

Morphological Description Of Nouns In Shahmukhi Punjabi; A Corpus Based Study

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Abstract

Morphology plays a central role in language studies. It provides a foundation for the exploration of linguistics on advance levels such as syntax and semantics. This study is concerned with the comprehensive morphological analysis of Shahmukhi Punjabi Nouns. For conducting the analysis, a corpus of Nine (9) million words of Shahmukhi Punjabi was compiled and lists of grammatical categories were extracted from it. Vocabulary items were evaluated to discover the inflectional and derivational patterns in the corpus. Theoretical framework of distributed morphology was adopted for the morphological analysis. The analysis revealed that nouns inflect for number and gender and showed same pattern of complementation among adjectives and nouns. The results revealed various patterns for forming plural nouns in both of the genders, and also for deriving nouns from the adjectives and vice versa. Additionally, the study also discovered the patterns of noun derivation from the adverbs. This research contributes to the understanding of Shahmukhi Punjabi morphology by shedding light on the inflectional and derivational processes involved in noun formation. Future studies can be conducted on the basis of the findings to explore the other aspects of Shahmukhi Punjabi morphology.

Keywords: Punjabi, Shahmukhi, Grammar, Parts of Speech, Morphology, derivational morphemes, inflectional morphemes

Introduction

Morphology is a key aspect in the construction of every language. This key feature needs to be analyzed and researched for the better understanding of morphological and syntactic construction of a language and its use in real life situations.

Vocabulary items in Punjabi language inflect for number, gender, case, and grammatical category, making it exceedingly challenging to understand the system of Punjabi language. The morphology of Punjabi is very complex in comparison to other languages such English. Adjective, verb, and noun have different inflections in the Punjabi language. Depending on the number, gender, and case, these vocabulary items are used in different

sentences. These elements add to the complexity of the language and its morphological patterns and emphasize the necessity for analysis and exploration.

Halle (1990) distributed morphemes into two categories: 'abstract' morphemes and 'concrete' morphemes. Further, Harley & Noyer (1998) proposed an alternative type. That is 'f morphemes' and 'l-morphemes'. This division resembles to the conventional division of 'functional' and 'lexical' categories or open-class and closed-class categories of words.

The theoretical framework of distributed morphology (DM) proposed by (Harley & Noyer, 1999) was employed for morphological analysis. Morphemes in DM are distributed into two categories: functional head morphemes specified as (< >) and the roots symbolized as (√). In Punjabi language, a noun 'Farukh' can be described as: [√Farukh]. The syntactic features are inserted as [√Farukh <Noun, Sing, Masc>] (Halle & A Marantz, 1993; 1994).

To facilitate this analysis, a corpus comprising nine million words of Shahmukhi Punjabi was compiled, and grammatical categories were extracted from it. The vocabulary items within the corpus were scrutinized to identify inflectional and derivational patterns.

Punjabi is historically a rich language. Lewis (2009) stated in the Ethnologue, there were approximately 125 million speakers of Punjabi worldwide in 2021. However, Punjabi Diaspora has been spreading across the globe, particularly Punjabis are third biggest linguistic community in Canada and fourth biggest in UK (shackle, 2018). Furthermore, it is the most widely spoken language of Pakistan as regards the number of native speakers which is the 38.78 % of the total population of Pakistan. Despite of being a historical language and having such large number

of language users, this language has been neglected by the researchers and scarcity of research is found regarding this language and specifically in the area of morphology.

To fill that gap, this study intends to analyze the morphological patterns of nouns in Punjabi language. The analysis of morphology leads to better comprehension of language. In result of the study morphological analyzer can be developed and it will be considered as a base for digitization of Punjabi language.

Literature Review

Morphology is one of the basic stages of language formation. It is the stage of language at which meaningful entities of words are formed. So, Morphology is the study of combining the derivational and inflectional morphemes to produce the words (Haspelmath & Sims, 2013). Boey (1975) indicated morphemes as the basic entity of language formation.

Edward (2003) termed morpheme as meaningful unit of a word. There are two kinds of morphemes; free morphemes and bound morphemes. Free morphemes are the root words and they can stand alone and carry meanings on the other hand bound morphemes can stand alone. These bound morphemes need to be attached with the free morpheme (root) to carry the meaning.

Arslan, Mahmood and Rasool (2020) studied the derivational morphemes of English language across native, second and foreign language speakers of English language through ICNALE date. The study found variations in the patterns of usage of morphemes across all three varieties of English language and recommended different patterns which must be incorporated in the pedagogical activities. Punjabi language lacks the research with relation this key aspect and needs to be analyzed.

Noor, Mangrio and Anwar (2019) conducted the study on Persian loan nouns in Punjabi language. The main focus of the study was on the analysis of gender and number making of loan words. The study found six sets of masculine noun inflections and five sets of feminine noun inflections in Punjabi language. These inflections link directly to the aspect of morphology but did not cover the aspects of morphology in all aspects.

Word formation includes variety of processes one of them is affixation, more specifically suffixes which employ derivational morphemes to make and derive new vocabulary items. Derivational morphemes are categorized into two categories class maintaining and class changing morphemes. Hussain (2018) conducted the study and analyzed both of these kinds of morphemes. Study reported various kinds of morphemes which play vital role in the formation of Punjabi nouns. This study provided the motivation to conduct the analysis in a more scientific way. For that purpose, in this particular study the theoretical framework of distribute morphology (DM) and collected the data by using the corpus based approach.

In this study morphological analysis has been performed with the help of distributed morphology, it served as base for further analysis of the language. While analyzing the lexical items and syntactic pattern of Punjabi language, morphological analysis played a key role in conducting the study.

Research Questions

1. Which are the inflectional and derivational morphemes of Punjabi nouns?
2. What kind of morphological patterns exist in nouns of Punjabi language?

Methodology

This section of the study tells about the methodology adopted for the analysis in this particular research.

Data analysis

Corpus of 9 million words was loaded into Antconc and the word list was developed. The word list was sorted by words. This helped to arrange all kinds of lexical items collectively into one set. Then that list was further analyzed through excel sheet. At this level every set of lexical items was studied to find out how words change into different forms and part of speech categories of Punjabi language. All the prefixes and suffixes were also extracted at this level by keeping in the mind that after removing the prefix or suffix still the remaining part exists as a meaningful word.

Results and Discussions

In this section the patterns of the formation of nouns have been given. Those patterns have been elaborated according to the framework of distributed morphology and examples taken from the corpus have been given in the table below.

Nouns

Pattern 1 Making masculine plurals with the insertion of /e/ ے

Syntactic Function	Morphological Function		Semantic Function
Root morphemes	Inflections	Merging	Logical form
√Kaprra کپڑا	/e/ ے	Last vowel is substituted by	Kaprrre کپڑے
√Kamrah کمرہ			Kamre کمرے

√Khota کھوتا		/e/ ے to make plural	Khote کھوتے
√ghorra گھوڑا			Ghorre گھوڑے
√Kerra کیرا			Kerre کیرے
√Danda ڈنڈا			Dande ڈنڈے
<N°, Gen, Num>	<Masc, Sing>		<Masc, Plu>

Masculine Singulars to Masculine Plurals

The root words such as √Munda is head word here and it joins the inflectional morpheme /e/ to make plural. The syntactic function here is that the root √Munda has the following abstract features <N°, Gen, Num>. In the morphological functional morpheme is added to the root to make plurals. These morphemes are termed as VIs according to the terminologies of DM and the VIs are inserted at suffix position to make plurals from Punjabi masculine nouns.

The other patterns for making the plurals for masculine are the following ones, though these

patterns are not that much frequent but still these patterns are found in Punjabi language for making the masculine plurals.

Plural of the word ustad استاد is also found استادان ustadan which is according to the above told pattern /an/ (ان) but these words does not take /ay/ (ے) for making plurals. So, it is inferred that variations are found regarding the patterns of making plurals and every word does not take /ay/ (ے) to form plurals such as the word charagh چراغ has its plural form چراغان charaghan but it does not take /ay/ (ے) and the word قائد is made plural as قائدین so, /ay/ (ے) is not joined with all the words.

Pattern 2 Making plurals with the insertion of /an/ ان

Syntactic Function	Morphological Function		Semantic Function
Root morphemes	Inflections	Merging	Logical form
√Lakeer لکیر	/an/ ان	/an/ ان or /ian/ یاں are added at the end to make plural	Lakeeran لکیراں
√Roti روٹی			Rotian روٹیاں
√Kitab کتاب			Kitaban کتاباں
√Pinsal پنسل			Pinsalan پنسلان
√keri کیری			Kerian کیریاں

<N°, Gen, Num>	<Fem, Sing>		<Fem, Plu>
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Feminine Singulars to Feminine Plurals

Feminine nouns have root in the form of √Kuri. They inflect for number to make plural in the syntactic function. The abstract description of the root is as follows; <N°, Gen, Num>. At the stage of morphological functions two inflectional morpheme /an/ are joined at suffix position to make plural nouns from feminine singular nouns. Further distinction about these two morphemes is that the feminine nouns ending with vowel sound /i/ which is the key indicator of feminine noun persists and morpheme /an/ is added to make

plural otherwise in feminine singular noun ends with consonant sound such as the root word √Kitab only /an/ morpheme is added at suffix position to make plural.

Feministic Singular noun mostly end with the letter /i/ such as the words pareshani, sardi and aasani پريشانی، سردی، آسانی. Plurals of such kind of words are made by joining the morpheme /an/ (ان) at the end of the words like pareshanian, sardian and aasianian سردیان، پريشانیاں، آسانیاں. So, it shows the pattern to join /an/ (ان) at the end of the words to make feministic plurals.

Pattern 3 Making feminine plurals with the insertion of /wan/ وان

Syntactic Function	Morphological Function		Semantic Function
Root morphemes	Inflections	Merging	Logical form
√Dua دعا	/wan/ وان	Feminine nouns ending with vowel morpheme /wan/ وان is added at the end to make plural	Duawan دعاوان
√Dawa دوا			Dawawan دواوان
√Saza سزا			Sazawan سزاوان
<N°, Gen, Num>	<Fem, Sing>		<Fem, Plu>

Feminine singular to feminine plural ending with vowel

The other feminine noun which ends at vowel sound /a/ such as the root word √Dua takes the VIs /wan/ as derivational morpheme to make

plural. The abstract description of the root word is <N°, Gen, Num>. In the morphological functional the VIs /wan/ is joined to root words to make plurals. This morpheme is only joined to the feminine nouns ending at /a/ sound. The abstract description of the semantic function is <Fem, Plu> after joining VIs at suffix position.

Pattern 4 Derivation of Feminine from masculine with the insertion of /ni/ نی or /an/ ن

Syntactic Function	Morphological Function		Semantic Function
Root morphemes	Inflections	Merging and Readjustment	Logical form
√Hathi ہاتھی	/an/ ن /ni/ نی	Masculine nouns ending with vowel morpheme /i/ make feminine noun by joining /an/ ن or /ni/ نی at the end of the word	Hathni ہتھنی
√Sapp سب			Sappni سپنی
√Dhobi دھوبی			Dhoban دھوبن
√Mali مالی			Malan مالن
√Mochi موچی			Mochan موچن
√Jogi جوگی			Jogan جوگن
√Mochi موچی			Mochan موچن
<N°, Gen, Num >	<Fem, Sing>		<Fem, Plu>

Feminine from masculine nouns

The next pattern about making plural of feminine nouns is the insertion of /an and ni/. The syntactic function in this pattern depicts that the root word is √Hathi and all of these nouns are ending with

/i/ sound at the end of the words. The abstract categorization of this feminine is <N°, Gen, Num >. The morphological operation is the insertion and merging and readjustment VIs in the form of /an and ni/ at suffix position to make plurals. In the process of readjustment the last /i/ sound is omitted and morpheme is added to make plural.

Pattern 5 Inflection of Noun with the insertion of /i/ ی

Syntactic Function	Morphological Function		Semantic Function
Root morphemes	Inflections	Insertion	Logical form
√Faqir فقیر	/i/ ی	Nouns are derived from nouns by joining /i/ ی at the end of the word	Faqiri فقیری
√Ghareeb غریب			Ghareebi غریبی
√Ashiq عاشق			Ashiqi عاشقی
√Naukar نوکر			Naukari نوکری

<N°, Gend, Num >	<Sing>		<Sing>
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Noun to noun inflection

Despite of number and gender, in Punjabi language nouns are also derived from already existing nouns. This process is done by inserting the morpheme /i/ ی at the end of the word to make new words. In the syntactic operation root word

is √Faqr and the abstract description of root word is as follows; <N°, Gend, Num >.

In morphological function VIs /i/ ی is inserted at the end of the root word to make a new word. Process of insertion is observed at the level of morphological function. At semantic function new word is derived which serves as a separate noun.

Pattern 6 Derivation of Feminine with the insertion of /i/ ی, /en/ ين, /ani/ انى and /ah/ اه

Syntactic Function	Morphological Function		Semantic Function
Root morphemes	Inflections	Merging	Logical form
√Sher شیر	/ni/ نی, /i/ ی, /en/ ين, /ani/ انى, /ah/ اه and /an/ ن	Masculine nouns ending with consonant morpheme make feminine noun by joining /ni/, /i/, /en/, /ani/, /ah/ and /an/ at the end of the word	Sherni شیرنی
√Jutt جٹ			Juttni جٹنی, Jutti جٹی
√Kukarr ککڑ			Kukarri ککڑی
√Kabotar کبوتر			Kabotari کبوتری
√Pai پائی			Pen پین
√Nokar نوکر			Nokarani نوکرانی
√Walid والد			Walidah والدہ
√Mamon ماموں			Mumani, maami ممانی، مامی
<N°, Gen, Num >	<Fem, Sing>		<Fem, Plu>

This pattern is about derivation of nouns. Derivation of feminine nouns from the masculine nouns. In the syntactic operation of this pattern √Sapp is a root and masculine nouns mostly end

with a consonant sounds. Masculine nouns also with vowel sound except /i/ make feminine nouns by following this pattern. The abstract description of the root is <N°, Gen, Num >. The VIs joint with the root are /ni/ نی, /i/ ی, /en/ ين, /ani/ انى, /ah/

ا and /an/ ن. Morphological operation performed in this pattern is merging.

Pattern 7 Derivation of Noun from Adjective with the insertion of /i/ ی, /pa/ پا and /at/ ات

Syntactic Function	Morphological Function		Semantic Function
Root morphemes	Inflections	Insertion	Logical form
√Udas اداس	/i/ ی, /pa/ پا and /at/ ات	Nouns are derived from adjectives by joining /i/ ی, /pa/ پا and /at/ ات at the end of the word	Udasi اداسی
√Buland بلند			Bulandi بلندی
√Buzdil بزدل			Buzdili بزدلی
√Mota موٹا			Motapa موٹاپا
√Zaror ضرور			Zarorat ضرورت
√Asal اصل			Asliat اصلیت
√Qabil قابل			Qabiliat قابلیت
<Adj°, Sing >	<Sing>		<Sing, Noun>

Noun from Adjective

This pattern is about the formation of noun from adjective with the help of inserting /i/ morpheme at suffix position. The syntactic operation is

described as √Azad is the head word and abstract description of this function is <Adj°, Sing >. In morphological operation process of insertion is applied. At semantic operation singular nouns are derived. The abstract description is <Sing, Noun>.

Pattern 8 Derivation of Noun from Verb with the insertion of /an/ ن and /i/ ی

Syntactic Function	Morphological Function		Semantic Function
Root morphemes	Inflections	Insertion	Logical form
√Dhak ڈھک	/an/ ن and /i/ ی	Nouns are derived from Verbs by joining /an/ and /i/ at the end of the word	Dhakan ڈھکن
√Baal بال			Balan بالان
√Mil مل			Milan ملن
√Tak تک			Takan تکن

√Bol بول			Boli بولی
<Verb°, Sing >	<Sing>		<Sing, Noun>

Noun from Verb

This pattern is about the formation of noun from verbs with the help of inserting /an/ and /i/ morphemes at suffix position. The syntactic operation is described as √Mil is the head word

and abstract description of this function is <Verb°, Sing >. In morphological operation process of insertion is applied. At semantic operation singular nouns are derived. The abstract description is <Sing, Noun>. The words such as khed کھیڈ and dorr دوڑ are verbs but they are also used as nouns without changing its form.

Pattern 9 Derivation of Noun from verb with the insertion of /ish/نش

Syntactic Function	Morphological Function		Semantic Function
Root morphemes	Inflections	Insertion	Logical form
√Guzar گزار	/ish/ نش	Nouns are formed by inserting /sh/نش the end of the verbs	Guzarish گزارش
√Farma فرما			Farmaish فرمائش
√azma/ آزما			Azmaish آزمائش
<V°, Root >	<Verb indi>		<Noun>

Noun from verb

Nouns are also formed from the verbs. In this pattern roots are the main verbs such as √azma. The morpheme /ish/ is joined with the verb to make noun such as farmaish. The semantic operation here is the derivation of noun from verb.

Nouns are also derived from Verbs by joining the morpheme (ش) with the verbs. Examples of such pattern are آزمائش and فرمائش which are derived from the words آزما and فرما which are verbs and turned into nouns by joining (نش) with the root.

One more thing which needs discussion is that there are few words in Punjabi language which

does not have sound-spelling coordination. The word (دهاگہ، دھاگے، دھاگیان) gives the sound of (تاگہ، تاگے، تاگیان). So, it shows the variation which further needs to be studied and researched. The word دلچسپ dilchasp which is an adjective and it is made دلچسپی dilchaspi noun with the addition of (ی) /e/ and plural is made of only noun دلچسپیان dilchaspian and adjective does not have any plural form.

During the analysis it is also observed that all nouns cannot be converted in feministic adjectives. It means that all the nouns of Punjabi language do not take (ی) to make adjectives. So, here comes the idea that despite the derivation of adjectives (ی) is also joined with the words to make feministic nouns and to refer to small things (diminutives) small in size such as تالہ tala (lock) is converted into تالی tali (lock) which shows smaller thing in size and the thing having feministic properties like چاند، چاندنی، چھوٹا، چھوٹی، موٹا، موٹی etc.

Conclusion

On the basis of results it can be concluded that there are certain patterns existing in the morphology of Punjabi language which should be considered in analysis higher level like syntax, semantics and discourse. The analysis with the help of DM showed the results that following morphemes /ni/ نی، /i/ ی، /en/ ین، /ani/ انی، /ah/ اہ and /an/ ان play key role in the formation of feminine nouns. Plurals of masculine nouns are made through /an/ ان and /ay/ ے. Plurals of feminine nouns are made through /an/ ان، /ian/ یان، and /wan/ وان. Nouns are derived from adjectives through of /i/ ای، /pa/ پا and /at/ ات. Nouns from verbs are made with the help of morphemes /ish/ نش، /i/ ی and /an/ ان. These morphemes serve as a key for the development of morphological analyzer of Shahmukhi Punjabi. The findings not only enrich the knowledge base of Punjabi linguistics but also offer insights into the broader

field of language studies. Future studies can build upon these findings to explore other aspects of Shahmukhi Punjabi morphology and its implications for language comprehension and production. The findings of the study can serve as a source for the software developers and the researchers to conduct further analysis in the area of Shahmukhi Punjabi. Future studies can build upon these findings to explore other aspects of Shahmukhi Punjabi morphology and its implications for language comprehension and production.

Further recommendations

Researcher intends to recommend further direction for analysis and researches, it was observed that certain patterns are found in the vocabulary development and joining the morphemes with the roots and it appeared that there is some influence of phonetic and phonological aspects on the joining of the words that if a word is taking both the patterns /ay/ (ے) and /an/ (ان) to make plural but on the other hand few words take only form from both of these.

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