The Fate of Coda Conditions and Consonant Clusters of English Loanwords in Pilibhit Kannauji: An OT Account

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Abstract: *This paper provides an OT account of the fate of the coda conditions and the consonant clusters of the English Loanwords with their physical mechanism in Pilibhit Kannauji that generalizes the different types of interchanging features of phonemes. The objective of this paper is to present a theoretical account of English loanwords and their intervention in Kannauji that is spoken in the district Pilibhit (U.P.), India within a framework of Optimality Theory (Prince and Smolensky, 1993). The groundwork of this study lead towards basically describe the facts and proposes a theoretical account of alteration of phonemes in English Loanwords and how the native speakers of Pilibhit Kannauji substitute and break consonant clusters and use in communication. There are many conflicts in the intervention of phonemes as deletion, insertion, voicing, devoicing, assimilation, aspiration, deaspiration, etc. of English loanwords one of them is the coda devoicing in Pilibhit Kannauji. We propose that such conflicts can be resolved by using the Optimality Theoretic ranking of constraints and find out proper language specific facts expressed with parameters. This not only makes the grammar simpler, but it also allows the lower ranked constraints to have an effect in a non-conflict situation. This paper is about the nature of loanwords and more especially, the proper relationship between phonemes and candidate sets within the framework of Optimality Theory. We shall argue that the phonological information of phoneme is best encoded in constraints rather than in representations. In this paper, we examine some of the better-known arguments originally adduce in support of constraint rankings and argue that adoption of loanwords such a powerful mechanism and justified with proper evidence that creates some effective processes at least in the cases discuses. Theoretical insights from OT enrich our understanding of Kannauji phonology, and data also reveal implicit figures prominently in the latest theoretical developments within OT.*

Keywords: *Optimality Theory; Loanwords; Consonant Clusters; Coda Devoicing.*

1. INTRODUCTION:

The District Pilibhit is located at the sub-Himalayan region just approached to the international boundary of Nepal and state boundary to the Uttarakhand and formed the component of the Rohilkhand division. It lies between the parallels of 28-6’ and 28-53’ towards north latitude and the meridians of 79-57’ and 80-27’ towards east longitude.

Figure: 1 District Map of Pilibhit (U.P.)

Hindi and Urdu are two major official languages that are spoken in the district Pilibhit with the other several languages and their dialects. One of the prominent variety of Hindi-Urdu is Kannauji lesser known as the regional variety of western Hindi. The term Kannauji is derived from the town Kannauj one of the significant city in Uttar Pradesh, India. As a matter of fact the language Kannauji is not confined to the town Kannauj, but it is spread in other districts of Uttar Pradesh. According to the Ethnologue (2013), presently it is spoken in some major areas of the state as Kanpur, Farrukhabad, Etawah, Hardoi, Shahjahanpur, **Pilibhit,** Mainpuri, and Auriya districts. According to the Grierson (1916), in the Linguistic Survey of India that Kannauji is classified as the regional variety of western Hindi with other dialects such as Bangru, Braj, Bundeli, etc. Pilibhit Kannauji speakers borrowed the English loanwords and altered the positions of the segments within the physical structure of words. It is examined that they always changed the linguistic features of segments by the representation of phonological processes and one of them is the 'coda devoicing'. It is determined that the obstruent voiced coda becomes obstruent voiceless coda at the end of the syllables in the words. The conflicts of voicing and devoicing of coda condition at the end of the syllables in the words are solved by the using of tenets of Optimality Theory. OT provides the hierarchy of constraint rankings to find out the optimal candidate from certain types of output candidates.

2. RESEARCH OBJECTIVES:

a) To examine the process of coda condition at the final syllable structure of English loanwords in Pilibhit Kannauji.

b) To determine the loss of voicing feature of obstruents in the final position of the syllables of English loans in Pilibhit Kannauji.

c) To find out the addition or insertion of an extraneous segment that breaks the consonant clusters in Pilibhit Kannauji loanwords.

3. OPTIMALITY THEORY:

OT was first introduced by Alan Prince and Paul Smolensky (1993) and further extended by John McCarthy (1994) to organize the well-formedness syllable structure of the words, but soon spread in other areas of Linguistics too. According to Gussenhoven and Haikes (1998), Optimality Theory is a pertinent portion of the Phonology that is related to the thought of a universal set of constraints that are represented in a hierarchically ranked of language-specific facts.

According to McCarthy (2002), "Gen is universal," which means that all produced candidates by Gen for a given input are the same in all languages? These candidates vary from language to language and the property of Gen is called "inclusive or freedom of analysis". Alan Prince and Paul Smolensky (1993) introduced that CON tells us what the substantive constraints are, from which grammars are built. The third significant key component of Universal Grammar is a precise definition of constraints, which is also referred to as EVAL that, spells out what it means to be optimal with respect to a ranking of CON.

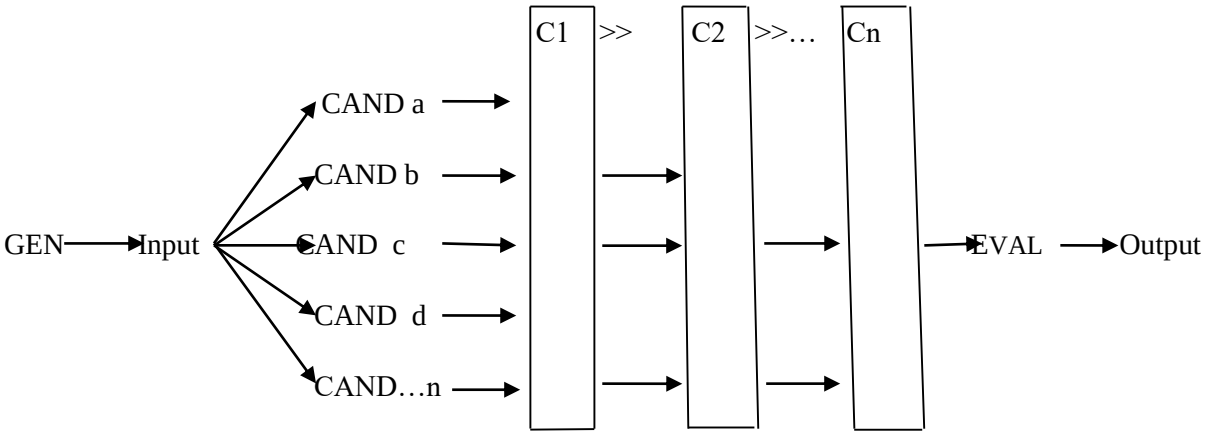

Figure: 2 Interaction between input and output candidate

In Figure: 2 we can see that there is an extreme interaction between input and output candidates and how they are demonstrated with the constraints.

3.1 Constraint Rankings

Optimality Theory deals with the basic issues of constraints directly and contemplated the architecture of different candidates. McCarthy (2002, 2008) discussed constraint typology by distinguishing between two major types of constraints such as;

3.1.1 Faithfulness Constraints

Faithfulness constraints established the efficient relationship between input and output candidates under the source of evaluation through or with the help of OT tenets. It has required the exact derivation and replication of the ‘input' candidate along with some other structural dimensions of output candidates.

3.1.2 Markedness constraints

It represents the output from which should be acceptable and permissible in the syllable structure of the words and performed the language inventories. This type of constraints demanding a ‘well-formedness' structure that has attention towards optimal form for a particular language. The following are different types of constraints related to the syllables and syllabifications.

a) Licensing (LINC): It restricts the word-initial and word-final consonant clusters according to phonotactic conditions of that language (Hammond, 1997).

b) No Voiced Coda (*VOI-COD): Obstruents must not be voiced in a coda position (Kager, 1999).

c) MAX-Input Output (MAX-IO): Input segments must have output correspondents that mean “No Deletion”.

d) DEP-Input Output (DEP-IO): Output segments must have input correspondents that mean “No Epenthesis”.

4. CONSONANT CLUSTERS:

Nordquist (2017) stated that, in linguistics, a consonant cluster (*CC*) is a group of two or more consonant sounds that come before (called an onset), after (called a coda) or between (called medial) vowels. It can be considered in easy to understand that consonant cluster is a sequence of consonants in a specific group that occurs naturally in written and spoken languages — though sometimes may be altered phonetically. It is notified that the consonant cluster is very weak in Pilibhit Kannauji because they insert a vowel between or among the consonants and break the chain of consonants. Loan words adaptation patterns are perceived at the syllable level too. In English phonology the segments /m/, /n/, /l/ /r/ functions as the nucleus or syllabic consonants, but in Pilibhit Kannauji these consonants cannot act as syllabic consonants which lead to the emergence of epenthetic vowels in order to conform to the syllable structure of Phonology. **For example,** in Pilibhit Kannauji we can observe that there is no arrangement of consonants of English loanwords such as;

English	**Pilibhit Kannauji loanwords**	**Gloss**
/teɪbl/	[tebəl]	'table'
/botl/	[botəl]	'bottle'
/pædl/	[paidəl]	'paddle'
/tʃænl/	[tʃenəl]	'channel'
/sku:l/	[ɪsku:l]	'school'

Tableau for the OT analysis of input candidate /teɪbl/

/teɪbl/	*PEAK (CONS)	DEP-IO	ALIGN-R	CONTIGUITY
a. [teɪbl̩]	*!			
b. ☐ [te.bəl]		*!		*
c. [te.blu]		*!	*	*

Table 1: The interaction between input and output candidates within the ranking features

In the above tableau candidate 'a' is satisfied with all the constraints except the highest rank of constraint *PEAK (CONS). So, in this context, it is not an optimal candidate because the features of the input candidate did not match to this candidate. The candidate (c) is satisfied only with the constraint *PEAK (CONS) but violated all other constraints. It is also not a winner candidate to mark an optimal candidate. We can see that candidate (b) is satisfied with the constraints *PEAK (CONS) and ALIGN-R but violated the constraints DEP-IO and CONTIGUITY. It represents most of the features that are similar to the input candidate, so in this process, it becomes an optimal candidate and indicated by ☐. Here we have a hierarchy of constraints as; *PEAK (CONS) >> DEP-IO>> ALIGN-R>>CONTIGUITY.

5. LOANWORDS

Borrowing is a term used in comparative and historical linguistics to refer to linguistic forms being taken over by one language or dialect from another; such "borrowings" are usually known as loanwords (Crystal, 1985:36). Linguistic borrowing is a theoretical framework of loanwords that are adopted or adapted from other languages and used them in its own language. Most of the languages adopted words without modification from other languages, but some have with the modification such as Pilibhit Kannauji. Kemmer (2004) stated, "Loanwords are words adopted by the speakers of one language from a different language (the source language). A loanword can also be called a borrowing. It is to be noted, that the scope of the present paper is confined to lexical items, across-language borrowing, in this case from English into Pilibhit Kannauji.

6. CODA DEVOICING

The coda devoicing is a type of phonological process in which the final marginal segment of a syllable becomes voiceless. It is a theoretical virtue of a segment that elided the vibrating source of vocal folds or cords in the account of the phonetic property of speech sounds. When a consonant that is normally voiced is pronounced without vocal-fold vibration in some context, it is said to be devoiced (Gussenhoven & Jacobs, 2017, p. 20). **For example,** the researcher allocated several forms of coda devoicing in Pilibhit Hindi-Urdu such as given below;

English	**Pilibhit Kannauji loanwords**	**Gloss**
/tju:b/	[tu:p]	'tube'
/kɑ:d/	[kɑ:t]	'card'

/bɔ:d/	[bo:t]	'board'
/rəʊd/	[ro:t]	'road'
/plʌg/	[pɪlək]	'plug'

The consideration of input candidate /kɑ:d/ in OT model

/kɑ:d/	*VOI-CODA	IDENT-IO(VOI)	*SG	VOP
a. [kɑ:d]	*!			*
b. □ [kɑ:t]		*!		
c. [khɑ:d]	*!		*	*

Table: 2 The Phonological devoicing of obstruent segment at the end of a particular word.

In the above tableau, there is an interaction between input and output candidates within the ranking features of constraints. The candidate 'b' is an optimal candidate because it has the least rank of constraints as compared to other output candidates. It also has the most analogous linguistic features matched to the input candidate. Here is the hierarchy of constraints to the dominating features such as:

*VOI-CODA>> IDENT-IO (VOI)>> *SG>> VOP

7. LITERATURE REVIEW:

Optimality Theory (OT) has originally been developed for dealing with phonological problems, abandoning the assumption that grammatical constraints are inviolable (Prince & Smolensky 1993/2004, McCarthy & Prince 1995). According to Carr (2008), OT is a model of the Generative Grammar that is consisted of the crucial constraint rankings. There are certain types of constraints that are listed in the tableau from left (most powerful) to right (least powerful).

The tableau for the OT analysis of an input candidate /fɪlm/ with the help of constraints

/fɪlm/	DEP-IO	MAX-IO	*COMP-CODA
a. [fɪl]		*!	
b. □[fɪlm]			*
c. [fɪləm]	*!		

Table: 3 The Consideration of constraints and candidates with the reference of input

According to Kager (1999), Optimality Theory is a developmental process of the Generative Grammar that focuses on the formal descriptions of the universal principles on the basis of the linguistic typology. It assumes the constraints as a violation and represents the interaction between grammatical principles. The correctness of the constraint rankings can be represented through tableau format:

Tableau for the input candidate /bɛd/, assuming the Ditch ranking

/bɛd/	*VOI-CODA	IDENT-IO (VOI)
a. □ [bɛt]		*
b. [bɛd]	*!	

Table 4: the interaction between input and output candidates within the constraints

The candidate 'a' is an optimal candidate satisfied with *VOI-CODA but violated to the IDENT-IO (VOI). The candidate 'b' is the sub-optimal candidate that has exactly the reverse pattern of violation. It is satisfied with IDENT-IO (VOI) but violated to the *VOI-CODA.

He again illustrated the evaluation of the same candidates and constraints but changed the positions of constraints in the hierarchy. He observed the ranking features of constraints in English:

Tableau for the input candidate /bɛd/, assuming the English ranking

/bɛd/	IDENT-IO (VOI)	*VOI-CODA
a. [bɛt]	*!	
b. □ [bɛd]		*

Table 5: the interchanging positions of the constraints in a hierarchy

The candidate 'b' is an optimal candidate satisfied with the constraint IDENT-IO (VOI) but violated to the constraint *VOI-CODA. The candidate 'a' is a sub-optimal candidate satisfied with the constraint *VOI-CODA but violated to the constraint IDENT-IO (VOI). It is examined that the English language preserved the voicing of coda consonant while Dutch didn't.

8. METHODOLOGY:

8.1 Materials and Methods

The researcher has collected the data from the native speakers of Pilibhit Kannauji by regular contact through the interview. The nature of data is the primary and actual representation of native speakers. The researcher has used the high quality of the instrument as a tape recorder and put it just approach to the mouth of the native speakers for the data collection. After that, the researcher has transcribed the data into phonemic transcription and find out the valuable properties of coda conditions in the syllable structure of the words.

8.2 Participants

The researcher has collected data from the fifteen participants between the age group of 20 to 35. All the participants were actual inhabitants of district Pilibhit that are in regular contact with other language speakers. All the participants were the native speakers of the Pilibhit Kannauji.

9. DATA ANALYSIS:

9.1 The phonological dimension of coda condition

When a consonant that is normally voiced is pronounced without vocal-fold vibration in some context, it is said to be devoiced (Gussenhoven & Jacobs, 2017, p. 20). The coda devoicing is a type of phonological feature like others in which a voiced segment released its own voicing property and altered into the voiceless segment in a particular syllable of the words. **For example,** the researcher explored the devoicing of obstruents in the several tokens of English loanwords in Pilibhit Kannauji such as:

English	**Pilibhit Kannauji loanwords**	**Gloss**
/tju:b/	[tu:p]	'tube'
/pad/	[pat]	'pad'
/ka:d/	[kɑ:t]	'card'
/bɔ:d/	[bo:t]	'board'
/rəʊd/	[ro:t]	'road'

We will now, use the principles of Optimality Theory to solve the problems of the coda devoicing for input candidate /kɑ:d/ in Pilibhit Kannauji.

a) [ka:d] satisfied with IDENT-IO (VOI) and *SG (No Spread Glottis), but violated to the *VOI-CODA and VOP (VOICED OBSTRUENT PROHIBITION).
b) [kɑ:t] satisfied with *VOI-CODA, *SG, and VOP, but violated to the IDENT-IO (VOI).
c) [kha:d] satisfied with the IDENT-IO (VOI), but violated to the VOP, *VOI-CODA and *SG.
d) [kha:t] satisfied with *VOI-CODA and VOP, but violated to the IDENT-IO (VOI) and *SG.

Tableau for the OT analysis of input candidate /ka:d/, assuming in Pilibhit Kannauji

/ka:d/	*VOI-CODA	*SG	VOP	IDENT-IO (VOI)
a. [ka:d]	***!**		*****	
b. ☐ [kɑ:t]				*****
c. [kha:d]	***!**	*****	*****	
d. [kha:t]		***!**		*****

Table 6: the consideration of voicing representation of coda condition in the syllable

In the above tableau, we have the sequence of constraints as the hierarchy of constraints on the basis of dominating features indicated by >> such as:

*VOI-CODA >> *SG >> VOP >> IDENT-IO (VOI)

In this hierarchy of constraints, the constraint *VOI-CODA is the most dominant constraint because he is the most powerful with the highest rank of constraint.

9.2 The phonological account of consonant clusters and coda condition

According to Nordquist (2017), in linguistics, a consonant cluster (*CC*) is a group of two or more consonant sounds that come before (called an onset), after (called a coda) or between (called medial) vowels. The consonant cluster is the procedure of fusion in which two or more than two consonants are adjacent to each other without an inventory of vowel segments among them in a particular language. **For example,** after the addition or insertion of a vowel segment between the two close consonants the coda voiced obstruents of the final syllable became devoiced in the Pilibhit Kannauji loanwords:

English	**Pilibhit Kannauji loanwords**	**Gloss**
/plʌg/	[pɪ.lək]	'plug'
/bleɪd/	[bɪ.le:t]	'blade'
/spi:d/	[ɪs.pi:t]	'speed'
/stand/	[ɪs.tant]	'stand'

We will now, use the tools of Optimality Theory to find out the exact conditions of candidates with their hierarchy of constraints, especially the coda conditions and consonant clusters of input candidate /spi:d/ such as:

a) [spi:d] satisfied with DEP-IO and IDENT-IO (VOI), but violated to the *VOI-CODA and *COMP-ONS.
b) [ɪs.pi:d] satisfied with IDENT-IO (VOI) and *COMP-ONS, but violated to the DEP-IO and *VOI-CODA.
c) [spi:t] satisfied with *VOI-CODA and DEP-IO, but violated to the IDENT-IO (VOI) and *COMP-ONS.
d) [ɪs.pi:t] satisfied with *COMP-ONS and *VOI-CODA, but violated to the DEP-IO and IDENT-IO (VOI).

Tableau for the OT analysis of input candidate /spi:d/, assuming in Pilibhit Kannauji

/spi:d/	*VOI-CODA	*COMP-ONS	DEP-IO	IDENT-IO (VOI)
a. [spi:d]	***!**	*		
b. [spi:t]		*		*
c. □ [ɪs.pi:t]			*	*
d. [ɪs.pi:d]	***!**		*	

Table 7: the consideration of voicing and consonant cluster at the syllable level in a word

In the above tableau, there is the representation of loss of voicing and consonant cluster breaking at the syllable structure in the words. There is a hierarchy of constraints related to the dominating features such as *VOI-CODA >> *COMP-ONS >> DEP-IO >> IDENT-IO (VOI)

10. RESULTS AND DISCUSSIONS :

We have examined in the data that Pilibhit Kannauji speakers eliminated the voicing feature of the coda consonant and break the consonant clusters in the monosyllabic or disyllabic English loanwords. We have also determined that only the coda consonant released its own voicing not onset consonant in the syllable structure of the words. It is notified that whenever a group of consonants occurred in any position in the words the Pilibhit Kannauji speakers added or inserted a vowel between two adjacent consonants and breaks the consonant clusters. To solve all these problems we have used the principles or constraints of the Optimality Theory.

In table 6, we have evaluated that the candidate 'a' is satisfied with the higher rank of constraint *SG and lowest rank of the constraint IDENT-IO (VOI), while violated to the highest rank of the constraint *VOI-CODA and lower rank of the constraint VOP. It has the highest rank of constraints including the features of violation and fatal violation and least similar features to the input candidate. So, it is a loser candidate and lost its opportunity to become an optimal candidate. The candidate 'b' is satisfied with the highest rank of constraint *VOI-CODA, the higher rank of constraint *SG and the lower rank of constraint VOP, while violated to the lowest rank of constraint IDENT-IO (VOI). In this context, it has the least number of constraints as compared to other output candidates and has the most similar features to the input candidate. So, the candidate 'b' is declared the best candidate as an optimal candidate and marked by □. The candidate 'c' and'd' both have the highest rank of constraints and the least number of analogous features as compared to the input candidate. So, in this procedure, both the candidates are loser candidates and wide apart to become the best candidate as like an optimal candidate.

We have analyzed after the elimination of the voicing of coda and breaking the consonant clusters that there is not any alteration in the preceding or following segments in the syllable structure of the words. In table 7, the candidate 'a' is satisfied with the lower rank of the constraint DEP-IO and the lowest rank of the constraint IDENT-IO (VOI), while violated to the highest rank of the constraint *VOI-CODA and the higher rank of the constraint *COMP-ONS. It has the highest rank of the constraints and least preserving features of the input candidate, so it is not a winner candidate. The candidate 'b' is satisfied with the highest rank of the constraint *VOI-CODA and the lower rank of the constraint DEP-IO, while violated to the higher rank of the constraint *COMP-ONS and the lowest rank of the constraint IDENT-IO (VOI). It also has the highest rank of the constraints and least preserving linguistic features of the input candidate, so it is a loser candidate.

The candidate 'c' is satisfied with the highest rank of the constraint *VOI-CODA and the higher rank of the constraint *COMP-ONS, while violated to the lower rank of the constraint DEP-IO and the lowest rank of the constraint IDENT-IO (VOI). It has the least number of constraints and most preserving features of the input candidate as compared to the other output candidates. So, in this sense, it is the best candidate as a winner and declared an optimal candidate indicated by □. The candidate'd' is satisfied with the higher rank of the constraint *COMP-ONS and the lowest rank of the constraint IDENT-IO (VOI), while violated to the highest rank of the constraint *VOI-CODA and the lower rank of the constraint DEP-IO. It has the highest rank of constraints and least linguistic features that cannot maintain the aspect of the input candidate. So, it is not a winner candidate to mark an optimal candidate.

11. CONCLUSION:

In this study, we have determined the key factors of the phonological account of coda devoicing and the consonant clusters of English loanwords in Pilibhit Kannauji by the help of OT constraints. We became cognizant that voiced coda obstruents at the final syllable of the English loanwords altered into voiceless coda obstruents in Pilibhit Kannauji. In terms of these activities coda lost its own strength and became ease to articulate with a finite source of energy. The groundwork of this paper is to reveal the coda condition and marked the voicing feature of English loanwords with voiced obstruents adopted in Pilibhit Kannauji.

This paper unveiled the concept of consonant clusters that are marginalized preserved by the Pilibhit Kannauji native speakers. It is ascertained that whenever two or more consonants come together at any location in the words, they always separated by the insertion or addition of an extraneous segment. All these conflicts are solved by the help of constraints to find out the exact syllabic structure of English loanwords as an optimal candidate in Pilibhit Kannauji. We have applied various types of the rank of constraints with the help of Optimality Theory and find out the optimal candidate. This study carried out the phonological framework of Pilibhit Kannauji with the auspicious vantage towards the hierarchy of constraint rankings.

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