

Annals of Human and Social Sciences www.ahss.org.pk

RESEARCH PAPER

Forming Derivatives in Hindko Language: A Morpho-Syntactic Analysis Shahid Hussain Mir

Lecturer, Department of English, University of Kotli, AJK, Pakistan

*Corresponding Author

shahid.mir54@gmail.com

ABSTRACT

Hindko is an Indo-Aryan Language. The current study aims to investigate the formation of nominative derivatives in Hindko by doing a multi-level analysis in the light of a contemporary etymological perspective. The study categorizes these derivatives in terms of syntactic and semantic aspects. The study employs a multi-level approach to analyzing the derivatives by analyzing prosodic phonology, morphology, syntax, and semantic levels. The study uses the historical literature of the language, the daily conversations of the native speakers, and note-taking techniques to record the data. The study categorizes the verb forms of Hindko into 18 classes, from which nominal derivatives are derived. The verbs are classified into different categories according to their semantic and syntactic behavior. The study shows that, semantically, the verbs share meanings with each other and are also similar in their semantic functions. The study finds that a morphological stem-based approach is used for the derivatives. Prosodically, the study discovers the effects on the stem of the derivatives. Moreover, the study concludes that in Hindko there are six types of nominal derivatives: the active participle, the passive participle, the form of exaggeration, the instrumental noun, the qualificative adjective, and the locative noun. The research reflects the Form I verb stem as input for forming the six types of nominal derivative (the output). The study recommends a further in-depth analysis from syntactic perspective.

Keywords:

Nominative Derivatives, Semantic, Syntactic, The Active Participle, The Form Of Exaggeration, The Instrumental Noun, The Locative Noun, The Passive Participle, The Qualificative Adjective

Introduction

So far, not much work has been done to explore the syntactic features of Hindko. Haroon (2011) states that Hindko is a language spoken in Peshawar, the Northern Areas, and Azad Jammu and Kashmir, especially Neelum Valley, as stated by Mir (2012) and Nawaz (2014). The language is a concatenating language in which, by attaching the morphemes, new words can be formed (Mir, 2012). In the past, not much work has been done on the morphological and syntactic aspects of the language, and still, the language is undocumented. The language presents some interesting facts at the syntactic level: in the word formation process, most suffixes are attached in a series to form new words, but not much work is done and there is still a gap to be filled by linguists. The current study aims to examine the construction of nominative derivatives in Hindko by doing a multi-level analysis in the light of morphological theories and methods from a contemporary etymological perspective. The study answers the question about nominative derivative categories in Hindko and categorizes these derivatives based on syntactic and semantic aspects.

Literature Review

In literature, the researchers have investigated the language in various linguistic aspects, e.g., Griersan (1916) discussed in his study that the language has a historical perspective and goes back to the natives of the Hindu community who were residing in the region. Ahmed (2008) is another linguist who investigated the language and noted that its

linguistic history is very old and dates back to 1500 BC. Haroon (2011) and Mir (2013) refer to Hindko as a diverse linguistic item that shows diversity in its sense, and in one sense the term also refers to a language spoken by a particular community in the region of South Asia. Moreover, the language also refers to the Indus region and its river. Griersan (1916) coined the term "Hindi" to refer to the language spoken by Hindus in South Asian regions. Additionally, the language is rooted in various communities and regions of South Asia, and it is linked to various cultures and language typologies, as discussed by Haroon (2011) and Mir (20120).

In the diachronic aspects, the researchers have explored many languages like English, Russian, Spanish, and German but have paid less attention to undocumented languages like Hindko, spoken in Azad Kashmir. Grierson's survey provides some data from its regional and linguistic typology. Awan (1986) also supports the idea that Hindko got brief linguistic attention in Grierson's linguistic survey. In the future, Addelton (1986) also studied the language and focused on its linguistic typology, family system, regional features, and the number of language users residing in different regions of South Asia. Rensch (1992) also briefly discussed the language and how it originated in various communities and regions around the world based on morphological and lexical identities, differences, and shared knowledge/unambiguity.

The language generates new words like any other major language in the world, such as English, Spanish, and German, etc. The word-generating processes like conversion, coinage, and borrowing are not explored or found to be of interest to linguists. Mir (2012) briefly discussed the process of word formation, i.e., affixation, and concluded that in the language both inflectional and derivational morphemes are found, which are used for not only generating new words through affixation but also performing grammatical functions as well. In addition, he also mentioned that in the language, all identified affixes perform generative functions for new words. However, data indicates that Hindko prefixes only form new words of the same category, and this process is not very productive in the language. Reh (1993) states that Western Nilotic exhibits some of the most striking and complex patterns of mutation found in the languages of the world. Wolf (2007) discusses cases of multiple-feature mutation as problematic for approaches to mutation that bar explicit protection for floating features by specific constraints. The paper focuses on forming derivatives in Hindko and how these derivatives are divided into different classes based on their semantics and syntax.

Haroon (2011) states that Hindko is a language spoken in Peshawar, the Northern Areas, and Azad Jammu and Kashmir, especially Neelum Valley, as stated by Mir (2012) and Nawaz (2014). The language is a concatenating language in which, by attaching the morphemes, new words can be formed (Mir, 2012). In the past, not much work has been done on the morphological aspects of the language, and still, the language is undocumented. The language presents some interesting facts at the phonological level: in the word formatting process, most suffixes are attached in a series to form new words, but not much work is done and there is still a gap to be filled by linguists. **The** current study aims to examine the construction of nominative derivatives in Hindko by doing a multi-level analysis in the light of morphological theories and methods from a contemporary etymological perspective. The study answers the question about nominative derivative categories in Hindko and categorises these derivatives based on syntactic and semantic aspects.

Material and Methods

The study depends mainly on investigative and expressive methods throughout. The linguistic data contains two parts: Form I verbs and their nominal derivatives, which are preserved as inputs and outputs correspondingly. There are three stages of examination. The first is the gathering and cataloguing of verbs; the second is the multi-level

investigation, which includes morphology, prosodic phonology, and semantics; and the third stage includes a morphological analysis for the nominal derivatives. This morphological analysis prevents the overgeneration problem, in which valid nominal derivatives (output) are generated from their Form I verbs (input).

Data Collection

The data was collected from the daily life conversations of the native speakers of Hindko residing in Neelum Valley. The researcher used note-taking techniques for recording and collecting Hindko verbs after listening to the conversations of native speakers at hotels, marriages, weddings, and shops. Moreover, previously published Hindko literature was also used by the researcher to collect the data.

Classification of Hindko Verbs

Lists of Hindko Verbs were prepared by the researcher from the collected data, and verbs were categorized into different classes that shared related semantic features and occurred in a certain syntactic frame. The lists are used to establish 18 semantic verb classes. Each class was described in accordance with the semantic features of the collected verbs.

Results and Discussion

The current section presents the results of the study.

Multi-level analysis of the nominal derivatives

The second stage of this research started with manually deriving the valid nominal derivatives (six types) from their Form I verb inputs. Excel databases were created for the verb classes and their valid nominal derivatives. At this stage of the research, it is clear that some verb classes do not allow certain nominal derivatives The excel data base is prepared in the following format:

Table 1
Nominal derivative form I verb types

Trommar derivative form I verb types							
Type of Derivative	Example	Semantic	Syntax				
The Active Participle							
The Passive							
Participle							
The Exaggeration							
Form							
Instrumental Noun							
The Adjective of							
Qualificative							
Features							
The Locative Nouns							

Verb Classification in Hindko : The data analysis is done using the Hindko verb classification and Hindko verbs are of following types:

Table 2 Hindko verb types

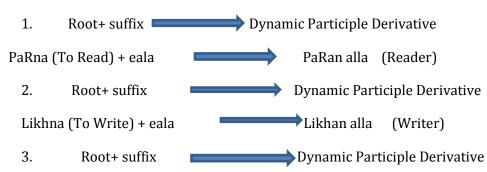
	iiiiuko vei b types							
S. No	Hindko Verbs	Meanings	Types	Example				
1	Verbs of the State of Body	Involving Body	State Verb	"Bearamii" Sleepless				
2	Verbs of the parts	Showing body parts	State verbs	RonRaa (Weep)				

3	Verbs of the Disease	Showing disease	State verbs	Doraa (Duff)
4	Verbs of the Social Behavior	Verbs of social Behavior	State verbs	Changaa(well- Mannered)
5	Verbs of the Emotions	Showing emotions	State verbs	Peyar karna (To Love)
6	Verbs of the coloring	Coloring verbs	State verbs	Peela Zard (To Pale/Fade)
7	Verbs of the qualities	Showing qualities	State verbs	Mota honRa (To be Fat)
8	Verbs of the motion	Verbs of motion	Activity verbs	Jolnaa (to Go)
9	Verbs of the swimming	Verbs of motion	Activity verbs	Ternaan (To Swim)
10	Verbs of the location	Verbs of entity	State verbs	Door HonRaan (To Go away
11	Verbs of the violence	Hurt Verbs	Achieveme nt Verbs	Marna (to Attack)
12	Verbs of mental process	Verbs of perception	State verbs	PaRna (To Study)
13	Verbs of financial transactions	Cost verbs / Price verbs / Bill verbs	Activity verbs	BechRaan (Sell)
14	Verbs of agriculture	Grow verbs	Activity Verbs	RanRaan (To Sow)
15	Verbs of desire and request	Desire Verbs	State verbs	Umeed Rakhraan (To Hope)
17	Verbs of intention Future Verbs	State verbs	Neeyat Karna	
18	Verbs of Sending and Carrying	Build verbs	Achieveme nt verbs	pejRaan (to send)

The above-given table shows that in Hindko, the verbs are classified into 18 different categories based on their semantics, and these verbs are used for performing certain functions in the language. The verbs have both transitive and intransitive features, e.g., PeijRaan means "to send," which requires both subject and object for completeness, and in Hindko a speaker would say "Aslam sunR aam peijy": Aslam has sent the mangoes. In the same way that umeed (to hope) is an intransitive verb in Hindko, a speaker would say mein umeed rakhnaa (I hope so) is an intransitive verb in the language. The other verbs that are of semantic importance are used for performing social interaction, showing bodily features, coloring, reflecting diseases, etc. In the language, these verbs are used for daily functions that speakers perform. Based on the above verbs, the following derivatives are now derived in Hindko:

Dynamic Participle Derivatives in Hindko

The dynamic participle derivatives are those derivatives which can be derived from participle verbs by adding –er suffix with the root. In this process root has the features of verb and the outcome derivatives have the features of Noun. The following is the morphological representation of the process in the language:

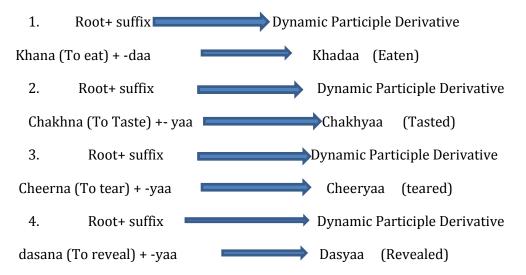




The given data shows that in Hindko, the dynamic participle derivatives are derived from the verbs that have features like "dynamic" and are used to show any activity. These derivatives in Hindko are derived by attaching the suffix -eala to the root verbs, as shown in the above examples. This suffix, which has derivative qualities, is equal to the English suffix "-er," where it is also used to derive nouns from verbal roots. The above data also reveals a very interesting fact: in some roots, when the suffix -eala is attached, it brings about a prosodic change in the root, and the outcome is slightly different from the original root verb. For example, when we attach the suffix -eala to the root verb "chat", the outcome is "chatenalla," means licker and in this root, the suffix added a segment "en" to the outcome word.

Passive Participle Derivatives in Hindko

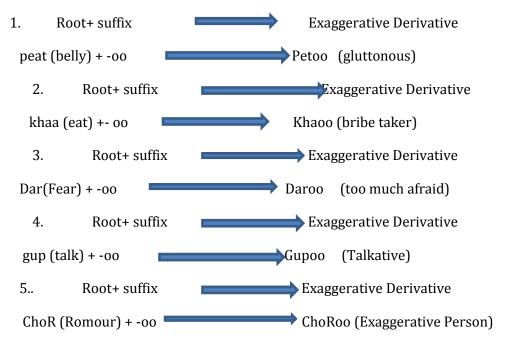
The passive participle indicates the verb's past tense, and the derivatives are those that can be derived from participle verbs by adding the -en suffix to the root, which in Hindko will be _daa, _yaa for showing past tense. In this process, the root has the features of a verb, and the outcome derivatives have the features of a past participle. The following is the morphological representation of the process in the language:



The given data shows that in Hindko, the passive participle derivatives are derived from the verbs that have features like passive and are used to show the past tense, which is used in passive structures in the language. These derivatives in Hindko are derived by attaching the suffixes daa and yaa to the root verbs, as shown in the above examples. This suffix, which has derivative qualities, is similar to the English suffixes -ed and -en, where these suffixes are also used to derive passive forms from the verbal roots. The above data also presents a very interesting fact: in some roots, when the suffixes -daa and -yaa are attached to the roots, they cause a prosodic change in the root, and the outcome is slightly different from the original root verb. The suffixes do not bring any prosodic change when they are attached to verbs like "kha," "cheer," or "dash" in Hindko.

Exaggerative Derivatives in Hindko

Exaggerative derivatives are active participle forms in Hindko that are used to show the semantic exaggeration, abundance, and excess of something in an action, activity, or event, and the derivatives are those derivatives that involve abundance in their meanings. Exaggerative derivatives are used in the language to denote an abundance of quality or quantity. In this process, the root has the features of a verb, and the outcome derivatives have the features of an adjective. These derivatives are formed by attaching the suffix "oo" to the verbal roots in the language. The following is the morphological representation of the process in the language:



The given data shows that in Hindko, the exaggerative derivatives are derived from the verbs that have features like active participle and are used to show activity, which is used in active structures in the language. These derivatives in Hindko are derived by attaching the suffix -oo to the root verbs, as shown in the above examples. This suffix, which has derivative qualities, is equivalent to the English suffix "est," where these suffixes are also used to derive superlative degree forms from the verbal roots. The data also shows an interesting fact that when the suffix -oo is attached to verbal roots like peait, which means belly, the result is peitoo, which means gluttonous person, and when the suffix is attached to the verb choR, which means say something big, the result is choRoo, which means a person who always exaggerates things while talking. At the prosodic level, when we attach the suffix to the root, there is an addition of the last sound of the root word, e.g., when it is attached to the root choR, the outcome of the verb is choRoe, and this process is called "sound germination" in Hindko due to the attachment of the suffix "oo" to the roots.

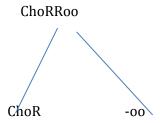


Fig. 1: word structure of 'ChoRRoo' an Exaggerative Derivative

The given figure shows that when we attach the suffix -00 with the root word 'choR' in the language it results an addition of the last sound of the root before the attachment of

the suffix-oo. Therefore, this sound brings change in the root at sound level. There is an another example where it also results the same

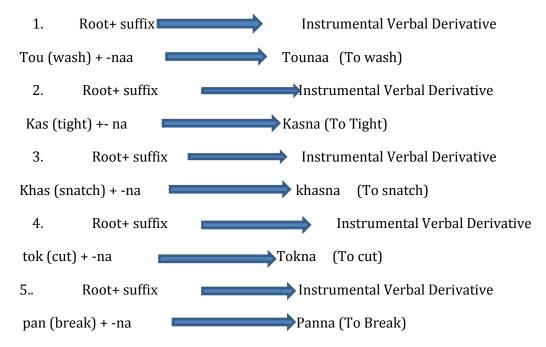


Fig 2: word structure of 'GuPPoo' an Exaggerative Derivative

The given figure shows that when we attach the suffix –oo with the root word 'GuPPoo' in the language it results an addition of the last sound of the root before the attachment of the suffix-oo. Therefore, this sound brings change in the root at sound level.

Instrumental Verbal Derivative in Hindko

The instrumental noun derivatives are forms of verbs in Hindko, and these instrumentals are used to show the semantic tool, device, and machine in the language, and the derivatives are those derivatives that involve instruments in their meanings. In the language, when we need to denote any metal device, we use instrumental derivatives. In this process, the root has the features of a verb, and the outcome derivatives have the features of any function. These derivatives are used to show working, functioning, making, and crafting semantic sense where these derivatives are formed. These derivatives are formed by attaching the suffix "naa" to the verbal roots in the language. The following is the morphological representation of the process in the language:



The given data shows that in Hindko, the instrumental derivatives are derived from the active verbs, which have features like active participle and are used to show activity, which is used in active structures in the language. These derivatives in Hindko are derived by attaching the suffix -na to the root verbs, as shown in the above examples. The preceding data also reveals an intriguing fact: when the suffix -na is attached to verbal roots such as pan, the result is "panna," which means "to break," whereas when the suffix is attached to the verb "tok," the result is "to cut." At the prosodic level, when we attach the suffix with the root, there is an addition of the last sound of the root word, e.g., when it is attached with the

root "pan," the outcome of the verb is "panna," and this process is called "sound germination" in Hindko due to the attachment of the suffix "na" with the root.

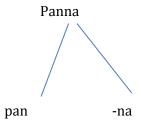


Fig. 3: word structure of 'panna' an Instrumental Verbal Derivative

The given figure 4 shows that when we attach the suffix -na to the root word "pan" in the language, it results in an addition of the last sound of the root before the attachment of the suffix -na. Therefore, this sound brings change to the root at the level of sound. The addition of the sound with the suffix will occur in only those words that end with the -n sound in the language.

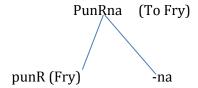
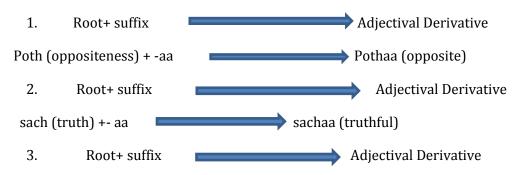


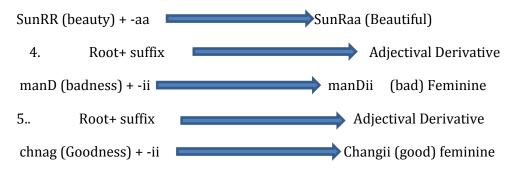
Fig. 4: word structure of 'punRna' an Instrumental Verbal Derivative

The given figure 4 shows that when we attach the suffix -na to the root word "punR," which means "to fry," in the language, it results in an addition of the last sound of the root before the attachment of the suffix -na. Therefore, this sound brings change to the root at the level of sound. The data also show that in Hindko, the suffix has both prosodic changing and prosodic neutral effects on some roots.

Adjectival Derivatives in Hindko

The adjectival derivatives are forms of nouns in Hindko, and these adjectival forms are used to show the semantic features of different objects, like physical features and state features, in the language, and the derivatives are those derivatives that involve qualities in their meanings. Any quality of a person or object must be denoted in the language. In this process, the root has noun-like characteristics, and the outcome derivatives have any quality-like characteristics. These derivatives are used to demonstrate qualities or semantic sense based on where they are formed. These derivatives are formed by attaching the suffix "aa" to the nominal roots of the language. It is worth noting that in Hindko, the suffix aa is added with masculine gender and the suffix ii is added with feminine gender to form adjectival derivatives. The following is the morphological representation of the process in the language:





The given data shows that in Hindko, the adjectival derivatives are derived from the nominal roots having noun qualities, which have features like nouns and are used to show qualities of a person, thing, or any object. These derivatives in Hindko are derived by attaching the suffixes -aa for masculine gender and -ii for feminine gender to the root nouns, as shown in the above examples. The data also shows that when the suffix -aa is attached to the nominal roots like "manD," which means "badness," the outcome is "ManDaa," which means "bad" used for masculine gender, and when the suffix -ii is attached to the verb "Chang," which means "goodness," the outcome is "changii," which means "good" used for feminine gender in Hindko language. At the prosodic level, when we attach the suffix to the root, there is no addition of sound at the end of the root word.



Fig. 5: word structure of 'Changaa' an Adjectival Derivative

The given figure 5 shows that when we attach the suffix –aa with the root word 'Chang' in the language it results ia there is no change in the root word and hence this suffix in the language is not affecting prosody of the root word..

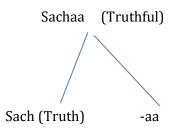
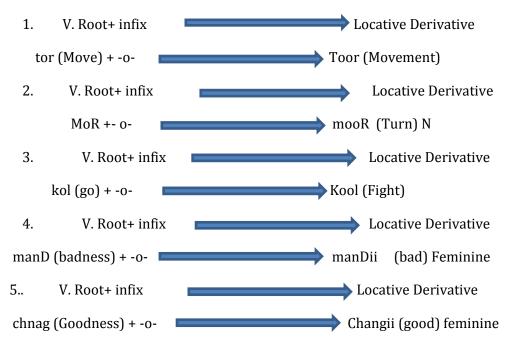


Fig. 6: word structure of 'Sachaa' an Adjectival Derivative

The given figure 6 shows that when we attach the suffix aa to the root word "Sach," which in the language means "truth," it results in no change in the prosody of the original word or does not affect the root word at a sound level. The data also shows that in Hindko, the suffix is not bringing any change to the roots, and it is also prosodically neutral with some roots. The data also shows that in the Hindko language, the suffixes aa and ii are adjectival suffixes that derive new words and can be separated by the features that the suffix aa is used only for showing masculine features, whereas the suffix ii is used for showing feminine features.

Locative Nominal Derivatives in Hindko

The locative nominal derivatives are noun forms in the Hindko language, and they are used to show the semantic features of the location of the action in the language, and the derivatives are those derivatives that involve locative features in their meanings. In the language, when we need to denote the location of a person or object, we need locative derivatives. These derivatives are derived from verbal roots. In this process, the root has the features of verbs, and the outcome derivatives have the features of noun derivatives. These derivatives are used to reflect semantic sense based on their location, where these derivatives are formed. These derivatives are formed by attaching the infix "o" to the verbal roots in the language. It is interesting to mention here that the infix "o" is added to the verbs used to show the direction of an action or activity that is taking place according to the location of the speaker or listener. The following is the morphological representation of the process in the language:



The given data shows that in Hindko, the locative derivatives are derived from the verbal roots having verb-like qualities, which have features like verbs and are used to show actions or activities related to the locations of a person, thing, or any object. These derivatives in Hindko are derived by attaching the V. Root+ infix to the root verbs, as shown in the above examples. The above data also presents a very interesting fact: in some roots, when the infix is inserted within the verbal root like "Kol," it means "fight," and when the infix "o" is added to the root, it gives a new word, "Kool," which means "quarrel" as a noun. In another case, when the infix o- is added to the verb "Tor," which means "move," the result is "toor," which means "movement" in Hindko. At the prosodic level, when we attach the suffix to the root, there is no addition of sound at the end of the root word.

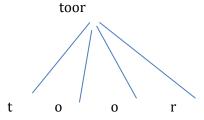


Fig. 7: word structure of 'Toor' a Locative Derivative

The given figure 7 shows that when we attach the infix -0- with the root word 'tor' in the language it results 'toorna' there is no change in the root word and hence this suffix in the language is not affecting prosody of the root word..

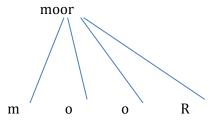


Fig. 8: word structure of 'mooR' a Locative Derivative

Figure 8 shows that attaching the infix-o- to the root word "mor," which means "turn" in the language, results in no change in the original word's prosody or does not affect the root word at the sound level. The data also shows that in Hindko, the infix is not bringing any change to roots, and it is also prosodically neutral with some roots. The data also shows that in the Hindko language, the infix "o" generates new words and can be distinguished from the features that the infix "o" is only used for displaying locative features. The data shows that in Hindko, these locative derivatives show the direction of the action of any person or thing, and these derivatives are derived from the roots having verbal features.

Conclusion

The study finds that in Hindko, the derivatives are of different types, and these derivatives are formed from verbal roots by attaching different types of suffixes having certain semantic and syntactic features. The study also shows that in the language, the suffixes are syntactically and morphologically bonded with the roots having specific features, and if the suffixes are not attached to the roots having the same semantic and syntactic features, then the process of forming derivatives will be blocked.

The current study shows that the formation of nominative derivatives in Hindko is based on a multi-model approach to linguistic analysis of the derivative suffixes. The study answers the question about categories of nominative derivatives in Hindko and categorises these derivatives in terms of syntactic and semantic aspects. The study employs a multi-level approach to analysing the derivatives by analysing prosodic phonology, morphology, syntax, and semantic levels.

The study shows that, semantically, the verbs share meanings with each other and are also similar in their semantic functions. The study also shows that a morphological stembased approach is used for the derivatives. Prosodically, the study finds out the effects on the stem of the derivatives. Moreover, the study concludes that in Hindko there are six types of nominal derivatives: the active participle, the passive participle, the form of exaggeration, the instrumental noun, the qualificative adjective, and the locative noun.

The study finds that in the language there are 18 different types of verbs based on their semantic functions; these verbs can be classified into different categories, and these verbs show social, cultural, linguistic, physical functions, etc. These verbs are also classified into transitive and intransitive categories based on the construction of sentences and the required objects for completing the semantic sense. The study also shows that in the language, the first type of derivative is an active participle, which is derived from active verbs, and these derivatives are used in the active structures to show activity or action, and the second type of derivative is passive derivatives, which are used in passive structures in the language. The study discovers that the third type of derivatives are those that are used to demonstrate the abundance of anything, and these derivatives are used to demonstrate the enhancement of any feature in the language, and unlike English, the study discovers that in the language exaggerative suffixes are very specific and are not very productive, unlike other languages, such as English or Arabic, where exaggerative are productive and abundant.

The study also discovers a new type of derivative forming process in the language, namely fixation, which is not common in these languages and is mostly found in Arabic languages. The study demonstrates that in the language locative derivatives are formed through fixation and the suffix -o- is inserted in the root to form these derivatives, e.g., The data also shows that in the Hindko language, the infix "o" generates new words and can be distinguished from the features that the infix "o" is only used for displaying locative features. The data shows that in Hindko, these locative derivatives show the direction of the action of any person or thing, and these derivatives are derived from the roots having verbal features.

The data also reflects that in the language, the suffixes can be classified into two types based on their prosodic effects in the roots: there are suffixes that derive new derivatives and cause prosodic change in the roots; whereas, there are some derivatives that, when we attach the suffixes to the roots, do not cause any prosodic change in the root; these are called prosodic neutral suffixes, and these suffixes are common; they derive new

The data also shows that there are suffixes in the Hindo language that have no effect on roots, and some roots are also prosodically neutral. The data also shows that in the Hindko language, the suffixes aa and ii are adjectival suffixes that derive new words and can be separated by the features that the suffix aa is used only for showing masculine features, whereas the suffix ii is used for showing feminine features. Another intriguing fact revealed by the study is that the suffixes in the language can be classified based on gender, which is not common in other languages. For example, in the language, -ii is a suffix specific to the feminine gender, and -aa is common for the masculine gender.

To sum up the discussion, the study concludes that in Hindko there are six types of nominal derivatives: the active participle, the passive participle, the form of exaggeration, the instrumental noun, the qualificative adjective, and the locative noun. These derivatives are also of two types, and their prosodic change to the root determines whether they are prosodically changing or prosodically neutral in the language.

References

- Attia, M. (2008). *Handling Arabic morphological and syntactic ambiguity within the LFG framework with a view to machine translation*. PhD Thesis. Manchester: University of Manchester.
- Zajjāji, A. (1984). *Kitāb al-jumal fi-n-naḥw*. Beirut: Mu³assasat al-Risālah.
- Bat-El, O. (1994). Stem modification and cluster transfer in Modern Hebrew. *Natural Language & Linguistic Theory*, 12(4), 571-596.
- Bat-El, O. (2001). *In search for the roots of the C-root: The essence of Semitic morphology. Workshop on Root and Template Morphology.* Los Angeles: University of South California.
- Beesley, K. (1990). Finite-state descriptions of Arabic morphology. In Proceedings of the 2nd Cambridge Conference on Bilingual Computing in Arabic and English. Cambridge University: Literary and Linguistic Computing Centre.
- Beesley, K. (1996). Arabic finite-state morphological analysis and generation. Proceedings of the 16th Conference on Computational Linguistics, Vol 1. *Copenhagen: Association for Computational Linguistics*, 6(1), 89-94.
- Beesley, K. (2001). Finite-state morphological analysis and generation of Arabic at Xerox research: status and plans in 2001. In *The ACL 2001 Workshop on Arabic Language Processing: Status and Prospects. Toulouse*: Association for Computational Linguistics, 1-8.
- Beesley, K. R. (1998). Arabic morphology using only finite-state operations. In Proceedings of the Workshop on Computational Approaches to Semitic Languages. Montreal: Association Computational Linguistics. 16(1), 50-57.
- Benmamoun, E. (1999). Arabic morphology: *The central role of the imperfective. Lingua* 108(2-3), 175-201.
- Boudlal, A., Lakhouaja, A., Mazroui, A., Meziane, A., Bebah, M. O. A. O. & M.Shoul. (2010). Alkhalil morpho sys: A morphosyntactic analysis system for Arabic texts. *In Proceedings of the International Arab Conference on Information Technology, ACIT, Benghazi*, Libya, December 14-15.
- Buckwalter, T. (2002). *Buckwalter Arabic morphological analyzer version 1.0. Linguistic Data Consortium*, catalog number LDC 2002L49 and ISBN 1-58563-257-0.
- Buckwalter, T. (2004). *Buckwalter Arabic morphological analyzer version 2.0. Linguistic Data Consortium,* catalog number LDC2004L02 and ISBN 1-58563-324-0.
- Cavalli-Sforza, V., Soudi, A., & Mitamura, T. (2000). Arabic morphology generation using a concatenative strategy. In Proceedings of the 1st North American chapter of the Association for Computational Linguistics conference. Stroudsburg: Association for Computational Linguistics, 86-93.
- Habash, N. (2004). Large scale lexeme based Arabic morphological generation. *JEPTALN 2004, Session Traitement Automatique* e l'Arabe, Fès. 271-276.
- Habash, N. (2010). Introduction to Arabic natural language processing. Morgan & Claypool
- Hasan, A. (1969). An-Nahw Al-Wāfī. Cairo: Dar al-Macārif.

- Hayes, B. (1995). *Metrical stress theory: principles and case studies*. Chicago: University of Chicago Press.
- Heath, J. (1987). Ablaut and ambiguity: *Phonology of a Moroccan Arabic dialect*. Albany, New York: State University of New York.
- Helbig, H. (2006). *Knowledge representation and the semantics of natural language*. New York: Springer.
- Hetzron, R. (1992). Semitic languages. ed. Bright, W. *International Encyclopedia of Linguistics*, Vol 3. Oxford: Oxford University Press
- Haroon-ur-Rashid. (2011). *The phonology of English loanwords in Hindko*: vehicle register (Unpublished M. Phil thesis). University of AJ&K, Muzaffarabad.
- Haroon-ur-Rashid & Sohail, A. (2011). An introduction to Hindko syllable typology. *Language in India*, *12* (2), 768-780.
- Haroon-ur-Rashid & Raja, N. A. (2012). Hindko Vowel System. *Kashmir Journal of Language Research*. 15 (2), 55-76.
- Ibn Jinnī, A. (1956). *Al-Xaṣā³iṣ*. Cairo: Dār al-Kutub al-Masriyyah.
- Ibn Jinnī, A. (1960). Al-Munsif. ed. by Ibarhem Mustafa. Cairo: Mustafa al-Bābī al-Halabī.
- Jayan, J. P., Rajeev, R. R., & Rajendran, D. S. (2011). Morphological analyzer and morphological generator for Malayalam-Tamil machine translation. *International Journal of Computer Applications*, 13(8), 15-18.
- Kager, R., van der Hulst, H., & Zonneveld, W. (Eds.). (1999). *The prosody-morphology interface*, Vol. 79. Cambridge: Cambridge University Press.