



PHONEMIC COMPARISON OF MAJHI AND SHAHPURI-DIALECTS OF PUNJABI

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Abstract

Punjabi belongs to the Indo Aryan family of languages, and is spoken in various nations in the world, especially Pakistan and its province Punjab as well as in Indian Punjab. Punjabi manifests itself by its various dialects on the basis of diversified geographical areas. Shahpuri is one of the dialects of Punjabi. As Punjabi is the 10th most widely spoken language in the world, its importance cannot be denied (Ghai & Singh, 2013). The majority of the people living in the most populous province of Pakistan use Punjabi in their daily life. It is among the 22 languages which have official status in India. Unfortunately, the phonology of Punjabi and its dialects has not been explored as much as those of some other languages and their dialects. This research paper is an attempt to explore the differences between Standard Punjabi and Shahpuri in the domain of their phonology by using the framework of the Levenshtein algorithm. These differences and similarities are described with the help of this procedure, which contains all the consonant sounds. The data is collected by purposive sampling from the speakers of both linguistic systems. The present research article shows that there is almost 80% similarity between the standard Punjabi and Shahpuri. This research article provides a foundation for the research in the phonology of both the dialects of Punjabi.

Key Words: Punjabi, Majhi, Shahpuri, Dialect, Phonemic Differences, IPA, Levenshtein algorithm, Sociophonetics.

Introduction

In Pakistan, Punjabi is the language of the majority of the people residing in the most populous province of Pakistan, Punjab.¹ It coexists with Urdu and English, as well as other regional and local languages of Pakistan. It has a contradictory level of prestige since it is the language of the majority of the inhabitants of Pakistan, yet, parents have become somehow reluctant to teach it to their children in the past two decades. In India, it is one of the 22 languages that have official status.² The colloquial Punjabi language can be divided into three groups: Central which is the Majhi dialect spoken in Lahore and Amritsar and it makes the literary language; the Dogri in northern Punjab; and the western dialects that gradually change into Lahnda (Campbell, 1991). In addition to Pakistan and India, the speakers of Punjabi are also found in Canada, East Africa, and the United Kingdom. According to Bhatia (1993) almost forty-five million speakers use Punjabi either as their first or second language. However, Ethnologue (2022) lists 65,000,000 speakers in all countries. There is variation among the dialects of Punjabi which led it to be classified into four groups; *Eastern dialects, Dogri, Majhi and Western dialects* (Shackle, 1970). According to Sir Richard C Temple (1883), Punjabi has been classified into four major dialects: Majhi, Multani, Potohari, and Pahari. On the other hand, Campbell divided the Punjabi language into three groups: Central, the Majhi dialect spoken in central Punjab and it makes the literary language; the Dogri in northern Punjab; and the western dialects that gradually change into Lahnda. It is a well known fact that Shahpuri is a dialect of Punjabi and the present endeavour entails to bring out the phonemic differences and similarities between the two dialects of Punjabi. For this reason it is pertinent to provide the classification of

¹According to Ethnologue 60,600,000 in Pakistan (2016). <https://www.ethnologue.com/language/pnb>

²CIA Fact book. <https://www.cia.gov/library/publications/the-world-factbook/geos/in.html>



the parent language and its other dialects to maintain coherence in the discussion. The name Shahpuri derives from the district of Shahpur in Punjab which constitutes Tehsil Shahpur now in Sargodha district.³ Shahpuri is the oldest dialect spoken in the different western parts of Punjab. It can be taken as an amalgamation of different dialects of Punjabi for example Majhi (the standard dialect of Punjabi), Thalochi and Pothohari.⁴ In different areas of Punjab, its various varieties are used. The dialect is spoken in the wide areas of different districts of Punjab including Sargodha, Bhakkar, Mianwali, Dera Ghazi Khan, Chakwal, Attock, Mandi Bahauddin, Jhang and various parts of Dera Ismail Khan, Faisalabad, Chiniot, and Bahawalpur district including Dera Chanpeer Shah and Khushab (John, 2009). There are various significant elements which tend to make it different from other variants of Punjabi. Majhi is spoken in the central territories of Punjab including the main cities Lahore and Amritsar for at least 300 years. It is taken as standard dialect of Punjabi and is the basis for literary language (Shackle, 1970)

Purpose of the Study

The purpose of the present research is to investigate the phonemic differences and similarities between Shahpuri and Majhi. Majhi is a dialect of Punjabi, that has been made a standard dialect of Punjabi language due to its prestigious status and usage. (Bhatia, 1993; Karamat, 2001). On the other hand, Shahpuri is the standard dialect of the western Punjabi (Greirson, 1915). The main purpose of describing these differences and similarities will be obtained by calculating the index of similarity, in term of ratio, between Majhi and Shahpuri.

Statement of the problem

Various languages and their dialects have been researched phonemically. Punjabi is the language which has been least researched in the domain of its dialectical phonology. However, the Standard dialect of Punjabi has been researched phonologically . Shahpuri dialect of the Punjabi language, though spoken by a large number of speakers in Punjab and Sindh, has not been explored yet. Majhi is one of the dialects of Punjabi which is the most studied out of all the other dialects of the Punjabi language. The phonology of Punjabi and its phonological features have been studied by various researchers (Karamat, 2001; Dua, Aggarwal, Kadyan, & Dua, 2012; Singh, Khanna, & Goyal, 2013). However, the phonology of the other dialects of Punjabi has not been researched. Shahpuri is also one of them. The phonemic similarities and the differences between Majhi and Shahpuri dialect have not been documented until now. For this reason the similarity index between Shahpuri and Majhi is not known. The outcome of this research article is to find phonemic similarities and differences between Majhi and Shahpuri. This study attempts to provide a platform to achieve the index of similarity between the two linguistic systems.

Objectives

The chief objective of the present research is to determine the phonemic similarity and difference levels between Mahji and Shahpuri.

Research Questions

1. What is the similarity index in terms of ratio between the consonants of Majhi and Shahpuri?
2. What is the difference index in term of ratio, between the consonants of Majhi and Shahpuri?

³District Court Sargodha http://sargodha.dc.lhc.gov.pk/?page_id=1335

⁴Colin Masica. (1993) *The Indo-Aryan Languages*. Cambridge University Press. 18.



Assumptions

According to Maldonado García & Borges de Souza, (2014) the dialects of the same language may present more than 80% similarity between them. In the light of this research, there must be more than 80% similarity between Majhi and Shahpuri, as both are the dialects of Punjabi (Masica, Cardona, & Jain, 2005).

Literature Review

Punjabi is among the 22 languages which have an official status in India. Punjabi is the first official language of the province of Punjab (India) and Union Territory State Chandigarh. It has become the 2nd official language of Haryana, Himachal Pradesh and Delhi. So far as the status of Punjabi in Pakistan is concerned, Punjabi is the provincial language of Punjab, the second largest and the most populous province of Pakistan (Kaur, 2012).

There is a considerable number of Persian and Arabic loanwords in Punjabi. These loanwords have sounds which were unknown to South Asian languages before the influence of Arabic and Persian. Therefore, these sounds are represented by introducing diacritics underneath specific Gurmukhi characters. Since the Gurmukhi alphabet is phonetic, any loanwords which contained pre-existing sounds were more easily transliterated without the need for characters modified with diacritic signs.

Modern Punjabi is considered a tonal language. It is due to the fact that it makes use of various tones in order to discriminate words that would otherwise be the same (Ghai, W., & Singh, N. 2012). In the Punjabi language, there are three types of tones: high-rising-falling, mid-rising-falling, and low rising, are identified as primary tones. It is the proper use of tone that makes Punjabi speakers able to differentiate among the words which can appear exactly the same in some cases. It is highly challenging for the learners, who want to learn Punjabi as their second language, to achieve proficiency in using the proper tones. The understanding of tones is of utmost importance while using the Punjabi language for every day purposes. The change of tone can change the pragmatics of the language (Brinton & Traugott, 2005). Western Punjabi (called Lahnda by some authors) and eastern Punjabi, also called Majhi, are considered major varieties of Punjabi. The standard dialect of eastern Punjabi is Majhi as well as of western is Shahpuri (Grierson, 1916). Grewal (2008) tried to discover the history of Punjabi, starting from Rigveda and the influence of different administrative changes and influences on the lifestyle of five Doabs. He also investigated the emerging of new communities and societies under the influences of these invaders. He also shows the development of new dialects.

Inventories of Punjabi

According to Lan Maddieson (1984) a phonetic inventory could explain all speech sounds, regardless of this, the sounds are produced correctly or not in a specific language.

Punjabi is phonetically similar to Hindi but presents differences the script and historical development. The pronunciation of Punjabi varies with reference to the geographical areas of Pakistan and the same happens in the Indian territories. Punjabi is a rich language with a large variety of sounds and all of these sounds can be differentiated on the basis of duration, quality, and nasalization (Rehman, 2006). In Punjabi, the tone is segmental and phonemic in function which causes pitch variations for distinguishing the different meanings of a word that has the same vowel and consonant pattern (Karamat, 2012). Nasalization is another important but less understood feature by Punjabi speakers. The sounds are produced with the configuration of the oral and nasal tract; the complete closure of the nasal tract produces nasal vowels with the open velopharyngeal port (Zahid, 2010).



Karamat (2012) in her research “The Phonemic Inventory of Punjabi” tried to make an inventory of Punjabi spoken in Lahore and its surrounding areas. For this purpose, she gave various references of already available inventories of Punjabi. Punjabi possesses a large number of regional dialects which are spoken in both India as well as in Pakistan. According to Karamat the Punjabi phonetic system involves five distinctive tongue positions: labial, dental, retroflex, palatal and velar. Chohan & Maldonado Garcia (2019) compiled a consonant inventory of Punjabi language (Mahji dialect) which is the inventory most up to date until the present time. This inventory was utilized for making the comparison between both the inventories.

Phonetic Similarity

Gooskens and Schneider (2016) state that we may divide the word into two parts to calculate the word similarity. The “orthographic” part is more close to the real sounds while employing comparison on character level. The separate encoding does not have any effect on the outcome. The “phonetic” appeals try to obtain the benefit of the phonetic characteristics of separate sounds for the calculation of similarity indexes. The classification of the language appeals to a definite structure of features regarding sound systems; phonemic inventory, rhythmic patterns and prosodic structures.

Although a lexical item may only be provided with a single symbolic representation, this is often used and interpreted on more than one level of abstraction. The most apparent level and initial interpretation are phonetic: the transcription gives us some idea of the phonetic realization of a word. From a comparative perspective, we can deduce phonetic similarity, even if, given the coarse level of phonetic transcription, there is the tacit assumption that identical transcriptions of words from two different languages will not be phonetically identical. Assigning feature values to the symbols in these phonetic transcriptions we can also measure differences between different representations of cognate items in different languages or language varieties using a metric distance (Levenshtein, 1965). However, although not immediately apparent, single symbolic representations of lexical items also encode systemic phonological information which a simple phonetic transcription itself need not. We assume that the symbolic differences being made in the phonetic representations of words in a language also minimally represent the relational set of lexically meaningful contrasts. Transcriptions might intentionally or unintentionally go beyond this by providing more phonetic detail that is necessary for representing the set of lexically relevant phonological contrasts. Pronunciation dictionaries are typically applied to intentional examples of this, being basically phonemic in their conception, but providing phonetic additions to indicate cases of substantial allophonic variation. Despite this, an attempt is made to measure the boundaries between different levels of abstraction, for instance, by using terms such as phonetic and phonemic interchangeably Schepens et al. (2013). Of course, the phonetic/phonological transcriptions forming the basic data in databases, such as those listed above, do allow for comparison. It is possible to identify cognates and compare cognate forms. Undoubtedly, it is the case that many similarities and more subtle differences are being missed because transcriptions are overly broad focusing on specific details—the symbolization of contrasts within the particular languages and ignoring other details in individual languages, often those not considered relevant to phonological contrast, but which might be eminently important in understanding cross-linguistic patterns (Hard castle & Beck, 2005). Indeed, it is important not to forget that the content of the International Phonetic Alphabet itself is designed and has been repeatedly revised to accommodate the sounds that bring about contrast

in the languages of the world and does not reflect human sounds production capabilities, not even many of those found in typical allophonic variation (Simpson, 2014).

Levenshtein Distance

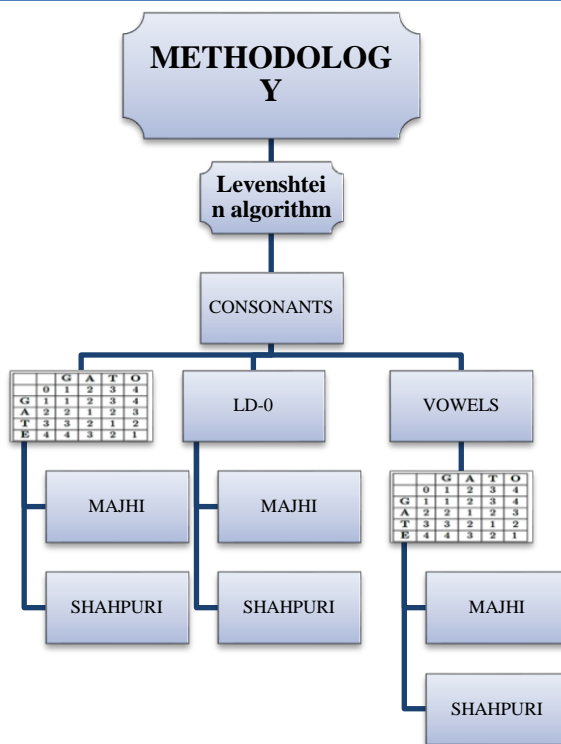
The Levenshtein distance is a method of calculation of the distance between the two strings. This method works through insertions, substitution, and deletion. The difference between the strings depends on the number of differences between both of them. The greater number in the Levenshtein distance the greater the level of differences between both of the strings.. The following example may well explain this algorithm: "kitten" and "sitting" have a difference of three strings.

1. Kitten → sitten (substitution of "s" for "k")
2. sitten → sittin (substitution of "i" for "e")
3. sittin → sitting (insertion of "g" at the end).

Methodology

A mixed methods approach to research is used as the methodology. Both quantitative and qualitative methodology are used to analyze the phonemic variations between the dialects of Punjabi. A word corpus which contained the targeted phonemes was used for the comparison with the the existing phonetic inventory of Majhi. This comparison yielded the expected results. Framework

The Levenshtein algorithm is used as the framework of the research. This algorithm gives an precise procedure for the extraction of the the phonetics similarities and differences between both linguistic systems through the comparison of their sounds. For this purpose the IPA transcription was utilized. (Maldonado García & Borges de Souza, 2014; Heeringa, 2004; Sanders & Chin, (2009).



0.1 Framework flow chart

Population of the study

Both male and female adult speakers of Shahpuri and Majhi (dialects of the Punjabi language) in the province of Punjab constituted the population of this research.

Corpus

A list of words containing all sounds of the phonetic inventory of Standard Punjabi (Mahji), in the form of text, was prepared for the analysis of differences and similarities between Mahji and Shahpuri. To find out these similarities and differences, the list comprised of all possible representative words that contained these sounds.

Once the sounds were compiled, they were mapped into charts side by side to make the comparison possible.

The analysis was then carried out and the similarities and differences extracted.

Data Analysis

The data was analyzed on the basis of the number of distances calculated through the Levenshtein Algorithm. The analysis gives the distance in term of numbers between two sounds. This algorithm has been scientifically utilized by various scientists with different purposes. For example, Kessler (1995) used it to calculate the ratio similarities and differences between the strings of two Irish dialects. In this study, the Levenshtein distance is utilized to calculate the distance between Majhi and Shahpuri in term of their phonemes. In the first place, the sounds with zero distance were revealed:

Same sounds in both dialects (Distance 0 or 100% Similarity)

The following table maps the sounds that are the same in both Mahji and Shahpuri:

Table 0.1 Phonemes with zero distance

Sr. No.	Sound in	Sound in	Levenshtein
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	Majhi	Shahpuri	Distance
1.	/π/	/π/	0
2.	/π ⁿ /	/π ⁿ /	0
3.	/β/	/β/	0
4.	/τ/	/τ/	0
5.	/τ ⁿ /	/τ ⁿ /	0
6.	/δ/	/δ/	0
7.	/τ/	/τ/	0
8.	/τ ⁿ /	/τ ⁿ /	0
9.	/δ/	/δ/	0
10.	/κ/	/κ/	0
11.	/κ ⁿ /	/κ ⁿ /	0
12.	/γ/	/γ/	0
13.	/τΣ/	/τΣ/	0
14.	/τΣ ^h /	/τΣ ^h /	0
15.	/δZ/	/δZ/	0
16.	/φ/	/φ/	0
17.	/ω/	/ω/	0
18.	/σ/	/σ/	0
19.	/ζ/	/ζ/	0
20.	/Σ/	/Σ/	0
21.	/Ξ/	/Ξ/	0
22.	/Γ/	/Γ/	0
23.	/η/	/η/	0
24.	/μ/	/μ/	0
25.	/ν/	/ν/	0
26.	/N/	/N/	0
27.	/νκ/	/νκ/	0
28.	/ρ/	/ρ/	0
29.	/4/	/4/	0
30.	/λ/	/λ/	0
31.	/λ̄/	/λ̄/	0
32.	/φ/	/φ/	0

In the light of above table, 32 consonant sounds have zero distance phonemically between them as per the Levenshtein Algorithm. This means that the sounds belong and are the same in both dialects.

Consonant Sounds with only One Character Difference or distance 1

Levenshtein Algorithm calculated that 32 consonant sounds in Majhi and Shahpuri dialects have zero difference and maximum similarity between them, but some sounds have a phonetic difference as well. A Levenshtein difference of 1 means in this case that the sounds are completely different in both dialects. The consonant sounds with distance 1 are given in the following table:

Table 0.2 Phonemes with distance of 1

Sr. No.	Sounds in Majhi	Sounds in Shahpuri	Levenshtein Distance
1.	/P/	/b ⁿ /	1
2.	/tΣ/	/dZ/	1
3.	/τ̄/	/δ ⁿ /	1

4.	/ṭ/	/ḍ ^h /	1
5.	/ḳ/	/g̣ ^h /	1
6.	/p/	/p ^h /	1
7.	/ʈ/	/ʈ ^h /	1
8.	/ɽ/	/ɽ ^h /	1
9.	/v/	/v ^h /	1
10.	/v/	/N4/	1
11.	/ʌ/	/ʌ ^h /	1
12.	/ɸ/	/ɸ ^h /	1
13.	/ɸ/	/ɸ ^h /	1

In the light of the above table, there are 13 sounds which have 1 distance phonemically between them as per the Levenshtein Algorithm.

Tabularized comparison and contrast of the consonants of both dialects

The distance measure above shows that the sounds which have a distance of zero are considered similar sounds in the inventories. While the sounds with difference of one are considered different sounds present in the inventories. The table below the number of similar sounds and the percentage of similarity between two dialects:

Table Similarity index

Dialectical Sounds	Majhi and Shahpuri
Total similar consonant sounds	32
Total consonantal phonemic similarity	86.51%

In term of differences between the sounds of both the dialects, the following table is self-explanatory:

Table Index of differences

Dialectical Sounds	Majhi and Shahpuri
Total no of different consonant sounds	13
Total consonantal phonemic difference	13.49%

The analysis shows that Majhi and Shahpuri are 86.51% phonemically similar to each other. On the other hand, their distance in term of the ratio is 13.49 %. The index of similarity and difference rendered in term of ratio shows that Majhi and Shahpuri are the two dialects of the same language as both have maximum structural overlap and mutual intelligibility. Both the dialects have more similarity and less difference.



Figure 0.1 Similarity and difference index

The above pie graph shows the ratio of difference and similarity index between Majhi and Shahpuri dialects of the Punjabi language.

Discussion

32 consonant sounds of Majhi, which are also used in Shahpuri dialect, were selected to know their difference and similarity used by both Majhi and Shahpuri speakers. The sounds are



put in a meaningful word, spoken by the native speakers of the dialect, in order to confirm the presence of the sound in certain the dialect. The data were categorized according to the different phonemic distance measures between the two dialects. The sounds having zero measurements and 1 are tabulated separately. The analysis of the sounds and alphabets according to the above-mentioned categories revealed the following results.

Table Total sounds with distance

Levenshtein distance	Number of sounds
0	33
1	13
Total	46

Conclusion

In the light of the above discussion, it can be concluded that among 45 consonants sounds used both in shahpuri and Majhi, 32 sounds have 100% similarity in both the dialects. Whereas, only 13 sounds are used differently among the 45 consonants sounds by the speakers. Thus the similarity level as per the Levenshtein Algorithm, between the consonant sounds of these two dialects is 86.51% and the distance between these dialects is 13.49%. So far as vowel sounds are concerned, both the dialects share the same number of the vowel sounds. All twenty vowel sounds are used by the speakers of both Majhi and Shahpuri dialects. So, the similarity index in term of vowel sounds between Majhi and Shahpuri is 100 % and the difference is of 0 %. Thus the cumulative percentage of similarity index in term of both consonants and vowel sounds is 86.51% and the difference is 12.49%. The outcome of this research testifies our assumption, that the similarity percentages higher than 85% between the two linguistic systems generally indicate that both the systems are likely dialects of the language with which it is being compared (Maldonado García & Borges de Souza, 2014).

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