence of Brahui in Balochistan is an indication that the Indus Valley script was Dravidian.

Some geneticists also maintain that the proto-Dravidian originated in India. According to their opinion, the similar population carrying M haplogroup exists in East Africa (Rajkumar et al. 2005; Thangraj et al. 2006) which may be a result of migration from India to Africa. Pagani et al. (2017) think that similarity between Dravidian and East African population is a result of genetic admixture through slave trade. Along with Blench (2007), Mahadevan, who claims that the Indus civilization was Dravidian, also believes that existence of Brahui in Balochistan is a result of westward migration of the Dravidians of the south India (2015). Fuller (2002) also supports the idea of indigenous Indian origin of Dravidian family of languages. Her argument is based on the fact that some Dravidian traditions, particularly cousin marriage which is not so much liked in strictly Aryan culture, and absence of names of major plants and trees of this area from Dravidian vocabulary confirm that, first, the Dravidians have been dominant in this area in the past and, second, they were probably hunter-gatherers not agriculturalists. Thus, she considers that an attempt of linking Dravidians with an outside of Sub-continent agriculture zone like the Fertile Crescent may be misleading. She rather wants to see the origin of Dravidians in the Subcontinent of the pre-agriculture era. Sengupta et al. (2006) is also one of such studies which claim an indigenous Indian origin of the Dravidian family of languages. They claim that Brahui also has a common origin with other Dravidian languages.

Tamang and Thangraj (2012) on the basis of their study of mtDNA and Y chromosome very strongly claim that southern Indian Dravidians originated from India. Thus, they out-rightly reject the idea of out of India origin of the southern India population. They also argue that African genes found in the south Indian population are result of slave trade from Africa. They gave a particular example of Siddis (a particular people of India) who in their own study have been found carrying genes of sub-Saharan Africans, and claim that approximately 1500 Siddis were brought from African and sold to the Nawabs of India for slavery in 17th and 19th Centuries of the current era. Another point of view of Tamang and Thangraj (ibid) regarding discrepancy between linguistic and genetic origin of population of India is that a large scale language shift occurred in India. In this regard they gave examples of Bharia, Mushar and Muslims of India. Particularly, they studied the genes of Hindi (an Indo-European language) speaking Mushars and Dravidian speaking Bharia tribes and found them of the Austroasiatic

origin of Mundari and Munda groups respectively. Thus they argue that originally, a majority of the Indian population originated from India and some of the genes of outsiders found in India are results of slave trade.

On the other hand, Winters (2012b) strongly repudiates this view and justifies his claim of African origin of Dravidian languages with more plausible and convincing arguments. Many other studies (Winters, 2007; Cordaux et al., 2003 and Gonzalez et al., 2006, 2007) strongly support this view quoting a host of references which provide empirical evidence of existence of similar to Dravidian genes in the whole of Africa. Besides genetic evidence, they also provide historical, linguistic and archaeological evidence in support of their point of view. Some scholars claim that Dravidian languages originated in Iran (Pagani et al., 2017). These views of foreign origin of Dravidian are briefly summarized in the following sub-section.

2.4.2 Foreign origin of the Dravidians

According to other researchers, the people who gave birth to Proto-Saharan languages like Elamite, Saharan and Dravidian languages were of African origin (Winters, 2001; 2008). According to Winters (2012a), we assume that the people of Indus Valley spoke a Dravidian language because Aryans entered the Indus Valley after 1600 BCE whereas the people of the Valley existed in 2600-1700 BC (Winters, 2012a, p. 1224). Because of the presence of Brahui speakers, it is assumed that people of Indus valley spoke Dravidian (Mahadevan, 2015). Similarities between Dravidian and Elamite languages have been pointed out by many like McAlpin (1976, 1979)[1]. It is also established that now extinct Elamite language was once spoken in southern Iran. Close linguistic relations have also been identified between Elamite and Brahui (McAlpin, 1974). These relations provide a trail of movement of African peoples to south India via the Fertile Crescent, Balochistan and Indus Valley.

Researches in the field of anthropology (Lahavory 1963), osteology (Sjoberg 1971) and genetic historical linguistics also provide evidence of an African origin of Dravidian speakers (Aravanan 1980; Winters 2007). The trail of this movement is verified in the genes scattered on the route from Africa to India in Iranian (Gonzalez et al., 2007) and other Middle Eastern countries like Yemen, Saudi Arabia, (Fattovish, 2008; Winters, 2008 and references quoted thereon) and Laventine zone (Moorjani et al.

---

[1] Also see Blazek (1999) who disagrees to these views.

2011). On the basis of such studies, Winters (2008, p.328) claims that the Dravidian speakers formerly lived in Nubia and from there they migrated to the East.

Rajkumar et al. (2005), Cordauz et a l. (2003) and many others claim that Dravidians come from African origin. The archaeological evidence of this migration from Africa to India has been found in the discovery of similar black and red ware and pottery found in India and Africa (Rao, 1972). Anthropological evidence for this movement is provided by Sastri (1966) and Nayar (1977). Aravanan (1976, 1979, 1980), and Upadhayaya & Upadhyaya (quoted in Winters, 2008) have highlighted linguistic similarities between Dravidian and African family of languages. Aravanan (1979) points to the studies of Upadhayaya and an African scholar Cheik Tidiane N'Diaye who have provided lists of more than 500 words which are common between Dravidan and African. Cheik on the basis of this evidence claimed that the script of Indus Valley can be related to Dravidian and Senegalese languages like Wolof and Pular (See Avaranan (1979) and the references quoted thereof). Aravanan points out many similarities like black color of people, similar body features, common legends, games, group clapping, etc. between Dravidian and African tribes. In this regard, an interesting example provided by Aravanan is that of the god Krishna which is ascribed to Dravidians. The word 'Krishna' means 'Blackman'. He also points out that a similar story like that of Krishna of Hindu myth also exists in Africa. Winters (2012b) claims so much so that he declares Indo-African languages (those Indian (Dravidian) languages which originated from Africa) as a sub-group of a Niger-Congo super family. He provides linguistic similarities of an African language Wolof with Dravidian languages. In his paper (Winters, 2012b), a detailed justification of African origin of the Dravidian family based on linguistic, archaeological and cultural evidence has been provided.

Quintana-Murci et al. (2001) on the basis of their empirical study claim that farming tribes came to India from Iran in around 4000 BCE which gave birth to great civilization like Sumerian, Elamite and Indus. This civilization reached its decadence in around 2000-1000 BCE on the arrival of Aryans who introduced Indo-European languages in the present day Pakistan and India. The Aryan language and civilization replaced the Dravidian languages and civilization.

Thus, the researchers who support the popular view of foreign origin of Dravidians are those who may be further subdivided into two groups; one

is of those researchers who claim that proto-Dravidians originated from Africa and moved to the areas of Western part of Iran and Near East where they also developed Elamo-Dravidian language. From there, they spread to the Indian Sub-continent via Balochistan and gave birth to great civilizations which were later replaced by the Aryans.

Slightly different view is held by those researchers who think that Iran is the birthplace and original homeland of Dravidian languages. Palanichamy et al (2015) on the basis of DNA and Y-chromosome analysis strongly vindicate that the Dravidians exclusively share genes with the Near Eastern Iranian people. Thus, they confirm the diffusion of proto-Elamo-Dravidian language into the subcontinent of Pakistan and India. They also believe that their findings support the idea that the proto-Elamo-Dravidian language evolved in the Western Asia long before the beginning of agriculture. In this way, they strongly repudiate the idea of Indian origin of Dravidians and claim that Dravidians came to India from Iran. Detailed morphological relationships between the Dravidian and Elamite languages identified by McAlpin (1974) support this argument.

Pagani et al. (2017) on the basis of comparison and analysis of already published data from previous research disagree to these researchers and claim that Brahui speakers of Pakistan do not show any strong affinity with the Dravidian speakers of southern India; they are rather closer to neighboring Indo-European particularly Baloch, Sindhi and Pashtoon tribes of Balochistan. On the basis of these results they forward the idea that the ancestors of Brahui were basically Indo-European speakers, who adopted Brahui, a modern day Dravidian language (p. 271).

Based on DNA research by some other researchers (Quintana-Murci, 2004), Chaubey et al. (2007) also claim that Brahui is closer to western Iranian than to South Indian languages. In this way, these studies support the idea that Brahui which is separated from all other Dravidian languages is actually a relative of Iranian languages like Balochi, Persian and Kurdish, etc.

Besides, there are some opinions which quite disagree to the views noted above. For example, Marlow (1974) and Tyler (1986) are strong supporters of the idea of Uralic-Altaic origin of Dravidians (Sjoberg, 1990). However, their views could not get much currency owing to the lack of scientific evidence in their support. Another view about the origin of Dravidian is that Proto-Dravidian can be related to Australian family of

languages (Caldwell, 1931; Dixon, 1980). In this regard, it also seems relevant to refer to Levitt's (2009) claim that aborigines of Australia were also of African origin. On the basis of similarity between Dravidian and Nostratic languages, Blazek (2009) also hypothesizes about a possible 'Australian substratum in Proto-Dravidian' (p.69). However, there are not many studies which support these views of Australian origin of Dravidian and these views also could not get much currency among researchers. On the other hand, the latest research on this topic by Reich (2018) and Joseph (2018) confirm the origin of Dravidian family in the Fertile Crescent a view which was already demonstrated by Bomhard (2018) and others.

3. Methods of Data Collection

The current study aims to analyze adaptation of English loanwords in Brahui. This research focuses on Sarawani dialect of Brahui, spoken in Quetta and its surroundings. The first author is a native speaker of Brahui. The research is a descriptive and analytic type of study, which defines, elaborates and analyses its findings qualitatively. This research is concerned with the phonological changes so it studies various types of phonological adaptations of words of English in Brahui. English words and their phonetic transcription is checked in and written according to the 'Cambridge Advanced Learner's Dictionary '. Participants in this research are not limited to a sample or a group but all those are participants of this study who speak Sarawani Brahui and also use English loanwords in their conversation.

4. Presentation and Analysis of Data

In this section the collected data is analysed and discussed. Each and every process found in loanwords adaptation is evaluated in relation with the existing literature. The phonemic inventory of Brahui is reproduced from Elfenbein (1997, p. 800) in Appendix. The phonological processes operative in adaptation of English loanwords in Brahui, are illustrated in sections below.

4.1 Insertion

Vowel epenthesis is a common phenomenon found cross-linguistically in loan-words. Native speakers of a language insert a vowel as a strategy to modify marked segments or structures of foreign words which their native grammar prohibits. Insertion is of two types, word-medially (epenthesis) and word-initially (prothesis). The following data provide examples of prothesis in English loanwords adapted in Brahui.
(1)

	Source IPA	Adapted IPA	Gloss
(i)	/stɒp/	[iʃ.ʈɑːp]	Stop
(ii)	/steɪ.ʃən/	[iʃ.ʈei.ʃən]	Station
(iii)	/stɑːrt/	[iʃ.ʈɑːʈ]	Start
(iv)	/speʃ.ᵊl/	[iʃ.peʃəl]	Special

Prothesis in the above examples is used to modify non-native combination of sounds according to native phonotactics of Brahui. It can be assumed that Brahui phonology forbids fricative + stop cluster on onset position, therefore, to modify such sequence of consonants Brahui borrowers do prothesis of a vowel before fricative + stop cluster on initial position in loanwords of English. The Preferable vowel for prothesis is short /i/ in Brahui before a fricative phoneme. English alveolar /t/ is also substituted with retroflex /ʈ/ in Brahui. This is because Brahui does not have alveolar /t/.

We find in the existing literature, insertion of a vowel, often a schwa, to re-syllabify the non-native segments in order to maintain the native language's hierarchy and ranking of its constraints. Languages which do not have clusters or contain no complex clusters often tend to insert a vowel between clusters of loanwords to make them acceptable for the host language. One such example is shared by Zuraw (2007) who has conducted a research on speakers of a language called 'Tagalog'. The native speakers of Tagalog break up clusters of Spanish and English loanwords because Tagalog has no complex onset in its native grammar. Languages for which onset is mandatory like Egyptian Arabic, in case of a $C_1 C_2 C_3$ cluster, fulfil the requirements of onset and insert a vowel after C_2 and other languages like Iraqi Arabic which prefer coda, do epenthesis after C_1 (Hall, 2011, p. 1580). According to him, the chances of breaking a cluster increase with the increase in sonority of segments in a cluster. Because the above is an example of falling sonority, insertion took place on edge. Examples of insertion between consonants in English loanwords are presented below.

(2)

	Source IPA	Adapted IPA	Gloss
(i)	/pleɪt/	[pi.leiʈ]	Plate
(ii)	/bleɪd/	[bi.leid]	Blade
(iii)	/plɒt/	[pi.lɑːʈ]	Plot
(iv)	/klʌtʃ/	[kə.lʌʧ]	Clutch
(v)	/klʌb/	[kə.lʌb]	Club

The above examples show that it is hard for Brahui speakers to pronounce a 'CC' cluster, especially when second 'C' is a lateral. To simplify such clusters of English loanwords, they insert a short vowel between such clusters. Gouskova and Hall (2009) in an acoustic phonetic study explore that some speakers produce epenthetic /i/ considerably shorter than a lexical /i/. The formant values exhibit the difference between these two types of vowels. In (iv) and (v) clusters of voiceless velar stop, and lateral are separated by insertion of a schwa /ə/. In cross-linguistic research, we find languages which insert a vowel between clusters when the sonority of the first consonant in a pair is less than the second one. The above mentioned examples are a case of rising sonority where first consonant is a stop and other is a liquid, therefore, insertion has taken place between clusters. Mostly languages are inclined towards insertion in loanword adaptation. In the above examples Brahui does not accept a cluster of stop and liquid but, it accepts CV.CVC syllable structure.Therefore, it breaks clusters by insertion. According to the studies of Gouskova, (2001), in a falling/flat sonority situation languages insert vowel before initial edge and in cases of rising sonority they do internal epenthesis. If there remains no such possibility of adaptation, then deletion takes place. Some examples of deletion of are listed below.

4.2 Deletion

Deletion is another process in loanword adaptation among world languages. In this process a vowel or a consonant, sometimes a syllable is omitted in borrowing a foreign word. Deletion can occur at any position in a non-native word and can be of any type. Consonant deletion is a repair strategy in loanword adaptation. Because languages have their own preference of clusters and syllable types, for this reason, when any language takes words from another language, it deletes such consonants which are irregular in its own grammar. Or if it prefers simple clusters and the source language has complex clusters, the receiving language will delete either of the unacceptable consonants as the following examples show.

(3)

	IPA	**Adapted IPA**	**Gloss**
(i)	/weɪst.kəʊt/	[wɑːs.kiʈ]	waistcoat
(ii)	/goʊldliːf/	[goʊl.ɖiːf]	Gold-Leaf
(iii)	/pʌŋk.tʃər/	[pæn.tʃər]	Puncture
(iv)	/stɑːrt/	[iʃ.ʈɑːʈ]	Start
(v)	/bɔːrd/	[bɔːɖ]	Board
(vi)	/kɔːrt/	[kɔːʈ]	Court

(vii)	/ri.pɔ:rt/	[rə.pɔ:ʈ]	Report
(viii)	/mju.zɪk/	[mi:zʊk]	Music
(ix)	/kəmpju:.tər/	[kəm.pu:.ʈər]	Computer
(x)	/nju:.trəl/	[nu:.ʈəl]	Neutral
(xi)	/tju:b/	[ʈu:p]	Tube

In the above examples one of the consonants in each example is deleted for some reasonable cause. There are three types of consonants namely obstruent, liquid or glide which is deleted. In (i) first syllable's C1 is a voiceless fricative and C2 is a coronal stop and the second syllable's onset is a voiceless dorsal stop. Because fricative sounds best fit on coda, therefore, it is sustained in first syllable and C2 is pushed ahead to become second syllable's onset but there exists another stop. Stop plus stop cluster is not acceptable on onset; therefore, the solution resides in deletion of first syllable's C2. All these clusters have some illegitimate structure which results in consonant deletion in Brahui. For example, rhotic sounds are perceptually weak; therefore, mostly in loanwords they are deleted. According to Maddieson, (1984) /r/ is less frequent cross-linguistically, thus, it is marked. They are fragile and are handled with no care. Same is the status of glides. So, both are deleted in these examples.

4.3 Substitution

Substitution is another process in loanword adaptation. In this process a phoneme of foreign language is replaced by a phonetically or phonologically similar native phoneme. Most of the languages in the world do so to simplify loanwords according to their native phonology. Similar cases from Brahui are presented below.

4.3.1 Vowel substitution

In loanword phonology, vowels of source language are substituted with phonetically close vowels of target language. Languages have their own priority of short, long, front, back, vowels as well as for diphthongs. The following examples show vowel substitution in Brahui.

(4)

	Source IPA	**Adapted IPA**	**Gloss**
(i)	/faɪəʳ/	[fær]	Fire
(ii)	/taɪəʳ/	[ʈær]	Tire
(iii)	/saɪd/	[sæɖ]	Side
(iv)	/laɪt/	[læʈ]	Light
(v)	/laɪn/	[læn]	Line

The above examples show substitution of diphthongs to monophthongs. Diphthongs are a combination of two vowels which are longer in duration compared to the monophthongs. Therefore, they are replaced with monophthongs for ease of articulation in Brahui. From the above mentioned examples, it is assumed that the closing diphthong /aɪ/ is less frequent in Brahui. Therefore, this particular diphthong of English is replaced with the monophthong /æ/. It is because this particular vowel/æ/is frequently used in Brahui language and is also closer to the input.

4.3.2 Palatalization

The term "palatalization" denotes a phonological process in which consonants acquire secondary palatal articulation or shift their primary place to, or closer to, the palatal region of articulation system of speech. Usually palatalization is the result of influenceof an adjacent front vowel or a palatal glide. For Hyman (1975), it is because of consonant-to-vowel co-articulation as following data show.

(5)

	Source IPA	**Adapted IPA**	**Gloss**
(i)	/pis.tən/	[piʃ.ʈəm]	Piston
(ii)	/pis.təl/	[piʃ.ʈoːl]	Pistol
(iii)	/stɑːp/	[iʃ.ʈɑːp]	Stop
(iv)	/strɪŋ/	[iʃ.ʈi.rɪŋ]	String
(v)	/steɪ.ʃən/	[iʃ.ʈeɪ.ʃən]	Station

The above-mentioned examples show Palatalization where /ʃ/ a palato-alveolar voiceless phoneme, replaces the alveolar voiceless /s/. It is confirmed through all the data collected for this study that, Brahui speakers palatalize only fricative /s/ phoneme of English. This is because, there is no /st/ cluster in Brahui, whenever a loanword of English starts with /st/ Brahui speakers break this cluster by insertion, because /st/ cluster has a flat sonority sequence, therefore, insertion occurs on the edge. The preferable vowel in Brahui for insertion is /i/, because of the front vowel the alveolar /s/ is substituted with the palatal /ʃ/. Similar palatalization is attested cross linguistically. In the existing literature, it is observed that consonants are normally palatalised because of front vowels /i/ and /e/. They are less altered before back vowels. (Butcher &Tabain, 2004; Keating &Lahiri, 1993; Ladefoged, 2001). For example, in Kashmiri, consonants palatalize before /i/ (Pandey, 2010, p. 6).

4.3.3 Devoicing

Devoicing is also found in phonology of world languages. Voiced phonemes are considered more marked on coda than voiceless ones. Therefore, languages like German, Russian, Polish, etc. prefer voiceless phonemes on word final position. The following data show terminal devoicing.

(6)

	Source IPA	Adapted IPA	Gloss
(i)	/tuːb/	[ṭuːp]	Tube
(ii)	/mʌd/	[mʌṭ]	Mud
(iii)	/tʃeɪndʒ/	[tʃænʧ]	Change
(iv)	/fluː.id/	[fʊ.luːṭ]	Fluid

All the examples mentioned above follow the universally accepted occurrence of unmarked phonemes on word final position. Voiced phonemes on coda are more marked than their voiceless counterparts. Therefore, Brahui like German, Russian, etc. prefers voiceless phonemes on coda. In all above-mentioned examples, Brahui speakers substitute voiced phonemes on coda with voiceless phonemes.

4.3.4 Dissimilation

Dissimilation in phonology is a process inverse of assimilation. If a single word contains two similar phonemes, one of them changes or loses one or more features of it to become different from other. The following data show dissimilation.

(7)

	Source IPA	Adapted IPA	Gloss
(i)	/bɜː.nər/	[bər.nəl]	Burner
(ii)	/preʃ.ər/	[pi.rei.ʃəl]	Pressure
(iii)	/θre.ʃər/	[ṭi.rei.ʃəl]	Thresher
(iv)	/graɪn.dər/	[gi.læn.ḍər]	Grinder

Examples mentioned above have undergone dissimilation. In (i) both syllables have rhotics on coda. In order to dissimilate one of those identical phonemes in a single word, the rhotic in the second syllable changes into a lateral. In (ii) and (iii) in presence of a rhotic on onset of the second syllable, the rhotic coda in final syllable has changed into lateral. In (iv), the second syllable's onset which is a rhotic has changed into lateral because there is another rhotic on coda of final syllable.The direction of dissimilation in (iv) is regressive while in (i), (ii) and (iii), it is progressive.

Dissimilation normally occurs for the sake of prominence in production and clarity in communication process.

4.3.5 Substitution of /θ/ to [t̪]

In a situation where a receiver language receives a phoneme from another, which is not in its phonemic inventory, it substitutes that particular phoneme with a similar phoneme of its own language. The following data show substitution of foreign dental fricative to the native dental stop.
(8)

	Source IPA	**Adapted IPA**	**Gloss**
(i)	/bɜːθ/	[bərt̪]	Birth
(ii)	/ɜːθ/	[ərt̪]	Earth
(iii)	/θəmɒm.ɪ.tər/	[t̪ər.mɑː.miː.t̪ər]	Thermometer
(iv)	/θɪə.tər/	[t̪e.t̪ər]	Theatre
(v)	/bɑːθ.rʊm/	[bɑːt̪.ruːm]	Bathroom

In the above-mentioned examples, the voiceless dental fricative/θ/ has been replaced with the voiceless dental stop /t̪/ of Brahui. This English phoneme does not exist in Brahui. Consequently, Brahui speakers search for a similar sound for it in their L1 stock of phonemes. To them, /t̪/ best matches to the English phoneme /θ/, so they substitute it with [t̪]. According to Mehboob and Ahmar (2004), Pakistani people replace English fricative /θ/ and /ð/ with /t̪/ and /d̪/ respectively. Same is the case with Indian speakers (Barron, 1961a; Pandit, 1964). For Kachru, (1969), this is a case of substitution of phonemes from L2 into L1. Similar trend is observed in Pak-English (Syed, Ansari & Gopang, 2017).

4.4 Metathesis

In this phonological process, phonemes/syllables of a word exchange their position with each other. This process can happen by the slip of tongue but in phonology of world languages it is an attested phonological process which has its roots in phonological mind of the speakers. The following data show sibilant Metathesis.
(9)

	Source IPA	**Adapted IPA**	**Gloss**
(i)	/disk/	[d̪iks]	Disk
(ii)	/desk/	[d̪æks]	Desk
(iii)	/risk/	[riks]	Risk
(iv)	/rik.ʃɔː/	[rəʃ.xa]	Rickshaw
(v)	/æk.si.dᵊnt/	[æs.kiː.d̪ənt]	Accident

It is observed through cross linguistic research that presence of sibilants in a consonant string causes a change in the linearity of sequence of segments. It is because of the aperiodic/long nature of sound that disturbs the linearity. It is cross-linguistically attested that languages show inclination towards fricatives on coda and stops on onset. Fricatives are perceptually stronger than stops, therefore, they can easily be perceived on coda. On the other hand acoustic signals of stops are weak they are lost in continuous utterances. This is a major reason for this displacement. Here we have some examples of /r/ metathesis in the following data set.

(10)

	Source IPA	**Adapted IPA**	**Gloss**
(i)	/dʒen.ə.reɪ.tər/	[dʒər.neɪ.ʈər]	Generator
(ii)	/gæl.ər.i/	[gær.liː]	Gallery
(iii)	/ˈdʒen.ər.əl/	[dʒər.nəl]	General

In all the above examples, the rhotic has been target of metathesis. It is an accepted that phonemes with weaker perceptual cues are mostly targeted by metathesis process. /r/ being a sonorous segment cannot retain its position and yields its place to another phoneme. All the above examples could be perception based. Speakers mostly are not sure enough to judge which phoneme is being produced first. This problem with perception has been termed as indeterminacy by Hume (2004). In addition, the role of attestation cannot be ignored in the above examples. Speakers of a language produce a word in a way that is attested and frequent. The output candidates are attested and more frequent sequences in the language under discussion. Onset in Brahui is mandatory for medial and final syllables in a poly-syllabic word. Therefore, above English loanwords are re-syllabified in Brahui. One of the reasons behind /r/ metathesis is universal scale of sonority. The most suitable phonemes on onset are obstruent because mostly languages prefer less sonorous phonemes on onset and more sonorous ones on coda. Same has been applied to the above mentioned examples of English loanwords in Brahui.In all three examples, /r/ for being more sonorous has been placed on coda and less sonorous segment has been relocated to onsets. It is easy for the Brahui speakers to produce it according to the pattern of their own language.

5. Conclusion

In this study we found that like other languages of the World, Brahui speakers have also followed the same pattern in loanword adaptation. The analysis exhibits that phonological processes used by Brahui speakers were, deletion, insertion, substitution and metathesis in the selected corpora. It is

worth mentioning here that Brahui follows the universal adaptation pattern by deleting one of the components of a consonant cluster when it is on final position, and in the same vein, it inserts a vowel at the initial position to break an unwanted consonant string.

In substitution process, Brahui speakers substitute the voiced sound with its voiceless counterpart as far as devoicing is concerned. Substitution of liquid with rhotic or vice versa is a common phenomenon world over. It is an accepted 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. The uniqueness of the language under discussion is that it has a different behaviour in the process of palatalization. Cross linguistic research suggests that change of /s/ into /ʃ/ is triggered by the front vowel /i/ that follows /s/, but in Brahui, the said vowel precedes /s/ and still the change occurs.

This research was limited to Sarawani dialect of Brahui language, another research of the same nature can be done to investigate the processes in other dialects with an inter-dialectal analysis. This study focuses on only English as a source language while Brahui contains a number of loanwords from other languages like Balochi, Persian, Pashto, Sindhi etc. as well. So further research can be conducted on loanwords of more than one language to find out either the same processes are active in adaptation of loanwords from other languages or not. Such a project will help us in developing a bigger generalization about loanword adaptation of Brahui language.

References

Adler, A. N. (2006). Faithfulness and perception in loanword adaptation: A case study from Hawaiian. *Lingua*, *116*(7), 1024-1045.

Ahmadkhani, M. R. (2010). Phonological metathesis in Persian: Synchronic, diachronic, and the optimality theory. *Pazhuhesh-e Zabanha-ye Khareji Journal*, 56, 5-24.

Akhtar. J. (2008). *Brahui Lisaniyat.* Quetta: Brahui Academy.

Baloch, F. (2012). *Baloch aurunkaWatan.* Lahore:Fiction house.

Barron, A. W. J. (1961). The English Dental Fricatives in India. *BCIEFL* (1) 84-86.

Bashir, E. L. (1991). *A Contrastive Analysis of Brahui and Urdu*, Washington, D.C. and Peshawar, Pakistan: Academy for Educational Development.

Blevins, J & Andrew, G. (2004). The evolution of metathesis. In Bruce Hayes, Robert Kirchner &DoncaSteriade (Eds.) *phonetically*

based phonology (pp 117- 156). Cambridge: Cambridge University Press.

Blevins, J., & Garrett, A. (1998). The origins of consonant-vowel metathesis. *Language*, 508-556.

Blust, R. (1979). Coronal-noncoronal consonant clusters: New evidence for markedness. *Lingua*, 47(2), 101-117.

Brahui. (n.d.). Retrieved December 7, 2015, from http://www.ethnologue.com/language/brh

Bredsdorff, J. H., & ANDERSEN, H. (1982). On the Causes of Linguistic Change (1821). Bredsdorff-Life and Work. *Historiographialinguistica*, *9*(1-2), 1-41.

Broselow, E. (1999). "Loanwords and learn ability", Handout of a talk given at the University of Maryland, 3 December 1999.

Caldwell, T. A., Oswalt, J. N., & Sheehan, J. F. (1977). *An Akkadian grammar: a translation of Riemschneider'sLehrbuch des Akkadischen*(Vol. 1)*.* Milwaukee: Marquette University Press.

Caldwell, R. (1856). *A comparative grammar of the Dravidian or South-Indian family of languages*, London: Harrison.

Clements, G. N. (1990). The role of the sonority cycle in core syllabification. *Papers in laboratory phonology*, *1*, 283-333.

Emeneau, M. B. (1980). *Language and linguistic area: essays* (Vol. 14). Stanford University Press.

Gouskova, M. (2001). Falling sonority onsets, loanwords, and syllable contact. *CLS*, *37*(1), 179-180.

Gouskova, M., & Hall, N. (2009). Acoustics of epenthetic vowels in Lebanese Arabic. In: Parker, Steve (Eds.), *Phonological argumentation: Essays on evidence and motivation* (pp. 203-225). London: Equinox.

Hafez, O. (1996). Phonological and morphological integration of loanwords into Egyptian Arabic. *Égypte/Monde Arabe*, Première série, 27-28. [Online] Available:http://ema.revues.org/index1958.html

Hall, N. (2011). Vowel epenthesis.In Marc van Oostendorp, Colin J. Ewen, Elizabeth Hume & Keren Rice (Eds.)*,* The *Blackwell companion to phonology* (pp. 1576-1596). Malden, MA & Oxford: Wiley-Blackwell.

Harris, J. (1990) Segmental complexity and phonological government. *Phonology* 7(01), 255-300.

Haspelmath, M. (2009). Lexical borrowing: Concepts and issues. In Haspelmat, Martin &Tadmor, Uri (Eds.),*Loanwords in the world's languages: A comparative handbook* (pp. 35-54). Berlin: De Gruyter.

Haugen, E. (1950). The Analysis of Linguistic Borrowing. *Language*, 26(2), 210-231.

Hock, H. H. (1991). *Principles of historical linguistics*. New York: Mouton de Gruyter.

Hume, E. (2001). Metathesis: Formal and Functional Considerations. In E. Hume, N. Smith and J. van der Weijer (Eds.) *Surface Syllable structure and Segment Sequencing* (pp 1-24). Leiden: HIL Occasional Papers.

Hume, E. (2004). The Indeterminacy/Attestation Model of Metathesis, *Language,* 80, 203-237.

Hyman, Larry. (1975) *Phonology: Theory and Analysis*. New York: Holt, Rinehart and Winston.

Iverson, G. K., & Salmons, J. C. (1999). Glottal spreading bias in Germanic. *LinguistischeBerichte*, 178,135-151.

Kachru, Braj B. (1969). English in South Asia. Sebeok, T. (Eds.), *Current Trends in Linguistics* (pp. 627-678).The Hague: Mouton.

Kay, G. (1995). English loanwords in Japanese. *World Englishes*, 14(1), 67-76.

Kenstowicz, M. (2001). The Role of Perception in Loanword Phonology. *Studies in African Linguistics,* 32, 95–112.

Kenstowicz, M., &Suchato, A. (2006). Issues in loanword adaptation: A case study from Thai. *Lingua*, 116(7), 921-949.

LaCharité, Darlene, and Carole Paradis. (2005). Category Preservation and Proximity versus Phonetic Approximation in Loanword Adaptation. *Linguistic Inquiry* 36(2), 223-258

Ladefoged, P. (1975). *A Course in Phonetics*. New York: Harcourt Brace Jovanovich.

Lass, R. (1984) *Phonology: an Introduction to Basic Concepts*. Cambridge: Cambridge University Press.

Lass, R., & Anderson, J. M. (1975). *Old English Phonology* (Vol. 14). Cambridge:Cambridge University Press.

Leech, R. (1838). Epitome of the grammar of the Brahuiky, the Balochky and the Panjabi languages. *Calcutta, Asiatic society of Bengal*, 7, 538-56

Liberman, A. M., Delattre, P., & Cooper, E (1952). The role of selected stimulus variables in the perception of the unvoiced-stop consonants. *American Journal of Psychology,* 65,497-516.

Maddieson, I. (1984). *Patterns of sounds*. Cambridge: Cambridge University Press.

Mahboob, A., &Ahmar, N. H. (2004). Pakistani English: Phonology. In E.W. Schneider(Eds.)*, A Handbook of Varities of English: A*

Multimedia Reference Tool (pp. 1003-1015). Berlin: Moutin de Gruyter.

Mahmood, R., Hussain, Q., & Mahmood, A. (2011). Phonological Adaptations of English words borrowed into Punjabi. *European Journal of Social Sciences*, *22*(2), 234-245.

Mascaró, J. (1984). Continuant spreading in Basque, Catalan and Spanish. In M. Aronoff, et al., (Eds.), *Language sound and structure* (pp. 287-298). Cambridge MA: MIT Press.

Moskel, B. (2009). *The illusion of Metathesis*, M.Phil Thesis: Leiden University.

Pandey, P. (2010). Indo-Aryan Phonology. To appear. In New Indo-Aryan Languages. Moscow: Institute of Linguistics, Russian Academy of Sciences. [Languages of the World Series] 2010.

Pandit, P. B. (1964). Indian readjustments in the English consonant system. *Indian Linguistics,* 25, 202-205.

Paradis, C. (1996). The inadequacy of filters and faithfulness in loanword adaptation. In J. Durand, & B. Laks (Eds.), *Current trends in phonology: Models and methods* (pp. 509-534). Salford, Manchester: European Studies Research Institute, University of Salford.

Paradis, C., &LaCharité, D. (1997). Preservation and minimality in loanword adaptation. *Journal of linguistics*, 33(02), 379-430.

Peperkamp, S. &Dupoux, E. (2003). Reinterpreting loanword adaptations: The role of perception. In: M.J. Solé, D. Recasens& J. Romero (Eds.) *Proceedings of the 15th International Congress of Phonetic Sciences*(pp.367-370)*.* Adelaide: Causal Productions.

Peperkamp, S. (2004, June). A psycholinguistic theory of loanword adaptations. In *Annual Meeting of the Berkeley Linguistics Society*, 1, 341-352.

Peperkamp, S., Vendelin, I., & Nakamura, K. (2008). On the perceptual origin of loanword adaptations: experimental evidence from Japanese. *Phonology*, *25*(01), 129-164.

Poplack, S., Sankoff, D., & Miller, C. (1988). The social correlates and linguistic processes of lexical borrowing and assimilation. *Linguistics*, *26*(1), 47-104.

Pottinger, H. (1816). *Travels In Beloochistan And Sinde: Accompanied By A Geographical And Historical Account Of Those Countries; With A Map*. London: Longman, Hurst, Rees, Orme, and Brown.

Sany, L. A., Shahwani, S. A., &Hanfi, M. A. (2014). THE HISTORY OF BRAHUI ALPHABET. *Balochistan Review,xxx,* 1, 107-112.

Silverman, D. (1992). Multiple scansions in loanword phonology: evidence from Cantonese. *Phonology*, *9*(02), 289-328.

Syed, Nasir, A.; Ansari, S., & Gopang, I. B. (2017). Perception and Production of Consonants of English by Pakistani Speakers. *International Journal of English Linguistics*, 7(3), 201-2014.

Thurneysen, Rudolf. (1898) Review of Pedersen (1897). *AnzeigerfürindogermanischeSprach- und Altertumskunde. Beiblattzu den IndogermanischenForschungen,9*, 42-48.

Uffmann, C. (2006). Epenthetic vowel quality in loanwords: Empirical and formal issues. *Lingua*, *116*(7), 1079-1111.

Winter-Froemel, E. (2008). Studying loanwords and loanword integration: Two criteria of conformity. In: *Newcastle Working Papers in Linguistics*, 14, 156-176.

Yip, M. (2006). The symbiosis between perception and grammar in loanword phonology. *Lingua*, 116(7), 950 - 975.

Zuraw, K. (2007). The role of phonetic knowledge in phonological patterning: corpus and survey evidence from Tagalog infixation. *Language*, *83*(2), 277-316.