International Journal of Linguistics, Literature and Translation (IJLLT)
ISSN: 2617-0299
www.ijllt.org

Morphophonemic Variations in the Saraiki Language

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ARTICLE INFO

Received: April 06, 2019
Accepted: April 20, 2019
Published: May 31, 2019
Volume: 2
Issue: 3
DOI: 10.32996/ijllt.2019.2.3.6

KEYWORDS

Saraiki, Morphophonemic, suffix, irregularity, morphology, verbs

ABSTRACT

The current study explains the morphophonemic variation in Saraiki language. The complete phenomenon is described through the analysis of Saraiki phonology and morphology. The data has been collected from the daily speech of Saraiki speakers and from the comparative dictionary of Indo-Aryan languages and is analysed through morpheme-based theory. The study explains how irregularity occurs in the formation of Saraiki words and exposes its morphophonemic structure as well. The study describes how this morphophonemic process works differently with different type of roots. The behaviour of same suffix varies with the variation of a root. The structure of suffix changes in different conditions when root is coda less, having coda, roots ending with /s/ and having /ɦ/ coda. The current study also elaborates the process of changing noun into verb and vice versa.

1. INTRODUCTION AND HISTORICAL BACKGROUND OF THE SARAIKI LANGUAGE

According to Bickerton (1995), all languages of the world evolved from a single language "proto-language" and with the passage of time, these languages separated from their parentage. Languages of the world are classified into various families of which Indo-European is the largest. The Indo-European language family has different branches, the main branches of the family are Indian or proper Aryan, Indo-Iranian, Greek, Italic, Celtic, Albanian, Tocharian, Balto-Slavonic, and Germanic, etc, (Wagha, 1990). According to Jain and Cardona (2007), the language families of sub-continent are Indo-Aryan, Indo-Iranian, Dravidian, Munda, and Tibeto-Burman. Berton (1999) claims that in sub-continent the speakers of Indo-Aryan languages are about 78.7% of the whole population. According to Jain and Cardona (2007), other language families such as Iranian in the west, Tibeto-Burman in the east and north and Dravidian in the west encircle the Indo-Aryan region. Saraiki is one if the Indo-Aryan language spoken in India and Pakistan.

There are different linguists who do not consider Indian or Indo-Aryan directly in the family of the Indo-European languages. According to Masica (1993), Indo-Aryan language family is sub-branch of thee Indo-European family a widely spoken language in India, Pakistan, Bangladesh, Nepal, Sri Lanka and Maldives Islands. In the year of 1991, the Indo-Aryan speakers were around 875 million. They constitute a branch of Indo-Iranian which itself is the branch of Indo-European language family. However, it is important to know that how these languages developed with the passage of time but it is very hard to be certain about historical changes in a language. Masica (1993) stated that the speakers of Indo-Aryan and Indo-Iranian split from each other around 2000 B.C. He claims that Indo-Aryan and Indo-Iranian languages have a close and genetic relationship.

Linguistically the development of Indo-Aryan languages is divided into three stages Old, Middle and New Indo-Aryan (Masica, 1993) which are often abbreviated as OIA and NIA. A large variety of languages spoken today in the sub-continent is known as new Indo-Aryan languages. The most spoken language of NIA family is Hindustani that is considered the fourth most spoken language in the world (Masica, 1993). Since this study focuses the morphophonemic analysis of Saraiki language, therefore, how Saraiki is developed in the Indo-Aryan family is given in the next section.

1.1 Development of the Saraiki language

Saraiki has become the language of interest for linguists for some decades but it was hard to find out the exact origin of Saraiki. In order to locate Saraiki language among different language families of the world, we have to be concerned to the Indo-Aryan language family. This language is largely spoken in

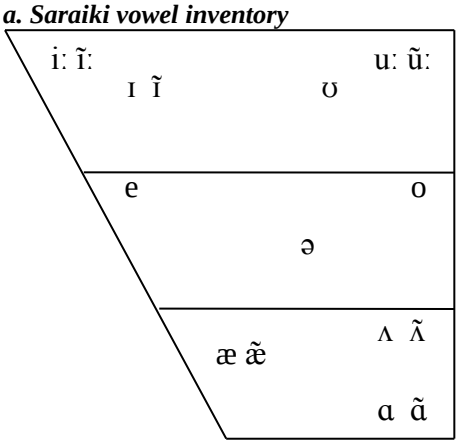
southern Punjab and some other areas of Pakistan. It is spoken in some areas of India also. The status of Saraiki as the main language is very controversial because of its vocabulary and grammar, which resembles Sindhi and Punjabi both (Wagha, 1990).

According to Wagha (1990), Saraiki is always confused with the dialects of Punjabi language, spoken largely in Punjab and usually found to be quite a different language and seems to be closer to Sindhi. Grierson (1919) claims that Saraiki is a dialect of Vicholi 'which is the language of the central part of Sindh. According to him, for Sindhi speakers, it is the purest form of Sindhi language. He finds Saraiki closer to the Lahnda language or western Punjabi. However, Haq (1972) shows Saraiki and Punjabi belonging to different groups of Indo Aryan languages. Apart from all these Atta (in prep) declared Saraiki as a separate language. According to her on the basis of some mutual intelligibility, a language cannot be declared as dialect or language, on contrary to, there are so many languages which are mutually unintelligible but they are considered as the dialect of same language as in case of Chinese dialects.

1.1.1 Saraiki phonology

The language has a rich phonemic inventory with implosives and a large number of breathy voiced consonants. The number of consonants are 49 and 16 vowels including nasal vowels Atta (in prep). The Saraiki phonemic inventory is given:

a. Saraiki vowel inventory



b. The Saraiki consonant system

	Labial	Dental and alveolar	Retroflex	Palatal	Velar	Glottal
Plosive	p b pʰ bʱ	t̪ d̪ t̪ʰ d̪ʱ	ʈ ɖ ʈʰ ɖʱ	c ɟ cʰ ɟʱ	k g kʰ gʱ	
Implosive	ɓ	ɗ		ʄ	ɠ	
Nasal	m ɱ	n	ɳ	ɲ	ŋ	
Tap or flap		ɾ	ɽ			
Fricative	f	s z		ʃ	x ɣ	ɦ
Approximant	ʋ	l		j		

As the consonant chart shows, Saraiki presents a six-way laryngeal contrast for the stop series: plain voiceless, plain voiced, aspirated voiceless breathy voiced and implosive-explosive. Almost all sonorants also show a plain-breathy contrast.

1.2. Research objectives

The main objectives of the study are listed below;

a. To find the reasons behind asymmetry in the morphophonemic structure of Saraiki.

b. The current study will uncover how morphophonemic structure works in Saraiki word-formation.

C. The study will also list the nature, behavior and role of affixes in word-formation in Saraiki

2. LITERATURE REVIEW

The interface of Morphology and phonology explains how morphemes and phonemes of a language interact to form new morphophonemic processes. It focuses on the changes of sounds that occur when these sounds are combined to form words. Jusiah and Udoudom (2012) mention in their study that the term "morphophonemic" is generally used to describe a linguistic statement that can be made of the phonemic structure of morphemes and their effect on the grammatical content of the languages". Simply it can be said that morphophonemic is the classification and analysis of phonological features which effects the articulation of morphemes. According to Hyslop (2014), phonology is the study of sounds and morphology is the study of morphemes. When these both are combined, it becomes morphophonology, which studies how sounds change.

The morphophonemic contrast is different in various languages of the world. Hyslop (2014) studied the morphophonemic contrast in Kurtöp, the language that is spoken in Bhutan and belongs to the Tibeto-Burman language family. Shafer (1954) was the first person who used the term 'East Bodish' for Kurtöp. Hyslop (2014) claims that Kurtöp has seven vowels and there are thirty consonants in their phonemic inventory. The stem in Kurtöp demonstrates the distinction incomprehension of -k that occurs at the final position of stem and the stem-final consonant that are voiced only. In his study of Kurtöp language, the author describes that "Verb stems with final –k loses their coda consonant word finally". According to the researcher, variation occurs when suffixes -ta and –Shang are added in the presence of final -k and the suffixes male or –wala are used when the final /k/ is absent. At the final position of stem usually –k is replaced by a long vowel. The author explains that when /k/ is at the final position of stem it is lost because of the lengthening of the preceding vowel. It is also lost when suffixes like –wala are added. According to Lowes (2006), when stem-final /k/is lost, and then it changes into the long vowel. According to Hyslop (2014) in the verbal morphology of Kurtöp, there exists a small number of morphophonemic fluctuation or variation. He gave the examples of suffixes like perfective –Shang and future/intentional –male, which do not change their form. So the writer discusses the allomorphy of the suffix-Pala which is perfective suffix in Kurtöp and the imperative suffix –le. In Kurtöp –Pala usually refers to the first person rather than the second or third. According to the author, when this suffix is followed by –k and –ng it has another form –wala. He gave the examples of these suffixes, as there is a stem "kuk" (gather) when the suffix "Pala" is added in the stem, final –k disappears and it becomes "ku-wala". In the example, stem-final is preceding by –k so "wala" is used instead of "Pala". This form of the suffix is also used when –ng is in the final position of the stem as in the example, "thong" (drink) and by adding a suffix, it becomes "thong-wala". According to the author, except these stem finals, the suffix "Pala" is used.

Another study by Shah and Mandan (2016) explores the morphophonemic nature of Sindhi language. The authors stated that Sindhi is a prominent language of Indo-Aryan family because of its unique features. The morphological, phonological and syntactic aspect is its main feature that makes it unique and different from other languages. According to the authors, the morphemes of Sindhi language are changed by the phoneme, which changes the syntactic properties of a word. Shah and Mandan (2016) represented the features of Sindhi nouns with their gender, number, and case.

Khubchandani (1968) describes that there are different classes of Sindhi nouns and the language is different for its morpho-syntactic structure. Shah and Mandan (2016) stated that Sindhi has eight classes of word that are, noun, pronoun, verb, adjective, adverb, postposition, conjunction, and interjection. According to the authors, in Sindhi, a noun always ends with a vowel whether it is singular or plural. The existence of vowel at the end of noun helps to determine its number and gender. The authors further explain the rules of noun change from singular to plural. According to them a masculine noun that ends with /u/, changes its final /u/ with/ə/ when it becomes plural. For example, /ʊtʰʊ/ (camel) changed into /ʊtʰə/ (camels), /gʊlʊ/ (flower) changed into /gʊlə/ (flowers) and /nəkʊ/ (nose) changed into /nəkə/ (noses). In all these examples final /u/ changed into /ə/ to make a plural. Apart from this, in Sindhi masculine nouns ending with a diphthong /oʊ/, the final diphthong is often substituted with a long vowel /a/ to make a plural. For example, /ɓiloʊ/ (cat) changed into /ɓila/ (cats) and /keloʊ/ into /kela/. According to the authors, in order to pluralize the feminine nouns in Sindhi short vowel /i/ is changed into /jũ:/, as in the example /ra:ti/ (night) to /ra:tijũ:/. Feminine nouns which end with a short vowel /ə/ change their final vowel into / ũ:/ to pluralize it, as /za:l/ (wife) changed into /za:lũ:/ (Wives). In Sindhi, change occurs in gender according to the following rules:

By changing the /u/ vowel into /i/ such as /ɓəkəru/ (a goat) changed into /ɓəkəri/ (she-goat). Another rule is the change of /u/ into /ŋ/, for example /səra:fu/ (goldsmith) changed into /səra:fŋ/ (she goldsmith) to form a feminine. Masculine noun ending with /ou/ changed into /i: / when it formed its feminine for instance, /ɓiloʊ/ (a cat) changed into /ɓili: / (she-cat) and /kutoʊ/ (a dog) changed into /Kuti: / (a bitch). Another variation in this process is the change of /u/ into /ja:ɳi:/ for example Sindhi masculine /fəki:ru/ (beggar) changed into /fəki:r ja:ɳi/ (woman beggar). Sometimes /i: / changed into /ŋ/ to form feminine such as in the word /dʰouɓi/ (washerman) that changed into /dʰouɓŋ/ (a washerwoman). According to authors, these variations usually occur in the process of changing masculine to feminine and vice versa.

Apart from Sindhi, language Urdu morphology is also a very complex phenomenon. It is because of the fact that many regional languages have made a deep

impact on its formation and development (Qureshi, Anwar, & Awan, 2012). In Urdu, words like 'Larka' (boy) changes into Larkon (boys), Kursi (chair) to Kursion (chairs), or Kamra (room) into Kamron (rooms), is the case of forming plurals from the singular. Words as Kitab (book) into Kitab parhna (book reading) and Khat (letter) into khat likhna are a case in which a verb and a noun are playing the role of its object can form a word.

The literature of different languages shows that the morphophonemic contrast is different in different languages of the world. This study explores the morphophonemic contrast and morphology-phonology interface in Saraiki language.

3. RESEARCH METHODOLOGY

The data for this research is taken from both primary and secondary sources. The primary data is collected randomly from the native speakers from their daily conversation. All the authors are the native speakers of Saraiki language however, they are also fluent in Urdu (a national language of Pakistan) and English. Different words under same grammatical category have had different morphophonemic interface therefore, such words are collected and analysed by using word-based approach by Booij (2010).

Since, for the linguistic analysis of complex words there exists two main approaches, morpheme-based approach and word-based approach (Booij, 2010a). According to Booij (2010), morpheme-based approach, helps to understand the "syntactical order of morphemes" in word. In morpheme-based approach, the starting point of morphological analysis is morpheme. On the other hand, in the word-based approach the starting point of morphological analysis is word rather than morpheme. According to (Booij, 2010b) through word-based perspective we analyze words by comparing the sets of these words, for example, *"sad"* and "*sadness".* According to the previous perspective, in "*sadness"* "*sad"* is an adjectival morpheme and *"ness"* is nominalizing suffix to show property. As an alternative, word-based approach helps to conclude the difference based on meaning which are related systematically to each other. However, this is still an ambiguity whether morpheme is the starting point of analysis or it is a word that is further divided into morphemes? These two approaches are very helpful to understand the present data. Though morpheme-based approach is closely related to the current study but data is also explained under word-based approach where needed.

3.1. Data presentation

Like other languages of the world, Pakistani languages mostly used suffixes and prefix in phonomorpho interface. Infix never participates in formation and categorization of words in Saraiki. The collected data of the concerned language shows that suffixes are mostly used to change the form of words. Through the collected set of data, it is clear that variation is created in verbs mostly through suffixes. Prefixes mostly added to make a negative form of the word or used for negation in Saraiki but suffixes help to change the category of the word (from a verb into a noun or vice versa).

As it is discussed above the use of suffixes is more common than the prefixes in world languages, Saraiki is one of them. Prefixes are only used for negation in Saraiki. Such as the prefix /unɻ/ is used for negation in Saraiki, for example, there is a word /pʌɻ^{h}/ (read) that is changed into /unpʌɻ^{h}/ (illiterate). Apart from the negation, there is also a change of category from the verb to adjective. Another example of this type is /ɖ^{h}oɳa/ into /unɖ^{h}oɳa/. In the process of suffixation, there exist some variations in Saraiki. In English, a morpheme /–ed/ is used for past but in Saraiki there is no fixed morpheme to change the present into past rather some other changes also noticed in the data below. Like other languages, in Saraiki past and future morphemes are derived from present form. As in English, "come, will come and came". The more interesting thing about the language under discussion is that only one morpheme indicates present and imperative state, no need to add extra words or morpheme as in English (mostly please or order is added in imperative context) but accent/ pitch distinguishes the situation. Below suffix is used to differentiate the present and present continuous tense of verb.

Table 1. Present Continuous/Imperfect

Roots/ present	**Glosses**	**Suffix**	**Present Continuous**
k^{h}ɑ:	Eat	-nɖɑ	k^{h}ɑnɖɑ
pi:	Drink	-nɖɑ	pi:nɖɑ
ɖe	Give	-nɖɑ	ɖenɖɑ
cɑ:	Carry	-nɖɑ	cænɖɑ
pɑ:	Put	-nɖɑ	pænɖɑ
sʌm	Sleep	-nɖa	sʌmɖa
piɲ	Grind	-nɖa	Piɲnɖa

Since present and present continuous tense is distinguished because of the suffix 'nɖɑ' as accessible in the table above. In the surface form of present continuous verbs 'n' is omitted but leaving the nasal feature on preceding vowel i.e., pĩɖɑ. In the

next table, the second category from present to past is presented by adding another inflection.

Table 2. Present to Past

Roots/present	Glosses	Suffix	Past Tense
kʰɑ:	Eat	- ʈe	kʰɑ:ɖe
pi:ɦ	Grind	- ʈe	pi:ʈʰe
ɖe	Give	- ʈe	ɖiʈʈe
cɑ:	Carry	- ʈe	cɑ:ʈe
mɑ:r	Hit	- ʈe	mɑ:rʲe

Past tense suffix for Saraiki verbs are */ʈe/* as specified above but apart from adding a suffix, there are some other changes. The above data shows that roots having */ɦ/* coda and without */ɦ/* are treated differently while having past inflection. In order to show the past continuous state of verbs, same inflection is used by adding some extra morphemes as shown beneath:

Table 3. Past Continuous/Imperfect

Roots/ present	Glosses	Suffix	Past Continuous
kʰɑ	Eat	-ɳɖe	kʰɑ:ɳɖe
pi:	Drink	-ɳɖe	pi:ɳɖe
ɖe	Give	-ɳɖe	ɖeɳɖe
cɑ	Carry	-ɳɖe	cæɳɖe
pɑ	Put	-ɳɖe	pæɳɖe

Similarly, verbs for future have another suffix. In this case, Saraiki is different from other languages, as English has extra morpheme 'will' with the present form of a verb but here in this language, the only suffix is enough to distinguish from present to future. The data present to future is as in the coming table:

Table 4. Future Tense

Roots/present	Glosses	Suffix	Future
kʰɑ:	Eat	-si	kʰɑ:si
pi:	Drink	-si	pi:si
ɖe	Give	-si	ɖesi
cɑ:	Carry	-si	Cæsi
pɑ:	Put	-si	Pæsi

Since the change of present to the future form of verb looks very smooth as no change except adding suffix is observed in the above data. In order to express the continuity of future some extra morphemes are added in the sentence with future form. We will discuss this in the next section.

Similarly, apart from changing the state of verbs and morphemes (from present to past or future), there are some other morphemes which strappingly built relations with phonemes. This morpho-phonemic relation is observed in almost all languages. As in English, there is a fixed morpheme to change the present verb into past similarly there are some other morphemes used to make the plural. In case of Saraiki, variation in morphemes is experiential to change singular into the plural. Saraiki speakers use different morphemes to pluralize feminine and masculine nouns. The example of Saraiki nouns are presented in the table below:

Table 5. Masculine Singular to Plural

Singular/masculine	Glosses	Plural
ɗaɗa	Grandfather	ɗaɗe
caca	Paternal uncle	cace
mãmã	Maternal uncle	mãmẽ
gʰoɽa:	Horse	gʰoɽe
kuʈa	Dog	kuʈe

Saraiki has fixed morpheme/-e/ for masculine plurals but vary in case of feminine gender. In the next table, plural morpheme of the feminine is given with examples. These examples are from central dialect, in different dialects, these nouns are pronounced differently.

Table 6. Feminine Singular to Plural Nouns

Singular/feminine	Glosses	Plural
ɗaɗi	Grandmother	ɗaɗiã
caci	Paternal aunt	caciã
mãmi	Maternal aunt	mãmĩã
gʰoɽi	Mare	gʰoɽiã
kuʈi	Bitch	kuʈiã
cʰʊir	Girl	cʰorĩ
ɖʰɪ	Daughter	ɖʰɪrĩ

However, interesting is that some nouns do not have plural forms at all rather context determines their number. In the next table, some words with having no plural suffix or zero suffixes are as given:

Table 7. Noun with Zero Suffixation

Singular/masculine	Glosses	Plural
cɦoʌr	Boy	cɦoʌr
bʱirɑ	Brother	bʱirɑ
tɖərzi	Tailor	ɖərzi
ʃe:r	Lion	ʃe:r

The above-discussed variations in morpho-phonemic relation are analyzed in the next section. The purpose of categorization of data is to make it understandable to the readers.

3.2 Analysis and discussion

Variation in different categories of data compels to analyze it in different sections. It is because the general categorization of data cannot put under a single rule. Every general category has some derivations which set different rules, therefore, analyzed step by step. As different sections of data have discussed above, so the analysis starts with a general category. Let us start from the root/ present form to present continuous. There are two type of roots CV and CVC, which are divided further into two categories, coda with /ɦ/ and coda with other consonants. The open syllable of the data is also treated suffix differently.

3.2.1 The addition of Suffix /-nɖa/

The coda-less roots which also indicate present state of the condition are simply changed into present continuous by adding suffix /-nɖa/. No underlying variation found in these examples. This is very simple analysis at morphophonemic level but at surface level, these words go through phonetic variation. The surface representation of all these verbs has no nasal consonant but having nasality on the preceding vowel. One of the reasons behind the difference of underlying and surface representation is ease of articulation. The suffix /-nɖa/ has a cluster of two coronal/anterior consonants which may have some difficulties in mutual production. So the one between these two is deleted on the surface form but retaining its main/prominent evidence. Since nasal coronal is the easy target to change or delete therefore it is deleted and left nasality on preceding vowel. Another disparity is noted in a vowel, two words in table 1 show vowel difference in a first and third column while others have it. The change of *low back vowel* into the *low front vowel* is actually following the place of preceding consonant. The evidence for this is the first word of the same table in which vowel change did not occur.

3.2.2. Variation because of /ɦ/.

Now move towards another structure of the word, which is CVC. The data shows some distinction with the last C in CVC. If the coda has 'ɦ', it looks very smooth when suffix for present continuous added. For example, [koɦ+nɖɑ] is /kõɦnɖɑ/, no variation occurs except regressive spreading of nasal feature. Contrary to this, coda with other than 'ɦ' is treated in a different way when suffix is attached. As for instance, [mar+nɖɑ] is /marenɖɑ/ */marnɖɑ/. Therefore, the insertion of consonant in the second example and not in the former required some reasons to make clear. Throughout the Saraiki language grammar, we did not find cluster of three consonants, maximally two consonant clusters occurred in a word at any position. It might be, for Saraiki speakers, difficult to release three consonants without any vowel. Therefore, in such cases insertion is noted. Since insertion occurred to satisfy a phonotactic constraint of not having three consonants together but not in case of words with 'ɦ' coda, though, 'ɦ' is also a consonant. The inserted vowel also has a morphological role in the word mentioned above. Vowel /e/ is an agentive to make the verb active and passive. For example, /marenɖa/ is active verb in Saraiki and changed into passive /marinɖa/ with the variation of a vowel. Some other examples of this type are as under;

Table 8. Vowel Inflection

Active	Glosses	Passive
satenɖa	Throwing	satinɖa
kʰavenɖa	Feeding	kʰavinɖa
cavenɖa	Lifting	cavinɖa
ɖasenɖa	Telling	ɖasinɖa

In above examples, place of articulation of 'ɦ' comes in to play. As mentioned before, three consonants at three different places of articulation without vowel are difficult to produce for Saraiki speakers but this is not true in case of 'ɦ'. It is well thought-out that 'ɦ' has no proper place of articulation, which may have clash or create hurdle in production with other consonants. Therefore, the speakers feel cluster of two consonants instead of three that does not demand insertion.

3.2.3 Past suffixes /-ʈe/ with open syllable.

The next set of data having the same roots and some others uses for past tense with a different suffix. This is not strange in Saraiki as we find in different languages of the world that many affixes are used to change the form of a verb from present to past and past to future and so on. In Saraiki, past tense verbs have some variations with different onsets, codas, and coda-less roots. Therefore, these verbs may

divide into their sub-sections in order to get the better overview. In the first type of data, let us take open syllables with simple onsets as above given examples indicate in table 2. Since it is already discussed about the past suffix /-ʈe/ but this is not so simple and smooth to understand as in present continuous tense.

Table 9. Present to Past

Root	Glosses	Suffix	Past tense
mar-	Hit	-ʈe	marʲe
kʌr-	Do	-ʈe	kiʈe
sʌm-	Sleep	-ʈe	suʈʈe
mil-	Meet	-ʈe	Millʲe

In Saraiki there are two suffixes */–ʈe/* is used to change the imperative verb into past, because in most of the collected data we find addition of */–ʈe/* while making it past tense. However, in the above examples palatalization is also involved to change the category of verb. This palatal sound is not a suffix in Saraiki rather it is added to the verb under the rule of compensatory lengthening. This process generally occurs when the upcoming content of a nucleus or moraic coda is deleted (Hayes, 1989). In this process the original feature accompanying with mora are replaced by those of a neighboring segment. According to this rule, sometimes vowel lengthening, gemination or secondary articulation occurs to compensate the deletion. The next set of data for past tense is yet again the open syllable but with different onsets i.e., aspirated/breathy voice. These kinds of examples have a different rule with suffixation. As for example, [kʰa+ʈe] is /kʰaɖe/ /*kʰaʈe/ and [dʱo+ʈe] is /dʱoʈe/, */dʱoɖe/. The examples below followed the same rule

Table 10. Past Suffix /-ʈe/

Root	Glosses	Suffix	Past tense
Kʰa-	Eat	-ʈe	kʰaɖe
dʰo-	Wash	-ʈe	dʰoʈe
kʰil-	Laugh	-ʈe	kʰillʲe
gʰat-	Decrease	-ʈe	gʰattʲe
pʰir-	Turn	-ʈe	pʰirrʲe

Yet one more time, the examples in the table have open and close syllable structure. It is noticed that in the first example of this set of data there is another addition of */-ɖe/* rather than */-ʈe/*. This variation */-ɖe/* in Saraiki is often found in the verbs having aspirated onsets. These kinds of changes can be considered on the forum of irregularity. All those open syllable words started from aspirated onsets treated past suffix as an irregular manner. *Same kinds of examples are noted in Saraiki language.* Apart from all these processes, there are some other phonological processes observed in processes are gemination and palatalization as discussed above. Gemination occurs to maintain the prosodic structure. However, Saraiki is a trochaic language so it always prefers to stress on left syllable of the word. So in order to fill the requirements of stress on penultimate syllable gemination occurs in Saraiki. In the examples given above when a suffix/ /–ʈe/ added in the root the structure of syllable is something like [mil.e] *[mi.le], needs margins for production. The gemination (to make the consonant long for an audibly longer period) of intervocalic consonant fill the need of syllable structure ([mil.lʲe]). Here another process is noted in the surface form of such words that is 'palatalization' (a process in which consonants get secondary palatal articulation or change their place of articulation under the influence of palatal phoneme). The surface representation of this word is [millʲe]. The occurrence of palatalization only observed in the presence of 'front vowels' in world languages. As in these words, consonants are realized in the context of front vowels 'i, e' consequently, palatalized.

The behavior of 'ɦ' in Saraiki is very interesting and deserves more discussion. Here in the past state of the sentence, words with 'ɦ' coda have a different strategy to adapt suffix. Let us take turn towards table having past suffix, [koɦ+ʈe] is /koʈʱe/ */kohʈe/ (in some dialects */koʈʰʲe/*). This process is the same as explained in first part of data i.e. */ʈe/* is past suffix and in this set of data */ʈ/* become aspirated because of the movement of */ɦ/*. Therefore, */ɦ/* has left its place and is produced as an aspirate when past suffix */ʈe/* is used in Saraiki. Before talking about the final aspirated consonant which emerges as a result variation in word formation, look at another set of data which has its own peculiarities.

Another category of past tense is limited to those words having only */s/* coda. In the table below there are many words like this and have a different rule for combination of root and suffix.

Table 11. Having /s/ Coda

Root	Glosses	Suffix	Past tense
pʱis-	Mash	-ʈe	pʱiʈʱe
pʱas-	Caught	-ʈe	pʱaʈʱe
kʱus-	Spoiled	-ʈe	kʱuʈʱe

According to Masica (1993), the process of debuccalization is very common in Indo-Aryan

languages. In some languages /s/ is de-buccalized, Saraiki also has strong diachronic and synchronic evidence of this different behavior of /s/. The process of debuccalization in Saraiki can be observed in the above examples. Here /s/ is debuccalized first and changed into /h/ which become aspiration after the addition of past suffix */ʈe/*. Synchronically, we have evidence from Urdu language (national language of Pakistan). When Saraiki speakers have Urdu words having /s/ coda are debuccalized (a lenition process in which *'s'* changed into *'h'*) as follows:

Table12. Debuccalization in Saraiki

Urdu	Saraiki	Glosses
Kapas	Kapaɦ	Cotton
gɦas	gɦaɦ	Grass
pʰans	pʰaɦ	Gallows
Sans	Saɦ	Breathing

Similarly, this process has evidence diachronically. Masica (1993) describes the diachronic development of /s/ into /h/. According to the author, the change of /s/ into /h/ is regular only in Sindhi, Saraiki, and Punjabi. MIA words "sasa" (breath) changed into "sans" in Hindi but "sah" into Saraiki, Sindhi, and Punjabi. Another example of this historical change is "asa" (wish) changed into "as" in Hindi and "ah" in Sindhi, Saraiki, and Punjabi also. However, Masica (1993) argues that this type of change occurs historically on intervocalic positions of MIA stage and should not be confused with other positions like initial positions or geminates.

All these examples help to understand the process from /s/ to /ɦ/ in Saraiki. At first stage, the process of de-buccalization occurred and coda changed from /s/ to /ɦ/. In the next stage when these roots are used in past tense, the past suffix /e/ is added but /h/ do not have any prominent place of articulation, therefore, it would be difficult to pronounce /h/ in the intervocalic situation. However, insertion of consonant could better solve the puzzle. In Saraiki whenever /h+C/ or /C+h/ (here 'C' stands for all consonants of Saraiki except fricatives), /ɦ/ became the second articulator of that consonant. Diachronically, this string of change is as below:

/s/ ⟶ /h/ ⟶ /hC/⟶ /Cʰ/.

This kind of change from Sanskrit to Saraiki is also noted in Masica (1993) where he explained 'st' to 'tʰ' in a similar way; this kind of developments from old Indo-Aryan to Middle Indo-Aryan is also noted. The Same situation noted when Saraiki has /ɦ/ ended roots as in the following examples;

Table 13. Words having /ɦ/ in Root Coda

Root	Glosses	Suffix	Past tense
Leɦ	Descend	- ʈe	latɦe
Koɦ	Slaughter	- ʈe	kutɦe
Piɦ	Grind	- ʈe	Pitɦe

In /h/-ended roots the cord of the process is like this: CVh~CVhe~CVChe~CVCʰe and all the given data follow the same generalization. As it is discussed above that /h/ has no proper place of articulation so it becomes aspiration when we add past suffix */ʈe/* to the root. Data is following the above generalization and no variation occurs in this set of data. Now take the similar examples of aspirated coda in the following table:

Table 14. Palatalizaion in Saraiki

Root	Glosses	Suffix	Past tense
labɦ	Found	-ʈe	laɖɦe
Rakʰ	Put	-ʈe	Rakʰʲe
Likʰ	Write	-ʈe	Likʰʲe
parɦ	Read	-ʈe	Parɦʲe
utɦ	Stand up	-ʈe	Utʰʲe

The analysis of this data shows one variation with the addition of past suffix. In this data palatalization occurred due to compensatory lengthening rule. Let us turn towards another category of suffix that is used to indicate future state. Similarly, for future tense these roots used like that;

Table 15. Future Tense

Root	Glosses	Suffix	Future
Kʰa-	Eat	-si	Kʰasi
pi-	Drink	-si	Pisi
gɦin	Take	-si	gɦinsi
Piɦ	Grind	-si	Piɦsi
Rakʰ	Put	-si	Rakʰsi
ɓeɦ	Sit	-si	ɓaɦsi

Only the insertion of /si/ in the above roots changes stems into future tense. The above examples have three different kinds of roots but none has any variation except the addition of future suffix /-si/. No matter whatever the roots and codas are only adding /si/ can clarify the meanings. One thing should be to keep in mind for no variation is that after adding suffix no hiatus or clusters of three consonants appear.

Subsequent to the analysis of all three conditions of tenses in Saraiki, one thing is clear that every state

has its own types of disparity. However, these discrepancies have their strong logical evidence and historical developments which make them more interesting. After having a long discussion on these states we have another set of data that is as interesting as we have already discussed examples, this is from singular to plural state of nouns. The next section gives detailed analysis of singular to the plural category. This category is also very common in world languages and Saraiki is one of them.

3.2.4 Number and Gender Case

A universal generalization about language and gender is 'if a language has a category of gender it always has a category of number' (Booij, 2007). The Same generalization is valid in Saraiki. In Saraiki, the case of gender from singular to plural is interesting, as it is different from other languages in many respects. In the above section of categorization, the idea about different numbers of nouns shows different variations. As in the above-said examples, the masculine category is different from feminine in respect of number. The upcoming table shows the difference:

Table 16. Singular to Plural Nouns

Masculine(stem)	Mutuation	Plural	Feminine(stem)	Suffix	Plural
ɗɑɗɑ(grandfather)	-e	ɗɑɗe	ɗɑɗi(grandmother)	-ɑ̃	ɗɑɗiɑ̃
nɑ̃nɑ̃(grandfather)	-e	nɑ̃ne	Nɑ̃ni(grandmothe)	-ɑ̃	nɑ̃niɑ̃
g^hoɽɑ(horse)	-e	g^hoɽe	g^hoɽi(mare)	-ɑ̃	g^hoɽiɑ̃
cɑcɑ(uncle)	-e	Cace	caci(aunti)	-ɑ̃	cɑciɑ̃

From the above-given nouns, it is clear that "-e" suffix is used to pluralize masculine nouns and the suffix "-ɑ̃" to pluralize feminine nouns. It means different gender has different suffix. In case of masculine nouns, one thing that needs to pay focus is the substitution. In all the given masculine cases, last vowel is replaced by so-called suffix vowel when pluralized. This is not a regular formation process of word rather an irregular process of singular to plural is noted. This is not new in Saraiki, in English many words become plural by changing the internal vowel, like 'foot~feet', 'woman~women' and many others. In Saraiki masculine ending in vowel has no proper suffix rather change in vowel cause to change the numbers.

In feminine nouns, the inflectional morpheme /-ɑ̃/ used to make them plural. The already present vowel of feminine nouns cause to palatalize the preceding consonant. Though palatalization is very common in Saraiki so Saraiki speakers do add palatalization rather than pronouncing "-i" in feminine plurals. It can be observed in the examples that wherever "i" is used in singular, it is changed into palatalization when pluralized. But there are some exceptions found when masculine is pluralized in Saraiki. Beneath are some examples of nouns that pluralized with 0 suffixation

Table 17. Variation in Plural Nouns

Masculine/singular	Suffixes	Plural	Feminine/singular	Suffixes	Plurals
$b^ɦ$ira(brother)	0 suffixation	$b^ɦ$ira	$b^ɦ$eɳ(sister)	-ĩ	$b^ɦ$eɳĩ
soṯr(cousin)	0 suffixation	soṯr	soṯr(cousin)	-ĩ	Soṯrĩ
Nai(barber)	0 suffixation	Nai	nãiɽ(female barber)	-ĩ	nãiɽĩ
$c^ɦ$uar(boy)	0 suffixation	$c^ɦ$uar	$c^ɦ$uir(girl)	-Ĩ	$c^ɦ$orĩ

In the first set of data, it is observed that "-e" is used to change the singular into the plural. But there are some variations found in the above data as there is no suffixation or zero suffixation is used to make plurals. These variations occur only in masculine nouns because for feminine nouns another suffix "-ĩ" exists in Saraiki. Other words are used to pluralize nouns for example "/meɖe/ (my) b^h irɑ" or "/sɑre/ (all) b^h irɑ", same is the case with "soṯr" also. To pluralize "nai" and "c^huar" "sare" (all) or "ɓaɦun sare" or other words are used in Saraiki. Therefore, it is clear that from singular to plural formation nouns, three inflections, 'e', 'ĩ' and 0' are used in different genders. In the next discussion derivative morphemes are combined with root in order to change to the grammatical category of verb to noun.

3.2.4.1 Change of imperative verbs into infinitive

Variations can also be found in the process of changing the verb into infinitive in Saraiki. The data is divided into different categories in order to get the clear idea about variations, which occur during the process of changing the category of a verb. Roots are divided into five groups as we have discussed above for adding inflectional and derivative morphemes. The first group is based on the roots which do not have any coda, second is consisting on roots with a coda, third with aspirated/breathy voiced onset and fourth is consisting on aspirated coda and last on the root words ending with /h/. In the table below open syllables roots are changed into infinitives.

Table 18. Coda less Root to Infinitive

Root	Glosses	Suffix	Infinitive
Ji:-	Live	-əɳ	Ji:ʋaɳ
Pɑ:-	Put	-əɳ	pɑ̃:ʋəɳ
cɑ:-	Carry	-əɳ	cɑ̃:ʋəɳ
ɑ:-	Come	-əɳ	ɑ̃:ʋəɳ
pi:-	Drink	-əɳ	p:ĩʋəɳ
$k^{ɦ}ɑ$:-	Eat	-əɳ	$k^{ɦ}$ɑ̃:ʋəɳ

In the above data, examples are selected which are coda less. In order to change the category of coda-less verbs into infinitive, the suffix /əɳ/ is added to the root. Though data shows the consistency of adding three phonemes, in fact, /əɳ/ is considered as a suffix and /ʋ/ as an inserted consonant/semivowel. The insertion of the consonant avoids having hiatus. The confirmation of this claim is the next set of data having a coda.

Table 19. Roots with Coda to Infinitive

Root	Glosses	Suffix	Infinitive
mʌr-	Die	-əɳ	mʌrrəɳ
sʌm-	Sleep	-əɳ	sʌmməɳ
vanj-	Go	-əɳ	vanjjəɳ
kar-	Do	-əɳ	karrəɳ
mil-	Meet	-əɳ	milləɳ
tur-	Walk	-əɳ	turrəɳ

Therefore, the above set of data that is changing from verb to infinitive have coda and verify the evidence of insertion of /ʋ/. In this category, the consistent inclusion of /-əɳ/ is observed. This insertion only occurred to avoid hiatus but not in case of the close syllable as mentioned above. Here there is no hiatus so no insertions but only addition of a suffix occur. Apart from the addition of suffix another change which might be noted is gemination. The coda of every root is geminated when changed into infinitive. As discussed before, gemination happened to follow stress pattern. Here the lengthening of intervocalic consonant completes the onset and coda. After that, another set of examples that have only aspirated onsets are discussed.

Table 20. Roots with and without Coda

Root	Glosses	Suffix	Infinitive
$k^{ɦ}ɑ$:-	Eat	-əɳ	$k^{ɦ}$ɑvəɳ
$g^{ɦ}$in-	Take	-əɳ	$g^{ɦ}$innəɳ
$k^{ɦ}$il-	Laugh	-əɳ	$k^{ɦ}$illəɳ
$ɡ^{ɦ}$o:-	Wash	-əɳ	$ɡ^{ɦ}$õ:ʋəɳ
$k^{ɦ}ʌɽ$-	Stand up	-əɳ	$k^{ɦ}ʌ$ɽɽəɳ
$ɡ^{ɦ}$ɑ̃:-	Take bath	-əɳ	$ɡ^{ɦ}$ɑ̃:ʋəɳ

The above data is based on the words having open and close structure. The analysis of the data would be the same as above data. The first, fourth and the last examples are coda-less so /ʋ/ is added to these examples to avoid hiatus. However, other examples have coda so there is no insertion of the consonant in these examples.

Table 21. Gemination in Saraiki

Root	Glosses	Suffix	Infinitive
Ut^{h}-	Stand up	-əɳ	$Ut^{h}t^{h}$əɳ
Rak^{h}-	Put	-əɳ	$Rak^{h}k^{h}$əɳ
$ug^{ɦ}$-	Wipe	-əɳ	$ug^{ɦ}g^{ɦ}$əɳ
ɖek^{h}-	Watch	-əɳ	ɖ$ek^{h}k^{h}$əɳ

After analyzing the variation in verbs having coda and without, we find variations in the analysis of the above examples such as the insertion of the phoneme in coda-less words to change it in infinitive but not in the words having a coda. In the present set of data, we do not find any variation because these all examples have a strong coda so no insertion is required here. Only a bound morpheme /əɳ/ is added to change the category of a verb into infinitive. The process of gemination also occurred to satisfy the prosodic structure of Saraiki. The next set of data consists of the examples ending with /ɦ/.

Table 22. Roots with / ɦ / Coda

Root	Glosses	Suffixe	Noun
ɓeɦ-	Sit	-əɳ	ɓãɦʋəɳ/ɓãɦəɳ
pi:ɦ-	Grind	-əɳ	pĩ:ɦʋəɳ/pĩ:ɦəɳ
leɦ-	Descending	-əɳ	lãɦʋəɳ/lãɦəɳ
ɖoɦ-	Milking	-əɳ	ɖõʋəɳ/ɖõɦəɳ
koɦ-	Slaughter	-əɳ	kõʋəɳ/kõɦəɳ

The behavior of /ɦ/ in Saraiki is always strange. The above examples seem to be violating the same rule of adding morpheme, which others have. These dialectal variations are noted because of the presence and absence of /ɦ/. Our assumption that insertion only occurs when we do not have any coda seems to be changed. In these examples /ɦ/ is behaving like coda but there is also the insertion of /ʋ / when these

examples are changing into nouns. So by interpreting the data, we may justify our above statements (as it is already discussed, the status of /ɦ/ is Saraiki, so the same can be applied here) by saying that /ɦ/ is a weak consonant and does not have a proper place so the requirement of the coda is satisfied by the insertion of /ʋ/. In short, we can conclude that in order to change the category of *verb to noun only /-əɳ/ morpheme is added and in some cases /ʋ/ inserted to avoid hiatus.*

4. CONCLUSION

The morphophonemic analysis in Saraiki language seems very interesting and full of variations. In this analysis, both inflectional and derivational morphemes come into play. Since Saraiki has different affixes to indicate different categories of words, however, they cannot be put under a single rule. Some phonological processes are very common in Saraiki morphophonemic analysis. These are palatalization, gemination and insertion. These processes occurred for lenition and ease of articulation in Saraiki. The important thing from above analysis is compensatory lengthening in which the other processes occur. Another important point from the analysis is the syllable structure. Syllables having /ɦ/ and /s/ as codas are appealing to appreciate. The synchronic and diachronic evidences explain the position and status of /ɦ/ in different context. Three consonants cluster is not acceptable in Saraiki but with /ɦ/ it is pronounceable for them. However, it can be generalized that;

- The only cluster of three consonants in context of /ɦ/ is acceptable.

However, one thing is sure that these processes mostly happen to satisfy phonotactic constraints or to make the production easy. Therefore, the triggers for insertion of consonant here in Saraiki are both reasons. In Saraiki, gemination and palatalization mostly happen in a meticulous context. Palatalization occurs in the presence of palatal consonant or in the context of front vowels. This type of palatalization is noted in the above analysis. The trigger for gemination in above analysis is to satisfy the stress pattern of Saraiki.

All the categories from present to past and past to future have different suffixes. Though variations of suffixes in different tenses are noted from the verb to noun only one suffix is used. However, this suffix causes to nasalize three regressive sounds. It is generalized that:

- Suffix /-n̪a/ is used for present continuous, /-t̪e/ for past, /-n̪e/ for past continuous and /-si/ for future tense. However, from the verb to infinitive a fixed morpheme /əɳ/ is added.

The derivational morpheme which is used for singular to plural varies in case of gender. Masculine gender has /e/ while feminine is pluralized by adding /ɑ̃/. In some case null or zero suffixes also apply for plural. In short, it can be said that:

- Zero /0/, /e/ and /ɑ̃/ suffixes are used for plural category.

The morphophonemic analysis in Saraiki seems very interesting as it has many variations. In the context of language everything is not for ease of articulation of unmarkedness rather some changes are also accepted with the passage of time. So all the processes in the above analysis happen for the ease of articulation.

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