

Semantic Variations in Punjabi Circumfixal Pattern: An Optimality Theory Analysis

Zill-e-Huma¹

Abstract

Circumfixation is a type of affixation in which a word is changed into a different form by adding a morpheme in two parts on both sides at the same time. This study is focused on the semantic changes occur while a circumfix is attached to root and new word is formed, which changes its meaning and connotation simultaneously. For instance: *kəm* ‘work’ is a root word with neutral connotation while its derivation *ni-kə-m-ma* ‘incompetent’ has a negative connotation. This negativity of meaning is indicated from the circumfix attached with the root word. This study examines the semantic variations that occur through derivation. To analyze these features, Optimality Theory will be used as theoretical frame work.

Key Words: Semantics, Punjabi, Optimality Theory, Circumfixal Pattern, Variations

Introduction

Circumfixation in Punjabi

Circumfixation is a type of affixation in which a word is changed into a different form by adding a morpheme in two parts on both sides at the same time. Circumfixation is a type of affixation whereby an affix made up of two separate parts surrounds and attaches to a root or stem at the same time. Bauer (2003) argues that in circumfix, a prefix and suffix act together to surround a base. Punjabi example *nikəmma* “incompetent” designates the insertion of affixes (prefix *ni-* and suffix *ma*) with root word *kə-m* (N) “work”. Like many other languages, Punjabi shows derivation by circumfixes.

Circumfix in Other Languages

In Hebrew, *magdelet* “magnifier” for example, the root is *gdel* “big” (in the H-stem *hagdel* “to enlarge”) and the circumfix is *m- -et*. Ihezuonu (2011) also provides an example of circumfix from Dutch (see Mbah, 2012):

raam → *ge-raam-te* ‘frame skeleton’

In Japanese, the honorific circumfix *o- -ninaru* and *o- -suru* are used; for example, *yomu* → *o-yomi ni naru* (respectful), *o-yomi suru* (humble) (Boeckx, 2004). The circumfix is, probably, well defined under the German example of *ge-* and *t* (Bauer 2003) as in *ge-film-t* ‘filmed’ in English. Dutch also has a similar system (*spelen- gespeel- din* this case) (Alan2004). There are numerous examples of circumfixes in Arabic also, which are more related to Punjabi, like (*yafalaa*).

In some cases, grammatical category is maintained but semantic value of derived word is modified.

¹ Primary School Teacher (Head Teacher), Education Department, Government of Punjab, Pakistan

Semantic Variations in Affixation

If we study the Punjabi circumfix like *nəma:na* ‘humble’, it can be noted that it is semantically different from its root *ma:n* ‘expectation’. The root *ma:n* is an abstract noun and has positive connotation while after attaching circumfix *nə- -na* its derivation changed into an adjective, with negative connotation. It can also be understood by the following sentence:

Usage of root word: “*minu teræ tæ ma:n vε*” I have trust upon you

Usage of circumfix: “*O nəma:na pio ki kərda?*” what does underdog father do?

Similarly, the root *kʰət* ‘earning’ is noun while after addition of circumfix *ni- -u* it becomes *nikʰtu* ‘unemployed’ an adjective. This study focuses on such type of semantic variations occurring while circumfixation and then they are analyzed through Optimality Theory. Here, only three patterns of circumfix are shown in the table as sample. For further study 5 more examples of each category will be shown.

Sr. No.	Root	Meaning	Circumfix	Semantic Meaning	Derivation	Meaning
1.	<i>kəm</i>	work	<i>ni- -a</i>		<i>nikəma</i>	Jobless
2.	<i>bərkət</i>	blessing	<i>bə- -a</i>		<i>bə- bərkət-a</i>	without blessing
3.	<i>shukər</i>	gratitude	<i>nə- -a</i>		<i>nə-shukər-a</i>	a person with no gratitude

Table 1: Punjabi Circumfix Examples

Research Objectives

The purpose of this research is to observe the meaning making variations of Punjabi circumfixes. For this purpose, the underlying patterns are examined to find out the semantic changes. The analysis of all the patterns are done via OT theory. This study will be a contribution to the rare research done on Punjabi with linguistic perspective and give a glance to understand the scope of further research in Punjabi.

Research Questions

- What semantic changes occur while affixation of circumfixes in Punjabi?
- How many grammatical changes occur through affixation of circumfixes in Punjabi?

Theoretical Framework

This research uses Optimality Theory (OT) as a theoretical framework. Prince and Smolensky (1993) purposed an Optimality Theory. It was originally a phonological theory.

OT is a theory, which illustrates constraints based analysis of data. It is a declarative theory, which does not follow the regularity of rules like derivational theories. Regularities are universal laws which treat fixed rules, as in affixation, words are derived through set patterns. OT actually covers universal laws and particular realizations of a language. Two types of conflicting constraints i.e. universal and language

specific constraints refer to the interaction between underlying input and surface output. Output representations are result of input-output interaction and show match and mismatch with input. Universal constraints follow the general rules as many languages share the same process of circumfixation, while language specific constraints follow particular rules as every language differs in its rules regarding circumfixation. Constraints are evaluated through EVAL (evaluator) after generating candidates through GEN (generator). Candidates are generated according to input generalizations to reach possible final output. Desired structures of input are generated because GEN can freely make candidates (Prince & Smolensky, 1993 and McCarthy & Prince, 1993).

Kager (1999:19) lists the following components of OT grammar:

Components of the OT grammar

LEXICON: contains lexical representations (or underlying forms) of morphemes, which form the input to:

GENERATOR: generates output candidates for some input, and submits these to:

EVALUATOR: the set of ranked constraints, which evaluates output candidates as to their harmonic values, and selects the optimal candidate.

Punjabi Language Specific Constraints

In this section the application of OT theory will be made possible through the creation of Punjabi language specific constraints regarding semantic variations during circumfix. Every constraint highlights some specific features of circumfix.

1. Circum-CGC. Besides maintaining, circumfixes change the grammatical category as well.

ḡiḡ (V) “sight/eyes” → *nəḡiḡa* (Adj) “greedy”

gəl (N) “talk” → *ngəllah* (Adj) “untrustworthy”

Further it can be noticed that circumfixes *fɔ-* *-a* change the category from noun to adjective e.g. *sa:l* (N) “year” → *fɔsa:la* (Adj) “of four years”

And *bā-* *-a* from verb to noun e.g.

wəsa (V) “trust” → *bāwəsaja* (N) “who does not trust”

As well as form noun to adjective also e.g.

bā'āetba:ra (N) “who does not trust” → *bā'āetba:ri* (Adj) “feeling of untrusted”

2. Circum-CSB. Semantic base of a word varies through the insertion of circumfixes. e.g.

pa (N) “foot” → *fɔpaja* (N) “quadruped”

gəj (N) “meter” *n* → *əgəja* (N) “of nine meters”

In the given examples, *pa* and *gəj* are definitely root words and similarly *tfo-* *-ya* and *nə-* *-a* are circumfixes inserted into root to derive new word. The derivation shows semantic modification but share the same features of foot/root word.

3. Circum-HD-CTR: In Punjabi circumfixes, the head word is always placed in center. e.g.

gəl (N) “talk” → *ngəllah* (N) “untrustworthy”

lor (V) “need/requirement” → *bəłora* (Adj) “have no need”

In these examples the root words *gəl* and *lor* are the head and placed in the center of the circumfix.

4. Circum-*nə-* *-a*: Punjabi circumfixes start with *nə* give negative sense of meaning. Given examples of circumfix *nə-* *-a* always use as negative marker in Punjabi, like:

ngəllah “untrustworthy”, *nəđiđa* “greedy”, *nəfōkərah* “a person with no gratitude”.

Like English, Urdu and many other languages, some prefixes are always used in negative meanings e.g. *in-complete* in English and *na-mukamil* in Urdu. Similarly, in Punjabi, there are also some circumfixes which always have the same semantic meanings. Like *bə* is one of them which means without or less. In Punjabi, *bə* negates the existence of the root word with which it is attached. There are many examples to show the semantic value of *bə*. Here, some roots are presented with the circumfix *bə-* *-a* to show their derivational meanings which show the negativity.

Data Analysis

This section presents the application of optimality theory regarding Punjabi circumfix and its semantic features. We have to take one circumfix as input and then generate its output having similar features of the input. OT tableau is actually the graphical representation of input and output comparison. Through this analysis, winning candidate is selected that is called optimal.

Before analyzing the semantic variations regarding circumfix, it is necessary to formulate constraints and make them in proper ranking in the tableau. For this purpose, we have to take an example and then generate possible structure of that candidate then all the structures will be compared with the input and a winning candidate will be selected. In this section, the inner features of Punjabi circumfixes are given in a tableau. The analysis of the above given words is presented here.

Morphological Description of Every Pattern

ni- *-a*

In Punjabi circumfix, there are some morphemes which always give the same semantics. *ni* is one of them which is used as negative marker in Punjabi. There are also some other structures like *nə* and *na*.

1. To make an OT analysis of circumfix *ni-* *-a* we generate possible candidates from the input.
2. The possible and more suitable candidates which can be generated from the input *ni-kam-a* are:

(i) *ni-kəm(m)-a*

(ii) *ni-kam*

(iii) *kəm(m)-a*

(iv) *kəm*

3. Now we compare all the outputs which we generate from input to think that they are possible derivation from Punjabi circumfix. In every candidate, there must be a glimpse of input so that we can prove a correct and exact candidate after analysis in OT theory.

4. After generating constraints, it is necessary to put them in ranks. The constraints which we have generated can be ranked in such sequence:

ni-kəm(m)-a >> *ni-kəm(m)-a* >> DEP-IO >> Circum-ALIGN-LR

The above comparison shows that the basic and prominent feature of given candidates is don't delete anything from input and output. In this comparison, both the candidates are winning because they fulfill the morphological criteria of maximum input and output features. Therefore, the constraints generated for this comparison are universal constraints. All the features under these constraints are universal features of Punjabi circumfix. So, these constraints are universal constraints.

ni-kəm(m)-a >> *ni-kəm* >> Circum- CGC

It is a language specific constraint. This comparison of the candidates shows that, in Punjabi, when a root word is added prefix and suffix on its both sides it becomes a circumfix. The derivational changes are occurred when a root word is changed into circumfix. The comparison above is not fulfilling the criteria. So the grammatical category is changed from output.

ni-kəm(m)-a >> *kəm(m)a* >> Circum-Onset-CONSONANT

This comparison is here between input and output. The constraint above is also language specific constraint and distinguishes the features of winning candidate. Through this comparison, it can be observed that in the output there is no onset *ni-* in the output. So, output candidate violates the criteria of Punjabi circumfix and it loses its position as compared to the winning candidate.

ni-kəm(m)-a >> *kəm* >> Circum-CSB

Another feature of Punjabi circumfix is to change semantic base. But the given candidate neither has suffix nor prefix so it is a losing candidate. So after analyzing the comparison of all losing candidates with the winning candidate the possible ranking of the constraints is available. This sequence shows the

most important constraint to the least important. Now these constraints are shown in tableau are specific to Punjabi and help us to analyze all the candidates in OT and elect the winning candidate.

Semantic Description of Pattern via OT Tableau

<i>Base Circum {ni-kəm-a}</i>	Circum- ALIGN-LR	Circum-DEP-IO	Circum- CGC	Circum- ONSET- CONSONENT	Circum- NO- VOICE CODA	Circum- MAX-IO
□ <i>ni-kəm-a</i>						
<i>ni-kəm</i>		*	*!			
<i>kəm-a</i>		*	*!			
<i>kəm</i>		*!				

nə- *-a* is circumfix that is mostly used for negative meaning. This *nə* is similar to *in* or *un* in English as —incompetent|. The given tableau presented OT analysis of example *ni-kam-a* ‘incompetent’. This example, like others of this pattern, has its own specific grammatical and morphological features.

2. *nə-shukər-a*

In Punjabi, circumfix morpheme ***-nə-*** is used as prefix in a circumfix with the negative connotation every time. In combination both prefix and suffix are used as negative plural marker. There are also some other structures like *nə* and *na*.

1. Before analyzing OT analysis, the circumfix *ni-* *-a* possible candidates form the input will be generated.

2. The possible and more suitable candidates that can be generated from the input *ni-shukər-a* are:

(i) *nə-shukər-a*

(ii) *shukər-a*

(iii) *shukər*

3. Now we compare all the outputs which we generate from input to think that they are possible derivation from Punjabi circumfix. In every candidate, there must be a glimpse of input so that it can be proved a correct and exact candidate after analysis in OT theory.

4. After generating constraints, it is necessary to put them in ranks. The constraints which are generated can be ranked in such sequence:

nə-shukər-a >> *nə-shukər-a* >> DEP-IO >> Circum-ALIGN-LR

The above comparison shows that the basic and prominent feature of given candidates is don't delete anything from input and output. In this comparison, both the candidates are winning because they fulfill the morphological criteria of maximum input and output features. So, the constraints generated for this comparison are universal constraints. All the features under these are language specific constraint. This comparison of the candidates shows that, in Punjabi, when a root word is added, prefix and suffix on its both sides it becomes a circumfix. The derivational changes are occurred when a root word is changed into circumfix. The comparison above is not fulfilling the criteria. So the grammatical category is changed from output.

nə-shukər-a >> *shukər-a* >> Circum-Onset-CONSONANT

This comparison is presented here between input and output. The constraint above is also language specific constraint and distinguishes the features of winning candidate. Through this comparison, it can be observed that in the output, there is no onset *ni-* in the output. Therefore, output candidate violates the criteria of Punjabi circumfix and loses its position as compared to the winning candidate.

nə-shukər-a >> *shukər* >> Circum-CSB

Another feature of Punjabi circumfix is to change the semantic base. But the given candidate neither has suffix nor prefix, so it is a losing candidate. So after analyzing the comparison of all losing candidates with the winning candidate, the possible ranking of the constraints is available. This sequence shows the most important constraint to the least important. Now these constraints are shown in tableau are specific to Punjabi and help us to analyze the all candidates in OT and elect the winning candidate.

Semantic Description of Pattern via OT Tableau

Base Circum { <i>nə-shukər-a</i> }	Circum-HD-CTR	Circum-CGC	Circum-CSB	Circum-IO	MAX-
□ <i>nəma:na</i>					
<i>shukər-a</i>	*	*!			
<i>shukər</i>	*	*!			

bā̄-barkāt-a

Like English, Urdu and many other languages, some prefixes are always used in negative meanings e.g. *in-complete* ‘, in English and *na-mukamil*‘ in Urdu. Similarly, in Punjabi, there are also some circumfixes which always have the same semantic meanings. *bā̄* is one of them which means *without* or *less* ‘. In Punjabi *bā̄* negates the existence of the root word with which it is attached. There are many examples to show the semantic value of *bā̄*. Here, some roots are presented with the circumfix *bā̄- -a* to show their derivational meanings which indicate the negativity.

To keep the features in mind, relevant constraints can be generated to analyze the morphological or derivational changes of circumfix *bā̄- -a*.

1. If *bā̄-barkāt-a* is considered as input then the constraints related to this derivation can be adopted with the following structure.

2. The input which can be generated from the given output will be something like:

(i) *barkāt*

(ii) *barkāt-a*

(iii) *bā̄-barkāt*

(iv) *bā̄-barkāt-a*

3. Now the constraints for OT tableau will be generated according to the features of the above possible structures of circumfix.

4. To compare the input with outputs allows us to find the distinguish feature of that particular structure.

bā̄-barkāt-a >> *barkāt* >> **Circum-*bā̄- -a***>>**Circum-Onset-CONSONANT**

Category *bā̄*-in Punjabi circumfixes gives —no||—un|| or —without||. As shown in the examples below e.g. *āetba:r* —trust|| *bā̄-āetba:r-a* —untrustworthy||, *zōba:n* —promise|| *bā̄zōba:na* —untrustworthy / keep no promise||. Punjabi circumfix like *bā̄- -a* are also changed into feminine and plural. The rule is that all the circumfixes ending on *-a-* can be made feminine by changing *-i-* with *-a-* and plural by changing *-a-* into *ā̄*. For example, *bā̄-sōr-a* (Sin. Masc) *have no rhythm*‘ can be changed in *bā̄-sōr-I* (Sing. Famin) and in *bā̄-sōr-ā̄* (Plu. Masc). Circumfix *-bā̄-* has root word with consonant letter and sound. Although almost all suffixes in Punjabi are vowels but interestingly coda of root is always a consonant. There are more accurate examples given above and many others have there:

mōrfād *‘a religious guide*‘ from *bā̄-mōrfād-a* *‘a person without religious guide*‘.

berg *‘mountain*‘, *ge-berg-te* *‘mountains*‘ is the same example of Igbo *‘an Indonesian language*‘ in which coda of root word is consonant.

(i) *bā-barkat-a* >> *barkat-a*

berg (N) *_mountain* ‘, *ge-berg-te* (N) *_mountains* ‘

bā-barkat-a *bā-barkat*

bā-barkat-a *bā-barkat-a* >> **Circum-CGC** >> **Circum-NOVOICED-CODA**

In most of the languages when a root word is converted into circumfix it remain same semantically e.g. in Indonesian language:

-lihat- *_see* ‘ *ke-lihat-an* *_visible* ‘

Although, in this example, the derivation has the semantic relation with the root word yet the grammatical category is changed. Some Punjabi circumfixes beside maintaining grammatical category change the grammatical category mostly from verb to noun or adjective. In this regard, it can be said that both the constraints show the language specific features of Punjabi circumfix. It reveals the universal features of Punjabi circumfixes in which coda is always voiceless. We have many patterns to prove this notion like the given above. For example:

pi:r *_religious guide* ‘ *bā-pi:r-a* *_a person has no religious guide* ‘.

bā-barkat-a >> *bā-barkat-a*

Circum- MAX-IO is a universal constraint. This constraint shows that output must be same as input in its syntactic features. The input should be matched maximum with the output.

5. When all constraints are generated, then it is necessary to make them in correct ranking to draw a tableau which is very helpful to analyze the candidates in compare with the input. The constraints now are ranked according to their place in tableau.

Circum- *bā- -a* >> Circum-CGC >> Circum-Onset-CONSONANT >> Circum- NOVOICED-CODA >> Circum- MAX-IO

This ranking is language specific to universal. Now the following constraints are put into the tableau to use to analyze the selected pattern of derivation through which a real candidate will be elected.

Semantic Description of Pattern via OT Tableau

Base Circum { <i>bā̄barkāta</i> }	Circum-CGC	Circum-Onset- CONSONANT	Circum- NOVOICED- CODA	Circum- MAX-IO
<i>bā̄-barkāt-a</i>				
<i>barkāt-a</i>	*	*!		
<i>bā̄-barkāt</i>	*	*!		
<i>barkāt</i>	*!			

This table presents the circumfix pattern of Punjabi and its analysis through OT. There are some specific constraints related to the structure of derivation *bā̄-barkāt-a* _without blessing.

Circum-*bā̄- -a*: Category *bā̄*-in Punjabi circumfixes gives —noll/—unll or —withoutll. This is purely language confined constraint which shows the specification of Punjabi circumfix. As shown in the examples below e.g. *ā̄etba:r* —trustll *bā̄-ā̄etba:r-a* —untrustworthyll, *zō̄ba:n* —promisel *bā̄zō̄ba:na* —untrustworthy / keep no promisel. Noor M (2015) expresses the structure of *be* in these words _in *be-zā -i*, *be* and *i* are smaller than root morpheme but have their specific meaning. *be* is a negative prefix which adds negative meanings, such as anti or none in English. These are the key features which are the primary focus of this research.

Circum-CGC: The derivation *bā̄-barkāt-a* _ ‘without blessing’ changes the category grammatically. Its root word *-barkāt-* _ ‘blessing’ is a noun while after attaching circumfix *bā̄- -a* it becomes adjective. This constraint tells us the language specialty of Punjabi circumfix. When the suffix *-i-* is attached instead *-a-* it remains an adjective but also gives the meaning of feminine *bā̄-barkāt-I* _ ‘unblessingness’ or _a female without blessing’. This adjective has also negative connotation which is a derivative form of the root.

Circum-Onset-CONSONANT: It is a language specific constraint. In Punjabi, in most of the cases, onset is always a consonant as shown in the examples: *bā̄-barkāt-a*, in which *bā̄* is consonant.

Circum- NOVOICED-CODA: It is mentioned above that in circumfixes of Punjabi, in most cases, coda is voiceless. The constraint shows the language specific features of Punjabi. If it is analyzed at morpho-phonological level, in *bā̄-barkāt-a* the onset consists of bilabial sound *bā̄* while coda is *-a-* which has singular masculine features in morpho-syntactic features of Punjabi.

Circum- MAX-IO: This is a language specific constraint. It shows that output candidate must be the same as input in its morpho-syntactic features. That is why, in the tableau above first candidate is winner because it fulfills the MAX-IO features of the input.

Conclusion

Circumfixation is a unique feature of Punjabi with its various research aspects. When a root word is changed into a new form, it semantically changes its features. This study focuses on the semantic changes occur during circumfixation. This research, in fact, reflects semantic variations, their morphological features and their analysis through OT. It is also noted that the grammatical features are changed while circumfixation at random level. Above discussion has justified that OT analysis of circumfixes in Punjabi, though has not been done yet, has a wide scope for further research in the field of linguistics. This research has highlighted the semantic features of Punjabi and different forms and structures of Punjabi circumfix to explore the new area of research in Punjabi language. Although during this work there were many obstacles rendered on the way e.g. to find the relevant literature of international standard and also to find out the different patterns of Punjabi circumfix, yet it was a work of mental satisfaction as well as a new experience to study Punjabi language in deep.

References

- Alan, P & Paul, S. (1993). *Optimality Theory*; Newark NJ: Rutgers Center for Cognitive Science
- Bauer L. (2003). *Introduction to Linguistic Morphology, second Edition*, Edenberg University Press, United Kingdom.
- Boeckx, C & Fumikazu, N (2004). *Conditions on Agreement in Japanese*. Research Journal *Natural Language & Linguistic Theory*, Volume 22, Published August 2004.
- Goldsmith, John A. (1990). *Auto segmental & metrical phonology*; Oxford: Blackwell Publisher Ltd.
- John J. McCarthy. (2007). *what is Optimality Theory?* A research paper form University of Massachusetts. Amherst.
- Kager, R. (1999). *Optimality Theory*. Cambridge. Cambridge University Press
- Mbah, M. B. (2012). Circumfixation: *Interface of Morphology and Syntax in Igbo Derivational Morphology*. IOSR. *Journal of Humanities and Social Science (JHSS)* Volume 5, Issue 6 (Nov. - Dec. 2012).
- Rev. T Bailey, G. (1904). *A Brief Grammar of Punjab; as spoken in Wazirabad district* by Rev. T. Grahame Bailey, B.D., M.R.A.S., Wazirabad. Printed at Punjab Government Press, Lahore.
- Zerrouki, T & Balla, *Implementation of infixes and circumfixes in the spellcheckers*. National institute of Computing INI Algiers.