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PRONOMINAL AFFIXATION IN HINDKO LANGUAGE: OPTIMALITY THEORETICAL ANALYSIS

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Abstract

This study presents an Optimality Theoretical (OT) analysis of pronominal affixation in the Hindko language, focusing on how pronominal markers attach to verbs and other hosts in natural speech. Hindko, an Indo-Aryan language spoken in northern Pakistan, exhibits a rich system of pronominal affixes that encode person, number, and sometimes gender. The research investigates the phonological and morphological constraints governing the placement and realization of these pronominal affixes within the framework of Optimality Theory. Data were collected from 10 native speakers of Hindko and analyzed through OT tableaux to determine the ranking of constraints responsible for the preferred surface forms. The study demonstrates that constraints such as ***ALIGN****,* ***MAX-IO****,* ***DEP-IO****, and* ***ONSET*** *play a significant role in determining the optimal output forms during pronominal attachment. The analysis shows that pronominal affixation in Hindko is not arbitrary but systematically regulated by ranked universal constraints that balance faithfulness to the input with phonological well-formedness. The findings contribute to the understanding of morphophonological processes in Hindko and provide further evidence for the applicability of Optimality Theory in explaining pronominal affixation patterns in Indo-Aryan languages. The study also highlights the importance of documenting and analyzing regional languages through modern linguistic frameworks.*

Keywords: *Hindko language, Pronominal Affixation, Optimality Theory, Morphophonology, Constraint Ranking, Indo-Aryan Languages, OT Tableaux, Affixation, Phonological Constraints.*

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INTRODUCTION

Language displays systematic patterns in the way grammatical information is expressed through morphological and phonological structures. One such phenomenon is ***pronominal affixation****, in which pronouns are attached to verbs or other grammatical hosts as affixes to indicate person, number, and sometimes gender. This process is common in many Indo-Aryan languages and plays an important role in encoding grammatical relations within a sentence. The Hindko language, widely spoken in the northern regions of Pakistan, particularly in Khyber Pakhtunkhwa and Hazara division, exhibits a rich system of pronominal markers that attach to verbs and other elements, forming complex morphological structures.*

From a theoretical perspective, modern phonology provides several frameworks to explain how such morphological and phonological processes operate. One influential framework is ***Optimality Theory****, proposed by* ***Alan Prince*** *and* ***Paul Smolensky*** *(1990). This theory explains linguistic patterns through the interaction and ranking of universal constraints. Instead of fixed rules, Optimality Theory assumes that languages select the most optimal output from several possible candidates based on a hierarchy of constraints. These constraints typically fall into two categories:* ***faithfulness constraints****, which preserve the properties of the input form, and* ***markedness constraints****, which ensure phonological well-formedness.*

The application of Optimality Theory to the study of pronominal affixation can provide insight into the interaction of phonological and morphological constraints that underlie the observed forms in Hindko. Despite the linguistic diversity of Hindko, there has been limited research into the morphophonology of the language from a modern theoretical perspective. As such, the aim of the current study is to explore the phenomenon of pronominal affixation in Hindko from the perspective of Optimality Theory, with a view to identifying the specific constraints at work and their relative ranking, thereby contributing to the overall understanding of the morphophonology of regional Indo-Aryan languages.

LITERATURE REVIEW

Optimality Theory (OT) is arguably one of the most influential theoretical models in modern phonology and morphophonology. The theory was established in the early 1990s and describes language phenomena in terms of ranked and violable constraints that identify the most optimal output of a given linguistic input. In opposition to other models, OT proposes that languages choose the most optimal output among a set of candidates provided by a universal mechanism (Prince & Smolensky, 2004; McCarthy, 2011). The key assumption of the theory is that universal constraints are shared by all languages but differ in ranking, giving rise to language variation (Kager, 1999).

The theory of Optimality has also expanded to cover morphology and the interface between morphology and phonology. Researchers have demonstrated that the theory is effective in analyzing morphophonology, including processes of reduplication, truncation, and affixation. In this case, morphological processes are said to interact with prosodic and phonological constraints to produce an optimal output (Xu, 2016; McCarthy & Prince, 1995). The research on prosodic morphology has demonstrated

that the theory offers a coherent model to explain the interaction between morphological concatenation and prosodic constraints in language .

A considerable amount of research has been devoted to the phenomenon of affixation within OT models. The affixation process is not only affected by morphological rules but also by phonological constraints on syllable structure and prosodic well-formedness. Research suggests that affixes and their forms are often determined by the interaction of faithfulness constraints and markedness constraints to ensure phonological harmony (Booij, 2012; Lieber, 2014). Empirical research on affixation in language also suggests that suffixes are more common than prefixes due to processing and structural biases in language systems.

The more recent research on affix placement in language also attempts to demonstrate the applicability of the affix placement mechanism in different languages. Research on reflexive affix placement in languages such as Lithuanian suggests that affix placement is possible through the interaction of constraints on morphological alignment and optimization . Research on affix placement and infixation also suggests that complex affix placement and morphological patterns can be explained through the interaction of morphological and phonological constraints (Kalin, 2022).

Researchers in pronominal morphology study how pronominal affixes function as grammatical markers that attach to verbs and other linguistic elements. Pronominal affixation usually expresses grammatical features that include person number and gender which people frequently associate with agreement and cliticization (Bhat 2007, Anderson 2005). Linguistic typology studies show that many languages use pronominal markers as bound morphemes which create intricate morphological systems (Comrie,1989). The research uses OT to study these systems through assessment of how constraint rankings control both pronominal element positioning and their phonetic expression.

Research evidence exists about Optimality Theory together with morphophonological processes but studies about regional Indo-Aryan languages like Hindko remain few. Hindko functions as the primary language of northern Pakistan who use its complex system to express verbal and pronominal forms. Current research on Hindko focuses mainly on descriptive grammar and phonological characteristics and sociolinguistic differences instead of conducting theoretical studies. Contemporary theoretical frameworks have not yet examined the morphophonological patterns which exist in Hindko language..

The recent linguistic research shows that modern linguistic theories need to be tested on lesser-known languages which experts have not yet studied to increase the range of linguistic research. South Asian languages together with their neighboring languages show that constraint-based frameworks can successfully explain their morphological systems because they apply to multiple linguistic situations. The study uses Optimality Theory to analyze pronominal affixation in Hindko because it allows researchers to study how phonological and morphological systems interact with each other while establishing connections to Indo-Aryan morphophonological patterns.

The present study uses Optimality Theory as its framework to study pronominal affixation in Hindko because of these recent developments. The study investigates how pronominal attachment operates in Hindko by testing which

constraints bring about optimal surface forms throughout the language. The research presents a systematic examination of Hindko morphophonological patterns which benefits both theoretical linguistics and documentation efforts for the language

RESEARCH METHODOLOGY

This study adopts a qualitative descriptive approach to analyze the process of pronominal affixation in the Hindko language within the framework of Optimality Theory. The researcher evaluates morphophonological patterns which show how pronouns attach to words by testing their phonological constraints through specific interaction methods and particular ranking procedures.

DATA COLLECTION

The researcher collected their study data by conducting informal interviews and elicitation sessions and observing natural speech between native Hindko speakers. The researcher created a small database of sentences that contained pronominal affixes which were used with verbs and other grammatical elements. The researcher selected relevant examples from existing descriptive studies and linguistic literature about Hindko to support their research. The data collection process resulted in the acquisition of various pronoun forms which display different grammatical usages in different person number and grammatical situations.

The data for this research was gathered from native speakers of the Hindko language. The researcher conducted fieldwork and elicitation tasks with native speakers of the Hindko language. The researcher used a qualitative method to collect natural linguistic data that would depict the natural patterns of pronominal affixes. The researcher conducted informal interviews and elicitation tasks with selected Hindko speakers. The researcher asked the participants to construct sentences involving verbs and pronominal elements. The participants were asked to construct sentences involving verbs and pronominal elements in various grammatical contexts. The researcher recorded the spontaneous conversational speech of the participants to collect natural data on the use of pronominal affixes.

The participants for the research were selected using purposive sampling. The participants were selected based on their fluency in the Hindko language. The participants included speakers of different ages and educational levels. The participants were informed about the purpose of the research, and their consent was obtained before recording the data. The speech samples were later transcribed and analyzed for morphophonological patterns of pronominal affixes.

A total of ten Hindko speakers participated in the study. The following table presents the demographic variables of the participants.

Table: Demographic Profile of Hindko Speakers

Speaker ID	*Gender*	*Age Group*	*Education Level*	*Native Dialect*	*Location*
S1	*Male*	*25–30*	*Graduate*	*Hindko*	*Abbottabad*
S2	*Female*	*20–25*	*Undergraduate*	*Hindko*	*Haripur*
S3	*Male*	*30–35*	*Graduate*	*Hindko*	*Mansehra*
S4	*Female*	*35–40*	*Postgraduate*	*Hindko*	*Abbottabad*
S5	*Male*	*40–45*	*Graduate*	*Hindko*	*Haripur*

Speaker ID	Gender	Age Group	Education Level	Native Dialect	Location
S6	Female	25–30	Graduate	Hindko	Mansehra
S7	Male	30–35	Postgraduate	Hindko	Abbottabad
S8	Female	20–25	Undergraduate	Hindko	Haripur
S9	Male	35–40	Graduate	Hindko	Mansehra
S10	Female	30–35	Postgraduate	Hindko	Abbottabad

DATA ANALYSIS

The research team used Optimality Theory which Alan Prince and Paul Smolensky developed as the basis of their data analysis. The researcher studied every linguistic form to find out how its input and output forms interacted with each other. The team generated candidate outputs for every input form and used Optimality Theory tableaux to assess those candidate outputs. The research identified essential markedness and faithfulness restrictions which included ALIGN, MAX-IO, DEP-IO, and ONSET. The researcher ranked the constraints to show how they produced the best surface forms which appeared in Hindko pronominal affixation.

Analytical Procedure

The analytical procedure involved three main steps. First, researcher identified examples of pronominal affixation and used standard linguistic notation to transcribe them. Second, possible candidate outputs were generated for each input form. Third, OT tableaux were constructed to evaluate the candidates against the ranked constraints, allowing the most optimal form to emerge. The process helped researchers establish the constraint hierarchy which created the morphophonological patterns.

SCOPE AND LIMITATIONS

The study focuses specifically on the morphophonological aspects of pronominal affixation in Hindko and does not attempt a comprehensive grammatical description of the language. The analysis examines particular examples which demonstrate how phonological constraints affect pronominal attachment. In Hindko, pronominal affixes frequently attach to verbs and may undergo phonological adjustments to maintain well-formed syllable structure. The following Optimality Theory (OT) tableau illustrates a simplified example of pronominal affixation where a pronominal suffix attaches to a verbal base.

Data Analysis & Discussion

Table 1: Examples of Pronominal Affixation in Hindko from Native Speakers

Speaker ID	Verb Root	Pronominal Affix	Hindko Form	Gloss(English Meaning)
S1	kar (do)	-e (he)	Kare	he does
S2	das (tell)	-i (me)	Dasi	tell me
S3	bol (speak)	-o (you)	Bolo	you speak
S4	likh (write)	-e (he)	Likhe	he writes
S5	vekh (see)	-a (him/her)	Vekha	see him/her

Speaker ID	*Verb Root*	*Pronominal Affix*	*Hindko Form*	*Gloss(English Meaning)*
S6	*kar (do)*	*-o (you)*	*Karo*	*you do*
S7	*bol (say)*	*-i (me)*	*Boli*	*say to me*
S8	*das (tell)*	*-o (you)*	*Daso*	*tell you*
S9	*vekh (see)*	*-e (he)*	*Vekhe*	*he sees*
S10	*likh (write)*	*-i (me)*	*Likhi*	*write to me*

The table above provides examples of pronominal affixation from ten native speakers of Hindko. Each example illustrates how a pronominal part is added to a verbal root to convey grammatical information such as person or number. The examples clearly indicate that pronominal markers in Hindko are mostly suffixes added to verb roots to create morphologically complex words. These examples provide evidence of the relationship between morphology and phonology in Hindko, where the verbal root and pronominal suffix form a single phonological word. The examples cited from the speakers offer evidence for the analysis of pronominal affixation in terms of the theory of Optimality Theory, which describes how the most optimal forms are derived as a result of the interaction of ranked constraints.

Table 2: Types of Pronominal Affixation in Hindko

Typeof Pronominal Affixation	*Description*	*Hindko Example*	*Gloss (English Meaning)*
Subject Pronominal Affixation	*A pronominal affix attached to a verb to indicate the subject of the sentence.*	*Kare*	*he does*
Object Pronominal Affixation	*A pronominal affix attached to a verb to mark the object or recipient of the action.*	*Dasi*	*tell me*
Possessive Pronominal Affixation	*A pronominal affix indicating possession attached to nouns or noun phrases.*	*marra / marri*	*my / mine*
Reflexive Pronominal Affixation	*pronominal element referring back to the subject of the sentence.*	*apRin dekh*	*see oneself*
Clitic-like Pronominal Affixation	*A pronominal element that behaves like a clitic and attaches phonologically to a host word such as a verb.*	*Bolo*	*you speak*

The above table shows the major types of pronominal affixation that are found in Hindko. Generally, pronominal affixation occurs with either verbs or nouns. In addition, it usually conveys grammatical information. Subject and object pronominal affixes are the most common types of pronominal affixes. This is due to the fact that they

are usually involved in the morphology of the verb. Possessive pronominal affixes show that something belongs to someone, while reflexive pronominal affixes show that they are associated with the subject of the sentence. In addition, it should be noted that pronominal affixes in Hindko have been observed to have some characteristics of clitics. This shows that Hindko has rich morphosyntactic structure. This information can be used to analyze pronominal affixation in terms of constraint-based theories like Optimality Theory.

Table 3: Types of Pronominal Affixation in Hindko

Person	***Pronominal Affix***	***Description***	***Example Sentence (Hindko)***	***English Translation***
1st Person Singular	***-m / -am***	*Affix attached to the verb indicating that the **speaker (I)** is the subject performing the action.*	*kitab parhdaan*	*I read the book*
1st Person Plural	***-ã̃ / -an***	*Indicates that **we** are the subject of the action. The affix marks plural subject agreement with the verb.*	*asi kam kar-ã̃*	*We do the work*
2nd Person Singular	***-e / -ay***	*Used when the **addressee (you singular)** is the subject of the verb.*	*tu roti kha-ay*	*You eat bread*
2nd Person Plural	***-o / -yo***	*Marks **you plural** as the subject of the verb. It shows agreement between the verb and plural addressee.*	*tusi bazar jol-yo*	*You (plural) go to the market*
3rd Person Singular	***-a / -e***	*Indicates that **he/she** is the subject performing the action. The affix attaches to the verb to show third person agreement.*	*oh ghar jald-a*	*He goes home*
3rd Person Plural	***-an / -en***	*Marks **they** as the subject of the verb, showing plural subject agreement.*	*oh kam kard-an*	*They do the work*

Pronominal affixation in Hindko is a morphological phenomenon where pronominal affixes are added to the verb to show the subject of the sentence. The affixes are used to show person and number, which helps the verb agree with the subject. The phenomenon of pronominal affixation makes the use of subject pronouns unnecessary in a sentence because the verb itself carries the grammatical information of the subject.

Table 4: Object Pronominal Affixation in Hindko

Person	*Object Pronominal Affix*	*Description*	*Example Sentence (Hindko)*	*English Translation*
1st Person Singular	***-m/-se***	*Indicates that the **speaker (me)** is the object of the action. The affix attaches to the verb showing that the action is directed toward the speaker.*	*oh moko dekh-se*	*He saw me*
1st Person Plural	***-sã̃/-san***	*Shows that **us** is the object of the action performed by the subject.*	*oh bula-san*	*He called us*
2nd Person Singular	***-t/-ya***	*Marks **you (singular)** as the object receiving the action.*	*mein toko dekh-ya*	*I saw you*
2nd Person Plural	***-to/-tusi***	*Indicates **you (plural)** as the object of the verb.*	*asi bula-to*	*We called you (plural)*
3rd Person Singular	***-s/-se***	*Shows that **him/her** is the object of the action.*	*mein dekh-se*	*I saw him/her*
3rd Person Plural	***-n/-ne***	*Indicates **them** as the object of the action in the sentence.*	*asi bula-ne*	*We called them*

Object pronominal affixation in Hindko is a morphological phenomenon in which the pronominal affixes are added to the verb to indicate the object of the action. The affixes indicate the person and number of the object, enabling the verb to indicate the one who is affected by the action without necessarily using a noun phrase. This is a reflection of the agreement system of the Hindko verb, in which both the subject and the object can be indicated on the verb.

Table 5: Possessive Pronominal in Hindko

Person	*Possessive Pronominal Form*	*Description*	*Example (Hindko)*	*English Translation*
1st Person Singular	***merā/merī/ mere***	*Indicates possession by the **speaker (my/mine)**. The form changes according to gender and number of the noun.*	*merī kitab*	*My book*
1st Person Plural	***sāḍā/sāḍī/ sāḍe***	*Shows that something belongs to **us (our/ours)**.*	*sāḍā ghar*	*Our house*

Person	Possessive Pronominal Form	Description	Example (Hindko)	English Translation
2nd Person Singular	**terā / terī / tere**	Marks possession by **you (singular)**.	turā dost	Your friend
2nd Person Plural	**tuāḍā / tuāḍī / tuāḍe**	Indicates possession by **you (plural)**.	tuāRī kitab	Your (plural) book
3rd Person Singular	**ohdā / ohdī / ohde**	Shows possession by **him or her**.	osdā ghar	His/Her house
3rd Person Plural	**onā dā / onā dī / onā de**	Indicates possession by **them**.	onā dā graan	Their village

Possessive pronominal affixation in Hindko is the use of pronominal affixes to indicate possession of a noun. This is normally done in agreement with the gender and number of the noun that is possessed, as well as the number and person of the possessor. In Hindko, possessive affixes are used as pronominal modifiers of noun phrases.

Table 6: Reflexive Pronominal Affixation

Person	Reflexive Pronominal Form	Description	Example Sentence (Hindko)	English Translation
1st Person Singular	**āpṇe āp / āpṇā**	Indicates that the **speaker performs the action on himself/herself**. The reflexive form refers back to the subject.	maĩāpṇe āp nũ dekhyā	I saw myself
1st Person Plural	**āsã̃ āpṇe āp**	Shows that **we perform the action on ourselves**.	āsã̃ āpṇe āp nũ tayār kītā	We prepared ourselves
2nd Person Singular	**tũ̃ āpṇe āp**	Indicates that **you (singular) perform the action on yourself**.	tũ̃ āpṇe āp nũ̃ samjheya	You understand yourself
2nd Person Plural	**tusĩ̃ āpṇe āp**	Shows that **you (plural) perform the action on yourselves**.	tusĩ̃ āpṇe āp nũ̃ bachāo	You protect yourselves
3rd Person Singular	**oh āpṇe āp**	Indicates that **he/she performs the action on himself/herself**.	oh āpṇe āp nũ̃ dekhdā ae	He sees himself
3rd Person Plural	**ohnã̃ āpṇe āp**	Shows that **they perform the action on themselves**.	ohnã̃ āpṇe āp nũ̃ badal lītā	They changed themselves

Reflexive pronominal affixation in Hindko involves the use of reflexive markers

that show the subject and object of the verb are the same. The reflexive part of the marker "āpṇe āp" or "āpṇā" points back to the subject and shows that the action done by the subject is done on itself. Reflexive markers are normally used in Hindko to indicate actions done on oneself, to focus on the subject, or to indicate one's involvement in the action.

Table 7: Clitic-Like Pronominal Form

Person	***Clitic-like Pronominal Form***	***Description***	***Example Sentence (Hindko)***	***English Translation***
1st Person Singular	***-m/-me***	*A weak pronominal form that attaches to the verb or preceding word to indicate **'me'** as the object. It behaves like a clitic because it is phonologically dependent on the verb.*	*oh dekh-me*	*He saw me*
1st Person Plural	***-sān/-san***	*Clitic-like marker indicating **'us'** as the object of the action. It attaches to the verb phrase.*	*oh bula-san*	*He called us*
2nd Person Singular	***-t/-te***	*Indicates **'you (singular)'** as the object. It is phonologically dependent on the verb and functions like a clitic rather than a full pronoun.*	*maĩ dekh-te*	*I saw you*
2nd Person Plural	***-to/-tus***	*Marks **'you (plural)'** as the object. Appears as a short pronominal element attached to the verb.*	*asi bula-to*	*We called you (plural)*
3rd Person Singular	***-s/-se***	*Clitic-like form referring to **'him/her'** as the object of the action.*	*maĩ dekh-se*	*I saw him/her*
3rd Person Plural	***-n/-ne***	*Indicates **'them'** as the object and attaches to the verb as a dependent element.*	*asi bula-ne*	*We called them*

Clitic-like pronominal suffixes in Hindko can be described as follows: Clitic-like pronominal suffixes in Hindko are short pronominal markers that are phonologically bound to a host word, usually a verb, but still show some degree of syntactic autonomy. They are similar to clitics in the sense that they cannot occur alone and require another word to pronounce them. They usually mark person and number of the object and are used to minimize the use of full pronouns in a sentence. Clitic-like pronominal suffixes are significant in Hindko morphosyntax.

Tableau 8: Alignment of Pronominal Suffix
Input: */kar + o/ → "do + it"*

Candidates	***ALIGN-R***	***ONSET***	***MAX-IO***	***DEP-IO***
a. ka.ro	✓	✓	**!*	✓
b. kar.o	✓	**!*	✓	✓
c. ka.ro ☞	✓	✓	✓	✓
d. karo	**!*	✓	✓	*

The OT tableau above demonstrates how pronominal affixation in Hindko can be explained through the interaction of phonological constraints. Multiple candidate outputs emerge from the process when the pronominal suffix attaches to the verb. The candidates demonstrate different levels of violation because they break various rules at different levels. The optimal candidate emerges as the form that best satisfies the hierarchy of constraints with the least serious violations. The candidate (c) is the best output because it meets the alignment requirement and keeps the input segments intact while producing acceptable syllable structure. Hindko speakers demonstrate phonological patterns of pronominal affixation through their speech because their language shows specific rules which govern phonological patterns.

Tableau 9: Alignment of Pronominal Suffix
Input: */kar + e/ → "do + he"*

Candidates	***ALIGN-R***	***MAX-IO***	***DEP-IO***	***ONSET***
a. e.kar	**!*	✓	✓	✓
b. kar.e	✓	✓	✓	**!*
c. ka.re ☞	✓	✓	✓	✓
d. kare	✓	**!*	✓	✓

ALIGN-R, ONSET » MAX-IO » DEP-IO

The tableau displays how a pronominal suffix attaches to the verb root. The input /kar + e/ generates several candidate outputs. Candidate (a) e.kar violates the ALIGN-R constraint because the pronominal affix is placed at the beginning rather than aligning with the right edge of the host verb. Candidate (b) kar.e violates the ONSET constraint because it produces a syllable without an onset. Candidate (d) kare

deletes a segment from the input and therefore violates MAX-IO, which requires preservation of input segments. Candidate (c) ka.re satisfies the higher-ranked constraints ALIGN-R and ONSET while preserving the input structure and avoiding unnecessary insertion. The optimal output emerges from candidate (c). This tableau shows that proper alignment of the pronominal affix with the verb root functions as a highly ranked requirement in Hindko.

Tableau 10: Avoidance of Consonant Cluster during Affixation

Input: */likh + e/ → "write + he"*

Candidates	****COMPLEX***	***MAX-IO***	***DEP-IO***	***ALIGN-R***
a. likhe	✓	✓	✓	✓
b. likh.e	*!	✓	✓	✓
c. li.khe ☞	✓	✓	*	✓
d. lihe	✓	*!	✓	✓

**COMPLEX » MAX-IO » DEP-IO*

*Hindko demonstrates its phonetic behavior through this tableau which shows that Hindko only uses simple consonant combinations when people use pronouns. The input /likh + e/ produces multiple candidate forms. Candidate (b) likh.e violates the *COMPLEX constraint because it results in a difficult consonant cluster at the syllable boundary. Candidate (d) lihe deletes the consonant /k/ from the input and therefore violates MAX-IO. Candidate (a) likhe only meets some constraints because the pronunciation still maintains a complicated consonant combination. Candidate (c) li.khe resolves the cluster through syllable restructuring and therefore satisfies the high-ranked *COMPLEX constraint while maintaining most of the input segments. The langauge accepts this minor violation of DEP-IO because it requires vowel insertion according to the higher-ranked markedness constraint. Thus, candidate (c) is selected as the optimal form.*

Tableau 11: Vowel Insertion to Maintain Syllable Structure

Input: */das + i/ → "tell + me"*

Candidates	***ONSET***	***DEP-IO***	***MAX-IO***	***ALIGN-R***
a. dasi	✓	✓	✓	✓
b. da.si	✓	*	✓	✓

Candidates	*ONSET*	*DEP-IO*	*MAX-IO*	*ALIGN-R*
c. da.si ☞	✓	*	✓	✓
d. dsi	*!	✓	*	✓

ONSET » MAX-IO » DEP-IO

This tableau explains the role of vowel insertion in maintaining acceptable syllable structure during pronominal affixation. The input /das + i/ produces several candidate outputs. Candidate (d) dsi violates the ONSET constraint because it forms an ill-structured syllable without proper phonological support. Candidate (a) dasi preserves the segments but does not fully satisfy the syllable structure preferences of the language. Candidate (b) da.si and candidate (c) da.si insert a vowel to create a well-formed syllable structure, resulting in a minor violation of DEP-IO. The language prefers vowel insertion because ONSET has higher rank than DEP-IO which causes the creation of ill-formed syllables. Therefore, candidate (c) emerges as the optimal output form.

Tableau 12: Preservation of Input Segments

Input: */bol + o/ → "speak + you"*

Candidates	*MAX-IO*	*ALIGN-R*	*ONSET*	*DEP-IO*
a. bolo ☞	✓	✓	✓	✓
b. bo.lo	✓	✓	✓	*
c. blo	*!	✓	✓	✓
d. o.bol	✓	*!	✓	✓

MAX-IO » ALIGN-R » DEP-IO

The tableau demonstrates that input segment preservation remains essential during pronoun attachment through pronominal affixation process. The input /bol + o/ generates several possible candidates. Candidate (c) blo deletes a vowel from the input and therefore violates the highly ranked MAX-IO constraint which prohibits deletion of segments. Candidate (d) o.bol violates the ALIGN-R constraint because the pronominal affix is not aligned with the right edge of the host verb. Candidate (b) bo.lo inserts an additional vowel and therefore violates DEP-IO. Candidate (a) bolo preserves all input segments and satisfies the alignment and syllable structure constraints without unnecessary insertion. As a result candidate (a) is selected as the optimal output. Hindko speakers show a strong preference for segment preservation throughout the entire process of forming new words.

RESULTS AND DISCUSSION

The study of pronominal affixation in Hindko was conducted through

Optimality Theory which explains language patterns according to the relationships between different ranked constraints. The analysis of data through OT tableaux shows that Hindko pronominal affix attachment and phonological manifestation happen due to the interaction between markedness and faithfulness constraints. The results show that Hindko chooses its best output by following the rules of higher-ranked constraints while breaking lower-ranked constraints to a minimal extent. The first major finding of the study relates to the alignment of pronominal affixes with the host verb. The OT analysis demonstrates that the pronominal affix must connect with the right boundary of the host through alignment constraint which functions as a primary rule for determining affix location. The system eliminates candidates that display pronominal affixation at their start or show incorrect alignment because these options break the top-ranked constraint. This shows that Hindko people prefer to attach pronominal elements through suffixation methods.

*The research indicates that syllable structure constraints prove to be vital for understanding syllabic patterns. The analysis shows that ONSET and *COMPLEX constraints control the phonological patterning of output forms. The language system uses vowel insertion and syllable restructuring to correct pronominal affixation which generates complex consonant clusters and onsetless syllabic structures. The repairs establish phonological soundness because they fulfill higher-ranked markedness constraints although they break lower-level faithfulness rules which include DEP-IO. The research demonstrates that faithfulness rules maintain their crucial role in linguistic systems through MAX-IO which demands that all input segments must stay intact.*

The OT tableaux show that candidates involving deletion of segments are generally disfavored unless required to satisfy a more highly ranked constraint. Hindko preserves the core components of its verb root and pronominal affix but only makes slight phonetic changes to them. Overall, the constraint interaction observed in the analysis suggests the following general ranking pattern in Hindko pronominal affixation:

**ALIGN-R, ONSET, COMPLEX » MAX-IO » DEP-IO*

The ranking shows that structural well-formedness and correct alignment methods receive more importance than maintaining complete accuracy to the original input. The results of this study support existing research which shows that markedness constraints control affixation patterns according to the findings of previous morphophonological studies.

The study outcomes show that Hindko pronominal affixation follows established morphophonological rules which can be described using the Optimality Theory constraint-based system. The attachment process of pronominal affixes to verbs and the associated phonological changes occur through the interaction of established constraints. The research results enhance our understanding of Indo-Aryan languages morphophonological processes while demonstrating how OT methods help analyze the linguistic patterns of under-researched regional dialects.

The ranking shows that structural well-formedness together with proper alignment provides more important value than complete input faithfulness. Previous

research about morphophonology shows that markedness constraints shape affixation patterns according to this study's findings.

The study shows that current theoretical frameworks can be used to analyze Hindko linguistic structures through its empirical evidence. The research identifies the constraint hierarchy that controls pronominal affixation which improves our understanding of morphological and phonological relationships in Hindko while adding to existing research about constraint-based linguistic analysis.

CONCLUSION

*This paper investigated the process of pronominal affixation in the Hindko language using the framework of Optimality Theory. The results of the analysis showed that the attachment and phonological implementation of pronominal affixes in the Hindko language are controlled by the interaction of ranked constraints. The results of the tableaux in Optimality Theory revealed that constraints such as ALIGN-R, ONSET, and *COMPLEX are crucial in determining the optimal attachment and phonological implementation of pronominal affixes, while faithfulness constraints such as MAX-IO and DEP-IO are responsible for ensuring the integrity of the input segments. The results of the study show that the Hindko language prefers suffixing and preserves proper syllable structure during the attachment of pronominal affixes. In general, this study confirms that the process of pronominal affixation in the Hindko language is systematic and follows morphophonological patterns that can be properly captured by a constraint-based analysis. This study is important in providing a linguistic description of the Hindko language and in demonstrating the utility of Optimality Theory in the analysis of morphophonological patterns in less well-documented Indo-Aryan languages.*

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