The Pluralization of the Plurals in Urdu: An OT Analysis

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Abstract

The study investigates the morpho-phonological processes which are involved the formation of pluralization of plurals in Urdu. Optimality Theory (OT) given by (McCarthy & Prince 1993a, 1993b; Prince & Smolensky 1993) is used as theoretic guide to analyse the data. First, this paper offers an introduction to plural system in Urdu, then it briefly discusses sound plurals which are suffix-based for example *kɪ̱tab* 'book' → *kɪ̱tab-***ɛ̃** 'books. It nullifies Hardie's (2004, p. 35) claim that "Urdu inflection is based on suffixation ...." by bringing in evidence from Urdu broken plurals which can be formed through infixation, transfixation and circumfixation. For example, *məsdʒɪd̠* 'mosque' → *məs-**a**-dʒɪd̠* 'mosques' is the result of inserting an infix ***-a-*** in the middle of the stem. Hardie (2004) and Mangrio (2016) have documented the pluralization through suffixation, and Mangrio (2016) has just hinted the existence of Urdu broken plurals. However, the pluralisation of plurals in Urdu has not been discussed by anybody so far. Therefore, this research investigates the morpho-phonological processes involved in the formation of pluralization of plurals. In the formation of pluralization of plurals, first broken plural, a borrowed pattern from Arabic, is formed, then native pattern is used to form the pluralization of plurals. This phenomenon is found only in Urdu language as yet, and it is estimated that no other language shows pluralization of plurals. This pattern can be illustrated through an example: *rəsəm* 'custom' → *r-**ʊ-s-u**ː-m* 'customs' → *rʊsuːm-**a**ː**t*** 'customs'. *rəsəm* is the root and a broken plural ***rʊsu**ːm* is formed from this root, then the plural-plural marker ***-a**ː**t*** is attached to the new stem, ***rʊsu**ːm*, the new stem, which forms *rʊsuːm-**a**ː**t***, the pluralization of the plural. Morphological and phonological processes are involved in this formation. When the broken plural *rʊsuːm* is formed, the plural markers are inserted in the stem and the word is completely re-syllabified, and when the plural-plural marker ***-a**ː**t*** is attached to *rʊsuːm* to get *rʊsuːm-**a**ː**t***, the coda in the last syllable of the stem i.e. /*m*/ becomes the onset of the plural-plural marker. Thus, the syllabification pattern is *rə.səm* 'custom' → *rə.**su**ːm* → *rə.suː.m**a**ː**t***. Four plural-plural markers: ***-ɪːn, -aːn, -mi*** and ***-a**ː**t*** are found in Urdu. The data for the first three patterns is too little to label them as regular patterns, they may be called exceptions. However, the last marker i.e. ***-a**ː**t*** is a regular pattern. Moreover, this marker shows two patterns of pluralization and can be called: plural marker and plural-plural marker: firstly, it forms plurals from singulars such as *mʌʃ.rub* 'drink' → *mʌʃ.ru.b-**a**ː**t*** 'drinks', and secondly, it also forms plurals from plurals themselves such as *d̠ə.va* 'medicine' → ***ʌ-d̠v-ɪj-**a* 'medicines → *ʌd̠vɪj-**a**ː**t*** 'kinds/types'. This study is very important for understanding the complex morpho-phonological grammatical patterns of Urdu in general, and Urdu pluralization in particular.

Keywords: *Urdu Pluralization, Broken Plurals, Pluralization of Plurals, OT*

1. Introduction

The present study documents the morpho-phonological processes responsible for the formation of the pluralisation of plurals in Urdu. Optimality Theory, given by McCarthy & Prince (1993a, 1993b) and Prince & Smolensky (1993, 2004) is utilized as a theoretical guide to confront the complexities of the phenomenon. The pluralization processes in Urdu are briefly highlighted in the light of the previous and present research. The focus of the paper is to investigate the morpho-phonological processes of the plurals of the plurals. It also offers a short description of sound and broken plurals to help understand concatenative and non-concatenative morphology respectively. This work is an addition to the findings of Schmidt (2007), Hardie (2004) and Mangrio (2016), who have explained Urdu pluralization through suffixation. Mangrio (2016) slightly introduces the broken plurals and peripheral nativized plurals (similar to pluralization of plurals), but that is too short to understand the phenomenon. Iqbal, Mangrio & Mustafa (2021) have differented sound and broken plurals and provided an optimality theoretic analyses of Urdu broken plurals. This paper rejects Hardie's (2004, p. 35) claim that "Urdu inflection is based on suffixation" by explaining broken pluralization through the infixation, transfixation and circumfixation. It further explores language specific and universal constraints and reveals their hierarchical ranking. The function of these constraints is also elucidated. The study is unique in the sense that no comprehensive research has been done on the pluralization of plurals in Urdu and no other language depicts this phenomenon as no research is available to the best of our knowledge.

The paper starts by introducing pluralization system of Urdu, including sound and broken pluralization. Afterwards, it documents a comprehensive descriptive analysis of the pluralization of plurals. It then presents a short explanation of OT and the constraints used in the analyses. Finally, it provides a detailed account OT analyses of pluralization of plurals.

Following is the introduction to Urdu pluralization system.

1.1. Pluralization in Urdu

Urdu shows two numbers: singular and plural (Schmidt, 2007; Bhatia et al., 2013; Barz, 1977; Bailey, 1950; Mangrio, 2016). Some dual plurals e.g., *valɖæn*, 'parents', *ʈərfæn*, 'two sides' and *ɖaræn* 'two worlds' etc., borrowed from Arabic, are also part of the language. However, they are too little to be considered the third number, and that's why Mangrio (2016) asserts: " There is no

place of the Arabic dual plural in Urdu…." Urdu pluralization is basically based on two types of processes: suffixation and modification of the base. The plural which is formed by attaching a plural marker to the stem through suffixation is called sound plural. The second plural, in which the base is modified, is formed by inserting a plural marker in the stem through infixation, transfixation and circumfixation. The plural based on the modification of the base is tossed broken plural.

Data is collected from books, dictionaries, native speakers and TV shows. The criteria to select the examples in this paper is set: First, all the plural markers and patterns in each type: sound plural, broken plural, and the pluralization of plurals, are searched. Then, those examples are presented which are found in the books and are easily recognisable by the speakers.

The process of formation of sound plurals is highlighted in the following section.

1.1.1 Sound Pluralization

Sound plurals are based on the concatenative morphology (Meftah, 2012). Concatenative morphology is responsible for attaching suffixes to the stems (Plag, 2003; Booij, 2012). In other words, sound plurals are made by attaching the suffixes to their respective stems (Al-Aghbari, 2004). In Urdu, there are several suffixes which function as plural markers ***-æ, -jã, -dʒaʈ̲, -ẽ*** and ***-aʈ̲***. The process of sound plurals can be illustrated with the help of following examples:

Table 1: Sound Pluralization

S No.	Stem	Meaning	Plural Marker	Plural
1.	*ləɽka* *goɽa* *kəmra*	Boy Horse Room	***-æ***	*ləɽk**-æ*** *goɽ**-æ*** *kəmr**-æ***
2.	*ʈ̲əsviːr* *kɪʈ̲ab* *bʰæɽ*	Picture Book Sheep	***-ẽ***	*ʈ̲əsviːr**-ẽ*** *kɪʈ̲ab**-ẽ*** *bʰæɽ**-ẽ***
3.	*səval* *məkan* *xʌʈ̲ra*	Question House Danger	***-aʈ̲***	*səval**-aʈ̲*** *məkan**-aʈ̲*** *xʌʈ̲r**-aʈ̲***
4.	*bæʈɪ* *ʈ̲ɪʈ̲lɪ* *kʊrsɪ*	Daughter Butterfly Chair	***-jã***	*bæʈɪ**-jã*** *ʈ̲ɪʈ̲lɪ**-jã*** *kʊrsɪ**-jã***

Four plural markers out of all are listed in the above Table 1 to illustrate sound pluralization in Urdu. Three examples for each plural marker are given for its explanation. First plural marker is ***-æ***, and it can only be attached to those stems which end at singular marker **-a**. When this marker is attached to the stem, both morphological and phonological operations take place one after the other to make its plural form. The morphological operations attach the plural marker ***-æ*** to the stem e.g. **ləɽka-**æ***, but this is not correct plural form yet. To receive the accurate plural form, phonological operations get activated which delete the singular marker from the end of the stem. Thus, the correct plural form: *ləɽk-**æ*** is received. It can be concluded that morpho-phonological operations are responsible to achieve these types of sound plurals.

The second plural marker is ***-æ̃***. This marker also needs both operations: morphological and phonological, activated to form the plural. The stem *kɪʈ̲ab* is taken as an example to explain the morpho-phonological processes of this marker. The morphological operations attach the marker ***-æ̃*** to the stem *kɪʈ̲ab*, and the plural form *kɪʈ̲ab-**æ̃***. Though, the marker is attached, the phonological processes need to take place to make the word pronounceable. The syllable pattern of the stem is: *kɪ.ʈ̲ab*, and when the plural marker is attached, the plural form becomes: **kɪ.ʈ̲ab.-**æ̃***, which is incorrect phonologically. Therefore, the phonological operations following the morphological processes take place and re-syllabify the plural form as *kɪ.ʈ̲a.b-**æ̃***. The coda of the second syllable of the stem i.e. /b/ breaks up from its parent syllable and becomes the onset of plural marker.

The third plural marker given in Table 1 is ***-aʈ̲*** which also goes through morpho-phonological operations. When this is attached to the stem e.g. *səval*, through morphological operations, the received plural form is **səval-**aʈ̲*** but it is incorrect. The phonological operations, as in ***-æ̃***, re-syllabify this plural form to make its correct form. The syllable pattern of the stem is *sə.val*, the phonological operations detach the coda /l/ from the second syllable of the stem and attach to the suffix. Thus, the received plural form is *sə.va.l-**aʈ̲***. The further functions of this plural marker are explained in section 2.3.

The next plural marker is ***-jã***. This marker functions differently from the three discussed above. It only activates the morphological operations. The phonological operation does not activate; thus, they remain passive. The morphological operations attach it to the stem e.g. *bæʈɪ*, and get its plural form i.e. *bæʈɪ-**jã***. The syllable pattern remains same, and no phonological operation occurs at all.

All the plural markers explained in section 2.1 are the instances of sound plurals because they are concatenated through suffixation. They depict concatenative morphology because the suffixes are attached in a linear form without modifying the stem.

The broken plurals elaborating non-concatenative morphology are illustrated in the next section.

1.1.2 Broken Pluralization

Broken plurals depict non-concatenative morphology (Meftah, 2012). In non-concatenative morphology, the new word is made by the modification of the base. The whole structure of the word is broken and restructured. For this purpose, three types of affixes: infixes, transfixes, and circumfixes are inserted or attached to the stem. The phenomenon of broken plurals can be explained with the help of following table.

Table 2: Broken Pluralization

S No.	Stem	Meaning	Plural Marker		Plural
1.	*ʈərkiːb*	Recipe	***-a-***	Infix	*ʈər**-a-**kiːb*
	ʈəkliːf	Pain			*ʈək**-a-**liːf*
	məskiːn	Meek			*məs**-a-**kiːn*
2.	*ħal*	State/Condition	***ʌ- -v-***	Transfix	***ʌ-ħ-v-**al*
	mal	Wealth			***ʌ-m-v-**al*
	bab	Chapter			***ʌ-b-v-**ab*
3.	*ɣənɪ*	Wealthy	***ʌ- -ja***	Circumfix	***ʌ-ɣnɪ-ja***
	qəvɪ	Stout			***ʌ-qvɪ-ja***
	səxɪ	Generous			***ʌ-sxɪ-ja***

There are many other processes of broken plural in the language. Since broken pluralization is not the aim of the paper, out of many patterns only three are elaborated to explain the phenomenon in Urdu. In the first example, the plural is achieved after inserting an infix ***-a-*** in the middle of the stem, e.g. *ʈərkiːb* → *ʈər**-a-**kiːb*. In the formation of broken plurals, both morphological and phonological operations take place. Morphological operations insert plural markers, and phonological operations adjust the phonology of the word so that it can become pronounceable. In the instance of *ʈər**-a-**kiːb*, morphological operations insert the plural marker ***-a-*** in the middle of the stem, and the stem is broken into two parts. Afterwards, phonological operations reconstruct the phonology of the plural form by re-syllabifying it. The syllable pattern of the stem is *ʈər.kiːb*, and the syllabification of the plural becomes *ʈə.r**-a-**.kiːb*. The stem is two syllabic words, and both

syllables have onset, nucleus and coda. However, the plural form is three syllabic words. The coda of the first syllable of the stem /r/ breaks up from its parent syllable, and attaches to the plural marker ***-ɑ-***, an infix. Thus, the plural marker which only consists of a vowel (or nucleus) borrows an onset from the syllable on left side. Nevertheless, the last syllable of the stem *kiːb* undergoes no phonological changes.

Rest of the two examples of this pattern depict the same phenomenon as explained in the above paragraph. The process of broken pluralization through transfixation given in the second example of Table 2 is explained in the following paragraph.

Transfixes work in a pair, and the pair functions together. The parts of plural markers (transfixes) are inserted in the middle of the stem or one in the beginning and the second in the middle. In the pattern taken for demonstration of broken pluralization through transfixation, one part is inserted in the beginning of the stem, and the other is inserted in the middle of the stem e.g. *ħal* → ***ɑ-ħ-v-****al*. In this instance, morphological operations insert first part of the morpheme ***ɑ-*** of the plural marker in the beginning of the stem, and the second part ***-v-***, which is a consonant and is very rare in the patterns of broken plurals of the world languages, is inserted in the middle of the stem. After the job done by morphological operations, phonological operations get activated to reshape the phonology of the word. First, the stem only consists of one syllable i.e. *ħal*, but after the insertion of plural marker it is broken into two syllables. First morpheme of the plural marker **/ɑ/** detaches the onset from the syllable, and makes a syllable: VC, the second morpheme attaches to the remaining part of the syllable i.e. *al*. In other words, the second morpheme of the plural marker takes the place of onset of the stem, and the first onset /*ħ*/ is pushed back to become the coda of the first morpheme of the plural marker. Thus, onset /*ħ*/ of the stem becomes the coda of the first syllable ***ɑ-ħ*** and **/*v*/** becomes the onset of the syllable. The syllable pattern of the plural form is ***ɑħ.v****al*.

The process of broken plural through circumfixattion is demonstrated in the next paragraph.

Circumfixes also function in pairs, one part is inserted in the beginning of the stem, and the second is inserted at the end of the stem. Circumfix ***ɑ- -ja*** has taken to elaborate the process of broken pluralization through circumfixation. The example *ɣənɪ* → ***ɑ-ɣnɪ-ja*** is taken to explain the phenomenon. The morphological operations attach the first part of the plural marker ***ɑ-*** in the

beginning of the stem, and the second part ***-ja*** at the end of the stem. The plural form: ****ʌ-ɣənɪ-ja***, is achieved, but it is not phonologically correct plural form. After the morphological operations have done their job, phonological operations need to be activated to achieve the correct plural form. They not only re-syllabify the plural form but also delete the vowel segment from the stem of the singular form. The singular form is a disyllabic word, and each syllable consists of an onset and a nucleus. The phonological operations first delete the nucleus from the first syllable i.e. /ə/. Then, they re-syllabify it. The onset of the first syllable of the singular form /ɣ/ becomes the coda of the first syllable of the plural form i.e. ***ʌɣ***. The second syllable remains unchanged, and the third syllable ***ja***, which comes from the second part of the plural marker, becomes the third syllable of the plural form. Thus, the syllabic pattern of the plural form is ***ʌ.ɣnɪ.ja***.

Section 2.2 briefly explains some of the broken plural processes in Urdu. It also presents evidence that Urdu pluralization also based on infixation, transfixation and circumfixation along with suffixation demonstrated in 2.1, which in result nullifies Hardie's (2004, p. 35) claim that Urdu inflection is based on suffixation.

The process of the pluralization of plurals is demonstrated in the next section.

2.2 Pluralization of the Plurals

The pluralization of the plurals is a unique phenomenon in Urdu and has never been observed in any other language to the best of my knowledge. In pluralization of plurals, two processes take place: first, the broken plural (BP) is formed from the singular form, then pluralisation of plurals (PP) i.e. plural markers are attached to the stem of broken plural which help to achieve the pluralisation of plurals forms. This phenomenon can be explained with the help of following table.

Table 3: Pluralization of the Plurals

S No.	Stem	Meaning	BP Marker	BP	PP Marker	PP
1.	*ʌkbʌr*	Great	***ə- -a- -ɪ-***	***ə-k-a-b-ɪ-r***	***-in***	*əkabər-**in***
2.	*əhel*	Appropriate	***-a- -i***	*əh-**a**-l-**i***	***-jan***	*əhali-**jan***
3.	*fəʇə*	Success	***-uː***	*fəʇ-**uː***	***-haːʇ***	*fəʇuː-**haːʇ***
4.	*vədʒə*	Cause	***-uː***	*vədʒ-**uː***	***-haːʇ***	*vədʒuː-**haːʇ***
5.	*xəlq*	Manner	***ʌ- -aː-***	***ʌ-x-l-aː-q***	***-ɪjaːʇ***	*ʌxlaːq-**ɪjaːʇ***
6.	*xəbər*	News	***ʌ- -aː-***	***ʌ-x-b-aː-r***	***-aʇ***	*ʌxbaːr-**aːʇ***
7.	*ħaḏsa*	Accident	***-va- -ɪ-***	*ħə-**va**-ḏ-**ɪ**-s*	***-aʇ***	*ħəvaḏəs-**aʇ***
8.	*rəqəm*	Money	***-ʊ-***	*rəq-**ʊ**-m*	***-aʇ***	*rəqʊm-**aʇ***

9.	*ɖəva*	Medicine	**ʌ- -ɪj-**	***ʌ-ɖv-ɪj-a***	**-a:t̲**	***ʌɖvɪj-a:t̲***
10.	*Fæz*	Benefit	**-ɪu-**	***f-ɪu-z***	**-a:t̲**	***fɪuz-a:t̲***
11	*ədʒəb*	Strange	**-aɪ-**	***ədʒ-aɪ-b***	**-a:t̲**	***ədʒaɪb-a:t̲***
12.	*nu:r*	Light	**ʌ- -va:-**	***ʌ-n-va:-r***	**-a:t̲**	***ʌnva:r-a:t̲***
13.	*ʈəsni:f*	Composition	**-a:-**	***ʈəs-a:-ni:f***	**-a:t̲**	***ʈəsni:f-a:t̲***

3.1 Optimality Theoretic Analysis

Before offering the OT analysis, it is necessary to provide the brief description of OT so that a novel reader can easily understand the analysis. Following section highlights the OT machinery.

3.1.1 Optimality Theory

Optimality theory (McCarthy & Prince (1993a, 1993b) and Prince & Smolensky (1993, 2004) is a theory of grammar whose main postulate is it is a declarative theory: constraint-based theory, not a derivational theory: rule-based theory (Khan, 2013). The constraints are violable, but rules are blindly applied. The violability of constraints helps the theory to provide an accurate analysis which derivational theories e.g., Lexeme-based approach, Morpheme based approach, Word and paradigm approach etc., cannot provide. The constraints-based approach of the theory has helped the grammarians to apply this theory into different and diverse fields of linguistics such as phonology, morphology, syntax and semantics etc. (Khan, 2013; Meftah, 2012; Ramasamy, 2011; Kar, 2009; Coetzee, 2004). Constraints can be high-ranked and low-ranked as well. High-ranked can never be violated by the winner candidate, but only low-ranked can. Whereas these constraints are always violated by each losing candidates. Any candidate which violates any of the high-ranked constraints is a losing candidate and cannot be the optimal one.

Underlying constraints for the pluralization of plurals are given below.

3.1.2 Underlying Constraints for the Analyses

OT proposes three types of constraints: 1) Markedness constraints, they get the output forms follow the universal principles, 2) Faithfulness constraints, they keep the faithful relationship between the input and the output, 3) Alignment constraints, they align the affixes with the roots (Kager, 1999).

Following constraints are used for two OT analyses – given in the next section – of the pluralization of plurals:

IDENT-IO: Input and output must be identical.

Infix (-*uː*-): Insert the infix -*uː*- in the middle of the stem such as *qʊl**uː**b* 'hearts'.

Suffix (-*a̲ṯ*): Attach the suffix -*a̲ṯ* to the root.

Circumfix (ɑ- -ɪj-): Attach the first part of the circumfix to the beginning of the root, and last part of the circumfix to the end of the root.

3.2 Data Analysis

Following section provides the analysis of data for two pluralization processes under the machinery of OT:

3.2.1 OT Analysis 1

An OT analysis for the input *rəqəm* 'money', whose broken plural is formed by inserting an infix **-ʊ-**, is given in Tableau 1. Input, output and possible candidates are given below:

Input: *rəqəm*

Output: *rəqʊma̲ṯ*

Possible Candidates: *rəqəm, rəqʊm, rəqʊma̲ṯ*

After generating the candidates, the hierarchical ranking of the constraints is set below by comparing winning candidate with each losing candidate one after the other.

Ranking of the Constraints:

Compare *rəqʊma̲ṯ* & *rəqəm*:

Infix (-*uː*-) and Suffix (-*a̲ṯ*) are of equal rank because Infix (-*uː*-) inserts the infix into the root and Suffix (-*a̲ṯ*) attaches the stem to the end of root.

Compare *rəqʊma̲ṯ* & *rəqʊm*:

Suffix (-*aṯ*) is higher-ranked constraint than IDENT-IO, because IDENT-IO keeps the input and output identical but Suffix (-*aṯ*) attaches the suffix to the root.

Thus, the possible hierarchical ranking is:

Suffix (-*aṯ*) = Infix (-*uː*-) > IDENT-IO

Dotted line in the tableau shows the constraints on the left and on the right side are equal in ranking. The full line shows that the constraint on the right side is greater than the one on the left side.

Following tableau offers OT analysis:

Tableau 1: Analysis CʊCuːC Form

S #	**Input:** *rəqəm*	**Infix (-*uː*-)**	**Suffix (-*aṯ*)**	**IDENT-IO**
1	→ *rəqʊmaṯ*			*
2	*rəqəm*	*!	*!	
3	*rəqʊm*		*!	*

First, we analyse the losing candidates and demonstrate why they are non-optimal. Candidate 2 is a losing candidate because it does not meet the criteria of both high-ranked constraints, thus both high-ranked constraints are violated. Infix (-uː-) is dissatisfied because no infix is inserted in the stem. Suffix (-*aṯ*) is also violated because the suffix is not attached to the end of the stem. Only IDENT-IO is satisfied because input and output are identical, but satisfying this constraint is of no use because it is a low-ranked constraint. To be the optimal candidate, all the crucial constraints must be satisfied, the violation of a single major constraint kick the candidate out of the winning race. Candidate 3 is also a losing candidate because it violates Suffix (-*aṯ*). Though it satisfies Infix (-uː-) by inserting the infix in the middle of the root, violating Suffix (-*aṯ*), which is one of the major constraints, disallows it to be the optimal candidate. Further, it also violates IDENT-IO because input and output are not identical, however this is the minimal violation. Not to be the optimal candidate is only caused by the violation of Suffix (-*aṯ*). Lastly, candidate 1 is the winning candidate because it meets the criteria of both high-ranked constraints. It pleases Infix (-uː-) as the infix is inserted in the middle of the stem, and it satisfies Suffix (-*aṯ*) as the suffix is attached to

the stem. It only violates IDENT-IO, but it is a minimal violation and is necessary to satisfy the high-ranked constraints.

One thing needs to be clarified is *rəqʊm* and *rəqʊmaʈ*, both are plural forms. Why *rəqʊm* is not the possible winning candidate, because it is not the pluralization of plural form, but it is broken plural. All the plural forms which are not the pluralisation of plurals cannot be the optimal forms in this case because our purpose is to get the plural forms of the plurals.

3.2.2 OT Analysis 2

Another OT analysis for the input *ɖəva* 'medicine', where broken plural formation take place after attaching the circumfix ***ʌ- -ɪj-***, is provided in Tableau 2. Input, output and possible candidates are given below:

Input: *ɖəva*

Output: *ʌɖvɪjaːʈ*

Possible Candidates: *ɖəva, ʌɖvɪja, ʌɖvɪjaːʈ*

The hierarchical ranking of the constraints is given below:

Ranking of the Constraints:

Compare *ʌɖvɪjaːʈ* & *ɖəva*:

Circumfix (*ʌ- -ɪj-*) and Suffix (*-aʈ*) are of equal rank because Infix (*-uː-*) inserts the infix into the root and Suffix (*-aʈ*) attaches the stem to the end of root.

Compare *ʌɖvɪjaːʈ* & *ɖəva*:

Suffix (*-aʈ*) is higher-ranked constraint than IDENT-IO, because IDENT-IO keeps the input and output identical but Suffix (*-aʈ*) attaches the suffix to the root.

Thus, the possible hierarchical ranking is:

Suffix (*-aʈ*) = Circumfix (*ʌ- -ɪj-*) > IDENT-IO

Following tableau provides the OT analysis:

Tableau 2: Analysis ʌC.CɪCa Form

S #	Input: *ɖəva*	Circumfix (ʌ- -ɪj-)	Suffix (-*aʈ*)	IDENT-IO
1	→ *ʌɖvɪjaːʈ*			*
2	*ɖəva*	*!	*!	
3	*ʌɖvɪja*		*!	*

The candidate 2 and 3 are losing candidates because they violate high-ranked constraints. Candidate 2 is identical to the input, and it shows the faithfulness relationship to the input that is why it satisfies IDENT-IO. However, neither satisfies Circumfix (ʌ- -ɪj-) nor Suffix (-*aʈ*), because neither circumfix nor the suffix is attached to the root. It is not an optimal candidate because of failing to meet to the requirements of both high-ranked constraints. Candidate c is also a losing candidate. Though, it satisfies Circumfix (ʌ- -ɪj-), it fails to meet the requirements of Suffix (-*aʈ*) which is another optimal constraint. The failure to meet the requirements of any of the high-ranked constraints results losing the race of being optimal candidate. Candidate 1, on the other hand, is optimal candidate because it attaches the Circumfix (ʌ- -ɪj-) as well as Suffix (-*aʈ*) and hence fulfils the needs of both high-ranked constraints. Though, it violates IDENT-IO, this violation helps it to satisfy optimal constraints.

Both analyses given in the above tableaux show that the pluralisation of plurals can only be formed when broken plural constraints and the suffix constraints are attached to the root. If any one of them is missing, the plural of plural forms cannot be received.

Following section concludes the whole discussion.

4. Conclusion

Urdu has borrowed vocabulary items from Arabic and some other languages. It has not only borrowed the vocabulary items but also the grammatical patterns, such as broken pluralization. Afterwards, it has applied the native rule of pluralization i.e., suffixation, though some of the suffixes functioning as plural markers are also borrowed from foreign languages, to get the plural form. The interaction of native and Arabic pluralization patterns has led to the creation of a new

pluralization pattern i.e. the pluralization of plurals. The pluralisation of plurals can only be achieved when broken plural constraints and suffix constraints function simultaneously.

The long-standing notion that Urdu morphology is prefix or suffix-based (Hardie, 2004) is challenged, and the evidence of non-concatenative morphology is presented, showing Urdu morphology is hybrid – concatenative as well as non-concatenative. While a singular can have two plural forms: broken plural and pluralization of plural, the question if both forms carry same semantics remains an open question. Future researchers may investigate into this phenomenon through psycholinguistic experiments. The frequencies of both forms may also be investigated through corpus-based studies.

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