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DUAL DERIVATIONAL MARKERS: A STUDY OF URDU NOMINAL-CUM-ADJECTIVAL MARKERS

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ABSTRACT

The core purpose of the present work is to analyze the Urdu nominal-cum-adjectival markers with structural, positional, distributional, percolational, and functional perspectives. The dual derivational markers are securitized with the lens of morphology-syntax nexus.In the paradigm of morphemic productivity, the dual derivational markers form a sub-feature of productivity. These markers present two complex derivational perspectives: dual derivation with the nominal or adjectival roots and dual derivation with the nominal roots. They are analyzed within the framework of Generativism and Lexical Functional Grammar (LFG)with purposive sampling technique. The template to function analyzer is devised to apply morphosyntactic features on the nominal-cum-adjectival markers.The present study proposes morphological attribute value matrix (MAVM) to capture functional multiplicity of each morpheme of the complex derivatives by producing f-structure. The dual derivational perspective is expected to work equally for other Indo-Aryan languages, as their word structure contains similar formal properties, as possessed by the Urdu complex derivatives. The present work seems to contribute to the derivative theory for the Indo-Aryan languages.

KEY WORDS

Nominal-cum-adjectival markers, dual derivational productivity, complex derivatives, template, function, morphology-syntax nexus

1. INTRODUCTION

The present work examines the nominal-cum-adjectival markers of Urdu in the construction of complex derivatives. The composition of complex derivatives is multi-morphemic. The role of affixes is of paramount importance in the construction, distribution, and grammatical perspectives of the complex derivatives. The affixes are category-laden and they bear multifaceted functions and features. The systematic and grammatical configuration of affixes displays numerous realizations of nominalization, adjectivization, verbalization, and adverbalization. The study of affixes in various morphological ecologies reveals their category-changing and category-maintaining behaviour.Despite the demonstration of category features, it is, however, quite novel derivational aspect to perceive the dual derivational productive feature of the same markers in the various morphological ecologies. The core objective of the present work is to trace and examine the dual derivational productivity of the Urdu markers. Mangrio (2011) states that Urdu is referred to as an Indo-Iranian descendent from Indo-Aryan languages. It receives a huge vocabulary stock through borrowing from Arabic and Persian (Naim, 1999; Peter, 2008; Kausar et al., 2015). It is also influenced by Sanskrit, Assamese, Gujarati, Hindi, Marathi, Punjabi, Sindhi, Singhalese, and Romany. Thus, Urdu is an active recipient of and generous donor to the world languages.

On the derivational productivity, Bauer (2003) states that the derivational process is productive, as it generates a number of new words. Productivity, fertility, availability and profitability are a few words associated with the notion of derivational productivity. In the paradigm of derivational productivity, the notion of dual derivational productivity seems to be a neglected feature of derivation. It seems to be an unexplored perspective of the derivation to find a same marker with the dual productive derivational fertility. The dual productive derivatives manifest two perspectives.One aspect unpacks an ecology in which the nominal-cum-adjectival marker generates nominalization in the presence of adjectival root e.g.,*bʊzd̪ɪl**i*** ‘cowardice’ (N) is generated from *bʊzd̪ɪl* ‘coward’ (A), and the same marker triggers adjectivization with the nominal root e.g., *fehər**i*** ‘citizen’ (A) is derived from *fehər* ‘city’ (N). The other aspect brings the dual derivational productivity to the surface with the nominal

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roots. The combination of the nominal root and the dual productive marker produces a complex nominal in the first instance and the complex adjectival in the second instance. Both generative aspects are the part of the data analysis.

2. NEED AND SIGNIFICANCE OF THE STUDY

The need of the study lies in the fact that the nominal-cum-adjectival markers have never been studied with the lens of combined morphological and syntactic theories. The available literature seems to ignore the dual derivational productive markers, and their study is expected to fill in the research gap. They can be studied extensively with the lens of morphology-syntax nexus. The presentation of the nominal-cum-adjectival markers in complex morphological trees capture various properties associated with each morphological node. Thestudy of functionality attached to each morphological node through the proposed mechanism of MAVM is expected tocomplement syntactic thick description with multiple functions. Thus, the interlinked generative steps lay the foundation of template to function model.It is noticed that there is lack of application of template to function analyzer on the Urdu language. The application of morphosyntactic theories can be seen abundantly on English (Siddiqi, 2009, Embick and Noyer, 2005)but Urdu has never been tested and researched on the proposed accumulated parameters. The study of dual derivational productivity is supposed to explore new avenues in the study of the Urdu complex derivatives and its sister Indo-Aryan languages. The multi-morphemic and systematic constructions of the configurational templates, application of percolation conventions, and demonstration of various features are distinguishing elements of the study. The incorporation of morphosyntactic protocols of each morpheme is the prime significance of the study. The present study is, however,expected to be a unique and unexplored mode of inquisition of the nominal-cum-adjectival markers and a contribution to the legacy of Universal Morphology.

3. RESEARCH OBJECTIVES

The present study has set some objectives to probe various perspectives of the nominal-cum-adjectival markers. The following research objectives are focussed to accomplish the study:

i. To trace the underlying patterns of the complex derivatives containing the nominal-cum-adjectival markers.
ii. To highlight the dual derivational markers with the syntactic conventions.
iii. To capture the multiple functions of each morpheme of the complex derivatives through the proposed mechanism of MAVM?

The research objectives are based on a few generative steps. The first step is to propose the representative templates of the Urdu complex derivatives containing the nominal-cum-adjectival markers. The second step is to probe the morphosyntactic features and apply feature percolation conventions. The third step is to capture the multiple grammatical functions of each morpheme. These analytical steps originate template to function analyzer. The proposed analytical steps are generative, and are interwoven in morphology-syntax nexus.

4. RESEARCH QUESTIONS

The research questions are designed to set a direction and meet the objectives of the study. The following questions are expected to bring to surface both empirical and theoretical significance of the study:

i. What are the underlying patterns of the complex derivatives containing the nominal-cum-adjectival markers?
ii. How do the syntactic conventions work to highlight the dual derivational markers?
iii. How does MAVM capture and represent multiple functions of each morpheme of the complex derivatives?

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Vol.5 No.4 2021

5. LITERATURE REVIEW

The term productivity is generally used in multiple fields to refer to rankness, fruitfulness and fertility. Boudelaa and Marslen-Wilson (2011) state that this term is extensively used in linguistics torefer to a variety of different distributional properties of words andmorphemes. The complex derivatives demonstrate the combination of more than one morpheme.Their distribution consists of systematic and grammatical scheme. Each segment is realized to possess unique feature according to the morphological ecologies. It is hard to claim semantic and functional fixity of morphemes in the multiple clusters. The productivity, thus, elaborates different distributional properties of morphemes in the complex derivatives. This property of morphemes generates a number of complex derivatives. The same point of argument is presented by Sterling (1982), Plag (2003) and Bauer (1983) who take the position that the essence of productivity is the ability to use an affix to form novel and new derivatives.The novel and newwordsare primarily the product of the ability of an affix to trigger the formation of the derivatives. It means there are some characteristics of the morphemes in relation to productivity. Coates (1999) traces the productivity with four characteristics of morphemes. He holds that a morpheme should have a meaning and function. If a morpheme does not communicate semantics and grammatical category, its position is no more of morpheme. The third characteristic is that it occurs recurrently with other words. The fourth characteristic is that it can interchange with other morphemes. These productive morphemic characteristics are applicable and verifiable on a number of Urdu derivatives. One example of ***-ɖa:r*** is referred to for initial discussion. It is an adjectival marker and renders the meanings of 'having, possessing'. It occurs recurrently with dozens of nominal and adjectival roots e.g., *ɪdʒa:ra**ɖa:r*** 'monopolist' (A),*pʰu:l**ɖa:r*** 'flowery' (A), *ʈa:beʔ**ɖa:r*** 'obedient' and *bəl**ɖa:r*** 'twisted' (A). It is also interchangeable with other adjectival markers e.g., *ʈa:dʒ**ɖa:r*** 'king'(A), *ʈa:dʒ**vər*** 'king'(A), *ʈa:dʒ**fəro:ʃ*** 'crown-seller'(A), and *ʈa:dʒ**bərɖa:r*** 'crown-bearer' (A). Thus, the adjectival marker ***-ɖa:r*** qualifies for four productive characteristics i.e. semanticity, grammatical category, recurrence with other roots, and interchangeability with other derivational morphemes.

Plag (2004) upholds that morphological productivity is the morphemic property to give rise to new formations on a systematic basis. The property of the given affix is its general potential and degree to create new words.Adams (1973) takes the position that morphemic productivity generates a pattern to form a model for other complex derivatives. The generative perspective of the complex derivatives captures the underlying and governing rules of derivation through the projection of finiteness. The new forms are the result of morphemic productivity and permissibility of recurrent occurrence of markers with various category roots. Consequently, the recurrent occurrence of derivational markers generates rules. Spencer (1991) considers a rule productive with the condition of regular and active use of creating totally new words. The proposed nominal template $N \rightarrow [A^{r} \quad N^{af}]$ configures a representative pattern which generates a number of complex nominal derivatives. some of them include *əbʈər* 'ruined' (A) + ***-i*** (N^{af}) = *əbʈər**i*** 'ruin' (N), *ʊɖa:s* 'sad' (A) + ***-i*** (N^{af}) = *ʊɖa:s**i*** 'sadness' (N), and *a:ga:h* 'aware' (A) + ***-i*** (N^{af}) = *a:ga:h**i*** 'awareness' (N).

While drawing on earlier work by Corbin (1987), Bauer (2001) advocates that morphemic productivity is smeared with the notion of availability and profitability. Two features of productivity come on the surface: availability and profitability. The derivational process is defined as available if it is used to produce derivatives.The second characteristic is profitability and fertility of a morpheme, which leads to the process of derivational recursion to create new pertinent forms. Plag (1999) maintains that the derivational productivity is a property of words formation process. There are various word-formation processes including coinage, antonomasia, borrowing, compounding, blending, clipping, backformation, conversion, acronym, derivation, and folk etymology (Yule, 2006; Barnhart et al., 2006;Doblhofer, 1990). Apart from these word-formation processes, modification of base and partial and full reduplication stand prominent in the word production mechanism. The focus

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of the present work is, however, the complex derivation with the nominal-cum-adjectival markers. Bauer (2003) states that the derivational process is productive, and it generates a number of new words. Thus, the derivational productivity is realizedto be a healthy contribution to the treasure of vocabulary.

Productivity also highlights the quantitative perspectives to trace the frequency of a particular morpheme in the process of complex derivative formation. The count of derivational frequency of attested different wordsgives rise to the notion of family size (Baayen, Lieber, & Schreuder, 1997; Schreuder & Baayen, 1997). The more frequent the category marker is, the more productive it is.Bolinger (1948) perceives the quantitative measures of productivity as a kind of probability. He states productivity with the perspective of statistical readiness in which an affix enters into new combinations of the derivatives. The notion of availability and profitability is evident in the Urdu marker ***-i***. If it is attached to a noun, it generates an adjective and vice versa. The adjectival complex derivative *ɖɪl**i*** 'hearty' (A) is derived from the nominal root *ɖɪl* 'heart' (N). The nominal complex derivative *sa:f**i*** 'duster, strainer' (N) is formed from the adjectival root *sa:f* 'clean, clear' (A). Besides these two realizations, the bound morpheme ***-i*** is used as feminine gender marker e.g., *ləɽk* 'of tender age' (N) + ***-i*** 'feminine gender marker' = *ləɽk**i*** 'girl' (N), feminine adjectival marker e.g., *bʊr**a*** 'bad one (m)' (A), whereas *bʊr**i*** 'bad one (f)' (A), diminutive nominal marker e.g., *a:lkəs* 'sluggishness' (N) + ***-i*** 'diminutive marker' = *a:lkəs**i*** 'diminutive of *a:lkəs*', and the second part of circumfix e.g., ***ɖo:-*** 'two' ($N^{circ.1}$) + *rəŋ* 'colour' (N) + ***-i*** ($N^{circ.2}$) = ***ɖo:rəŋi*** 'hypocrisy' (N).The bound morpheme ***-a*** has also different realizations: masculine gender marker e.g., *ləɽk**a*** 'boy, ***-a*** shows male gender marker,' whereas *ləɽk**i*** 'girl, ***-i*** shows feminine gender marker, masculine adjectival marker e.g., *pja:s 'thirst'* (N) + ***-a***' masculine adjectival marker' = *pja:s**a*** 'thirsty' (A), augmentative markers e.g., *ʈo:l**i*** 'small group' (N) ***-i*** as diminutive marker, whereas *ʈo:l**a*** 'large group' (N) ***-a*** as 'augmentative marker', past tense marker e.g., *pəɽʰ* 'read' (V) + ***-a*** 'past tense marker' = *pəɽʰ**a*** 'read' (V), and the second part of circumfix e.g., ***kəl-*** 'black' ($A^{circ.1}$) + *mʊh* 'face' (N) + ***-a*** ($A^{circ.2}$) = ***kəlmʊh**a*** 'black-faced' (A).

Both qualitative and quantitative perspectives of productivity lead to a common view that productivity of a marker is referred to the extent to which a language uses the same marker actively in new combinations. The brief probe of morphemic productivity discloses the repeated occurrence and healthy count of the marker for the derivation. In the study of productivity, the notion of dualproductivity is a research gap needs to be filled in.Waker (2009) points out the dual productivity of the prefix ***-er*** with verbal, adjectival and nominal roots e.g., *wash**er**, fast**er**, and London**er***. The use of the same agentive suffix ***-er*** is either for derivational purpose as given aboveor inflectional e.g., *fast → fast**er***. Such homophonous use of the same marker is either derivational or inflectional. Contrary to the description of the English morpheme, a number of Urdu markers demonstrate dual derivational productivity.The dual derivational productivity contains two perspectives. One perspective discloses the dual productivity with different category roots, whereas the other one is worth investigating that the same marker is a category-changing in one formative environment, whereas it is category-maintaining in another morphological ecology.Both dual derivational perspectives are the analytical part of the present study.

6. THEORETICAL FRAMEWORK

The present work highlights the dual derivational productivity with generative approach. The theoretical underpinning scrutinizes three major generative perspectives of the complex derivatives. The first perspective examines the structures of the complex derivatives with dual productive markers. This generative step strives to highlight and generalize the underlying patterns of the proposed templates to the other derivatives. This step is expected to unveil the representative rule of the complex derivatives. The morphological structures are realized on the convention of syntactic structures. Each representative template is supported with the complex derivatives. The second step is to incorporate feature percolation conventions presented by Lieber (1980) in the analysis to highlight and trace the path of feature percolations from the root to the mother node. The morphological

complex trees are used to demonstrate hierarchical features of the complex derivatives. This structural interconnectivity leads to the assumption that the derivational process of the complex derivatives is syntactic. The third aspect is to elaborate functionality of each morpheme in the morphological ecologies of the complex derivatives. The proposed formalism of MAVM derived from LFG is used to highlight the embedded features of the derivativeswith the nominal-cum-adjectival markers. MAVM is expected to be a morphological, syntactic, and semantic feature explorer matrix. It traces various functions of the morphemes and highlights them in f-structure in attribute-value pairs. The invented analyzer provides a quick analysis of each embedded morpheme of the complex derivatives. In the present work, the multiple functions and functions are analyzed and displayed in f-structure and its inner sub-matrixes.

The three proposed analytical steps are generative and are connected to each other in relation to morphology-syntax nexus. The structural analysis elaborates the positional and configurational features. The morphological trees help trace the feature percolations from the root to the mother node. The functional analysis is expected to bring to the surface the multiple features overlooked by the structural perspectives. These steps are complement to each other. Three analytical steps lay the foundation of template to function model. The use of the proposed model is assumed to bring forth multifaceted analysis. With these systematic theoretical procedures, the researcher aims to investigate the dual derivational productivity of the nominal-cum-adjectival markers.

7. RESEARCH METHODOLOGY

The present work is accomplished in the paradigm of qualitative research. Descriptive method is used to analyze the data. Following purposive sampling technique, the dual derivational productivity ofthe nominal-cum-adjectival markers are traced and highlighted in the Urdu complex derivatives.The inflectional aspects are not the part of discussion. It is analyzed how dual productive markers give realizations in various morphological ecologies. Two perspectives of the nominal-cum-adjectival markers are examined: the derivation with different category roots, and the derivation with the same category roots. From the print dictionaries *Feroz-ul-Lughat Jame New Edition*, and *Ilmi Urdu Lughat Jame*, the nominal-cum-adjectival markers are ransacked and enlisted. The features and etymology of each marker is planned to elaborate in the data analysis. Online dictionaries and a thesaurus including *Urdu Lughat*, (*http://www.udb.gov.pk/*), *Urdu Lughat* (*http://urdulughat.info/*) and *Urdu Thesaurus* (https://urduthesaurus.com/ are also consulted for meanings, transcriptions and etymology. International Phonetic Alphabet (IPA) symbols are used to transcribe the data. Syntax Tree Editor, version 0.9.0.3, is used to present the role of dual productive markers with the complex morphological trees.

8. DATA ANALYSIS

The present section investigates and exemplifies the dual derivational productivity of the nominal-cum-adjectival markers.Its cote purpose is to probe how the same derivative morpheme produces two distinct complex derivatives. The various morphological ecologies of morphemes are brought under discussion to support the present work. The description of two distinct nominal and adjectival derivatives with the same marker materializes the set objectives of the study. The dual derivational productivityis examined with three interlinked and inter-supportive steps through the lens of generative approach. The first step presents the configurational templates containing the roots and the nominal-cum-adjectival markers. The representative templates are supported with the complex derivatives to make them generalizable on Urdu and its sister languages. The configurational segmentation of each template is unpackedand exemplified. The second step presents the dual productive markers with tree diagrams to distinguish them in various ecologies. The incorporation of the morphological complex trees highlights the morphosyntactic features and shows the path of feature percolation from the root to the mother node. Feature percolation conventions presented by Lieber (1980) are used with the help of thick arrows to demonstrate the shift of category features to the dominating nodes. The pictorial presentation of the bottom-up analysis makes the morphemic

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Vol.5 No.4 2021

segmentation and the hierarchy of constituents of the complex derivatives easy to understand. The third step is to incorporate the proposed formalism of MAVM in the study to capture the functionality attached to each morphological node through f-structures. The template to function model works on the above mentioned three generative steps to scrutinize the dual productive markers in morphology-syntax nexus.

In Table 1, the marker is identical but its derivation has two distinct realizations. It converts a noun to an adjective and vice versa. Both perspectives are based on a certain morphological formation. In these realizations, the root is either noun or adjective. This dual derivational productivity is smeared in the bound morpheme ***-i***. This is a unique feature of the Urdu derivational morpheme to behave differently in different formative environments. Some complex derivatives are exemplified in Table 1 with dual productive marker-***i***:

Table-1: Realizations of the Nominal-cum-Adjectival Marker *-i*

Roots (N/A)		**Suffixes**	**Complex Derivatives**	
gʊlɑ:b ‘rose’	(N)	**-i** (A^{af})	gʊlɑ:b**i** ‘pinkish’	(A)
ro:ʃən ‘bright’	(A)	**-i** (A^{af})	ro:ʃən**i** ‘light’	(N)
ʃəʔu:r ‘intellect’	(N)	**-i** (A^{af})	ʃəʔu:r**i** ‘conscious’	(A)
mʊxlɪs ‘sincere’	(A)	**-i** (N^{af})	mʊxlɪs**i** ‘sincerity’	(N)
ənḍe:r ‘darkness’	(N)	**-i** (A^{af})	ənḍe:r**i** ‘dark’	(A)
mʊflɪs ‘poor’	(A)	**-i** (N^{af})	mʊflɪs**i** ‘poverty’	(N)
dʒəngəl ‘jungle’	(N)	**-i** (A^{af})	dʒəngəl**i** ‘wild’	(A)
behṯər ‘appropriate’	(A)	**-i** (N^{af})	behṯər**i** ‘betterment’	(N)
ʃehər ‘city’	(N)	**-i** (A^{af})	ʃehər**i** ‘citizen’	(A)
bʊzḍɪl ‘coward’	(A)	**-i** (N^{af})	bʊzḍɪl**i** ‘cowardice’	(N)
ʃɑ:h ‘king’	(N)	**-i** (A^{af})	ʃɑ:h**i** ‘royal’	(A)
sərḍ ‘cold’	(A)	**-i** (N^{af})	sərḍ**i** ‘winter, coldness’	(N)
nɑ:r ‘fire’	(N)	**-i** (A^{af})	nɑ:r**i** ‘made of fire’	(A)
ne:k ‘pious’	(A)	**-i** (N^{af})	ne:k**i** ‘piety’	(N)
fərz ‘supposition’	(N)	**-i** (N^{af})	fərz**i** ‘supposed’	(A)
ṯe:z ‘fast’	(A)	**-i** (N^{af})	ṯe:z**i** ‘fastness’	(N)
nəqəl ‘copy’	(N)	**-i** (A^{af})	nəqəl**i** ‘fake’	(A)
gərəm ‘hot’	(A)	**-i** (N^{af})	gərəm**i** ‘summer, hotness’	(N)

Table 1 demonstrates the dual category-changing characteristic of the nominal-cum-adjectival marker. The first left column consists of the nominal and the adjectival roots. The second column comprises the nominal-cum-adjectival marker-***i***.The third column contains the adjectival and nominal derivation with dual productive marker. In the first example of each pair, the suffix ***-i*** is an adjectival marker, whereas in the second example of each pair, it is a nominal marker. In both diverse cases, the root is either nominal or adjectival.It is noticed that the nominal-cum-adjectival marker turns a noun to an adjective and vice versa. Both realizations are the grammatical outcome of the derivation. The contents of Table 1 generate the representative Templates. Each Template is supported with some compatible derivatives in the following:

1. $N \rightarrow [A^{r} \quad N^{af}]$

ro:ʃən ‘bright’ (A) + ***-i*** (N^{af}) = *ro:ʃən**i*** ‘light’ (N)
mʊxlɪs ‘sincere’ (A) + ***-i*** (N^{af}) = *mʊxlɪs**i*** ‘sincerity’ (N)
mʊflɪs ‘poor’ (A) + ***-i*** (N^{af}) = *mʊflɪs**i*** ‘poverty’ (N)

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Vol.5 No.4 2021

2. A → [N^r A^{af}]

gʊla:b ‘rose’ (N) + ***-i*** (A^{af}) = *gʊla:b**i*** ‘pinkish’ (A)
ʃəʔu:r ‘intellect’ (N) + ***-i*** (A^{af}) =*ʃəʔu:r**i*** ‘conscious’ (A)
ənḍe:r ‘darkness’ (N) + ***-i*** (A^{af}) = *ənḍe:r**i*** ‘dark’ (A)

It is imperative to discuss the other features of the bound morpheme ***-i***. It is noticed that the same marker lacks wordclass-determining role in some complex derivatives e.g., *ḍʊʃmən**i*** ‘enmity’ (N) and *ḍo:sṭ**i*** ‘friendship’ (N). Both complex nominal derivatives are derived from the nominal roots *ḍʊʃmən* ‘enemy’ (N) and *ḍo:sṭ* ‘’friend’ (N) respectively. Besides nominal and adjectival features, the bound morpheme ***-i*** is a diminutive marker i.e. *ʈəkəɽ**i*** ‘balance, diminutive of *ʈəkəɽ*’ is derived from *ʈəkəɽ* ‘large balance’ (N). The bound morpheme ***-i*** is a feminine gender marker i.e. *məkɽ**i*** ‘***-i*** as nominal feminine marker, female spider’ (N) and *məkɽ**a*** ‘male spider’ (N). It is anadjectival gender marker i.e. *pəjas**i*** ‘***-i*** as feminine adjectival marker, female thirsty’ (A) and *pəjas**a*** ‘male thirsty’ (A). It is the second part of the nominal and adjectival circumfixes e.g., ***ʧɔ:-*** ‘four’ ($N^{circ.1}$) + *mʊkʰ* ‘face’ (N) + ***-i*** ($N^{circ.2}$) = ***ʧɔ:mʊkʰi*** ‘Hindu goddess’ (N) and ***ʧɔ:-*** ‘four’ ($A^{circ.1}$) + *həḍ* ‘boundary’ (N) + ***-i*** ($A^{circ.2}$) =***ʧɔ:həḍi*** ‘four-walled’ (A). Another important feature of the bound morpheme ***-i*** lies in the nominal mismatch constructions. This feature reveals that it is the part of the base, and is not analyzed separately i.e. *ḍa:ɽʰi* ‘beard’ is not derived from *ḍa:ɽʰ* ‘molar tooth’. This pair does not have relation with each other, as they consist of dissimilar lexical items.

The second perspective of the nominal-cum-adjectival marker demonstrates that the roots are simple nominals, whereas the one realization with the dual productive marker is the complex nominal and the other realization is the complex adjectival derivative.Some examples of nominal-cum-adjectival markers are given in Table 2:

Table-2: Nominal-cum-Adjectival Markers

Roots (N)	Suffixes	Complex Derivatives	
bɑ:l ‘hair’	**-bənḍ**	bɑ:l**bənḍ** ‘hair pony’	(N)
dʒɪlḍ ‘binding’	**-bənḍ**	dʒɪlḍ**bənḍ** ‘book-binder’	(A)
ɑ:ɽ‘behind something’	**-bənḍ**	ɑ:ɽ**bənḍ** ‘underwear’	(N)
kɑ:r ‘act’	**-bənḍ**	kɑ:r**bənḍ** ‘obedient’	(A)
hɪsɑ:b ‘accounts’	**-ḍɑ:n**	hɪsɑ:b**ḍɑ:n** ‘mathematician’	(N)
zʊbɑ:n ‘language’	**-ḍɑ:n**	zʊbɑ:n**ḍɑ:n** ‘linguist	(A)
nəsr ‘prose’	**-nɪgɑ:r**	nəsr**nɪgɑ:r** ‘prose-writer’	(N)
xɑ:kɑ ‘caricature’	**-nɪgɑ:r**	xɑ:kɑ**nɪgɑ:r** ‘caricaturist’	(A)
nɑ:mɑ ‘letter, news’	**-nɪgɑ:r**	nɑ:mɑ**nɪgɑ:r** ‘journalist, news-writer’	(N)
məzmu:n ‘essay’	**-nɪgɑ:r**	məzmu:n**nɪgɑ:r** ‘essayist’	(A)
əkəɽ ‘contraction’	**-bɑ:i**	əkəɽ**bɑ:i** ‘muscular contraction’	(N)
nɑ:n ‘bread’	**-bɑ:i**	nɑ:n**bɑ:i** ‘baker’	(A)
hərəm ‘house’	**-sərɑ**	hərəm**sərɑ** ‘a house for female gender’	(N)
həmḍ ‘praise to God’	**-sərɑ**	həmḍ**sərɑ** ‘one who praises to God’	(A)

The first left column in Table 2contains the nominal roots. The roots provide scaffolding for derivation. The central column contains some dual productive markers. Each pair of the central column improvises the dual output from the nominal roots. The same marker gives two distinct realizations: the first derivation is nominal, whereas the second derivation is adjectival. The third column shows the accomplishment of the complex derivatives triggered from the dual productive

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Vol.5 No.4 2021

nominal-cum-adjectival markers. The contents of Table 2 present some underlying patterns of the derivatives. Theygenerate the following representative Templates:

3. $N \rightarrow [N^{r} \quad N^{af}]$

hərəm‘house’ (N)	+ ***-səra*** (N^{af})	= *hərəm**səra*** ‘a house for female gender’	(N)
hısa:b ‘accounts’ (N)	+ ***-ḏa:n*** (N^{af})	= *hısa:b**ḏa:n*** ‘mathematician’	(N)
nəsr ‘prose’ (N)	+ ***-nıga:r*** (N^{af})	= *nəsr**nıga:r*** ‘prose-writer’	(N)

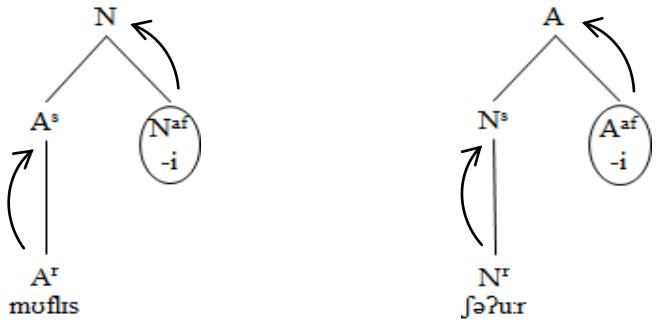
4. $A \rightarrow [N^{r} \quad A^{af}]$

həmḏ ‘praise to God’ (N)	+ ***-səra*** (A^{af})	= *həmḏ**səra*** ‘one who praises to God’	(A)
zʊba:n ‘language’ (N)	+ ***-ḏa:n*** (A^{af})	= *zʊba:n**ḏa:n*** ‘linguist	(A)
xa:ka ‘caricature’ (N)	+ ***-nıga:r*** (A^{af})	= *xa:ka**nıga:r*** ‘caricaturist’	(A)

In the previous discussion, the role of nominal-cum-adjectival markers is discussed briefly. The structural, distributional, positional, percolational, and functional perspectives are yet to be examined in the forthcoming exploring steps of template to function model. The complex derivatives *mʊflıs**i*** ‘poverty’ (N) and *ʃəʔu:r**i*** ‘conscious’ (A) are selected from Table 1 to highlight various generative aspects of the complex derivatives in relation to syntactic conventions. The underlying patter ns of *mʊflıs**i*** ‘poverty’ (N) and *ʃəʔu:r**i*** ‘conscious’ (A)conform to $N \rightarrow [A^{r} \quad N^{af}]$ and $A \rightarrow [N^{r} \; A^{af}]$ respectively. A number of complex derivatives are generalizable on the proposed templates.

Using tree diagrams is a helpful tool to capture features of a constituency and other embedded morphosyntactic features. Both complex derivatives *mʊflıs**i*** ‘poverty’ (N) and *ʃəʔu:r**i*** ‘conscious’ (A)are presented below in morphological hierarchical trees to highlight the structural, positional, percolational, and morphosyntactic features:

5. a. b.



In the above tree diagrams 5a and 5b, the circled nodes show the same marker ***-i***, but they demonstrate different realizations according to their formative ecologies. Both diagrams display the distinct percolation of the nominal-cum-adjectival marker ***-i*** with the complex derivatives *mʊflıs**i*** ‘poverty’ (N) and *ʃəʔu:r**i*** ‘conscious’ (A). The feature percolation of affixes in both diagrams conforms to FPCs I and II by Lieber (1980). The first convention percolates the features of the roots A^{r} and N^{r} to the non-branching nodes $A^{s}$and N^{s}. In the representative tree diagrams 5a and 5b, the roots *mʊflıs* ‘poor’ (A) and *ʃəʔu:r* ‘intellect’ (N) percolate their respective nominal and adjectival features to the non-branching nodes N^{s} and A^{s}. The second convention asserts that all features of an affix morpheme, including category features, percolate to the first branching node dominating that morpheme. The second percolation, according to FPC II, is category-laden in both cases. Out of two sister nodes A^{s} and N^{af} in 5a, N^{s} and A^{af} in 5b, the second nodes N^{af} and A^{af} respectively appear to be the governor nodes. The attachment of sister nodes follows locality principle in both cases. The merge of two different category morphemes *mʊflıs* ‘poor’ (A) and the nominal marker ***-i***, and *ʃəʔu:r* ‘intellect’ (N) and the adjectival marker ***-i*** derive the nominal and adjectival complex derivatives *mʊflıs**i*** ‘poverty’ (N) and *ʃəʔu:r**i*** ‘conscious’ (A) respectively. The same derivational morpheme ***-i*** demonstrates two realizations. If it is attached to a noun, it generates an adjective and vice versa. Besides these two realizations, the bound morpheme ***-i*** is used as feminine gender marker, feminine adjectival marker, diminutive nominals, and the second part of circumfix.

ISSN Online : 2709-4030
ISSN Print : 2709-4022
Vol.5 No.4 2021

It is noticed that each morpheme of the complex derivative presents constellation of functions. The third exploratory step of template to function model is to examine multiple functions associated with the free or bound morphemes of the complex derivatives. In the nominal complex structure of *mʊflɪsi* 'poverty' (N) presented in 5a, the functions attached to each morpheme are paired in attribute-value combinations in the following nominal MAVM:

6.

DERIV	*mʊflɪsi* 'poverty'	
CATEG	N	STR: complex COMP: bimorphemic NUM: singular TYPE: abstract CASE^{M}: feminine ORGN: Arabic
ROOT	*mʊflɪs* 'poor' (A)	
$AF_1(SUF_1)$-***i***		CATEG: nominal MORPHEME: bound C-CHANGING: + ORGN: Persian

The nominal MAVM given in 6 presents the nominal realization of dual derivational productivity of the bound morpheme ***-i***. The first attribute DERIV indicates the value of the complex nominal derivative *mʊflɪsi* 'poverty'. The function CATEG shows the nominal value of the derivative. It has a further inner f-structure, which shows multiple features. The derivative under analysis *mʊflɪsi* 'poverty'(N) has a complex structure. Its composition is bimorphemic: *mʊflɪs* 'poor' is a root and ***-i***is, here, a nominal marker. The attribute NUM shows that it is singular. The attribute TYPE shows that the given derivative is an abstract noun. This Urdu derivative takes feminine genitive case marker. The third attribute is ROOT. The root of the complex derivative *mʊflɪsi* 'poverty' is *mʊflɪs* 'poor' (A). It belongs to the Arabic origin. The fourth main attribute is $AF_1(SUF_1)$-***i***. Its values are given in attribute-value pairs in the sub-matrix. It indicates that it is a nominal marker, bound morpheme and category-changing suffix. It is of the Persian origin. In brief, the proposed formalism of MAVM minutely provides morphological, syntactic and semantic features. In the following matrix, the functional description of adjective complex derivative *ʃəʔu:ri* 'conscious' (A), diagrammed in 5b, is elaborated through the adjectival MAVM:

7.

DERIV	*ʃəʔu:ri* 'conscious'	
CATEG	A	STR: complex COMP: bimorphemic NUM: singular TYPE: positive degree ORGN: Arabic
ROOT	*ʃəʔu:r* 'intellect' (N)	
$AF_1(SUF_1)$	***-i***	CATEG: adjectival MORPHEME: bound C-CHANGING: + ORGN: Persian

ISSN Online : 2709-4030
ISSN Print : 2709-4022
Vol.5 No.4 2021

The adjectival MAVM given in 7 unpacks various functions and features embedded in the adjectival derivative *ʃəʔu:r**i*** 'conscious'. The first attribute DERIV indicates the value of bimorphemic complex adjectival derivative *ʃəʔu:r**i*** 'conscious'. The function CATEG has adjectival value. The value A has a further inner f-structure with morphological and syntactic depiction. The adjectival derivative *ʃəʔu:r**i*** 'conscious' has a complex structure. Its composition is bimorphemic: *ʃəʔu:r* 'intellect' (N) is a root and ***-i*** is an adjectival marker. NUM indicates that it is singular. The adjectives can also be pluralized in Urdu, but the plural form of *ʃəʔu:r**i*** 'conscious' is not in use. The attribute TYPE shows that it is in positive degree. The third main attribute is ROOT. The root of the complex derivative *ʃəʔu:r**i*** 'conscious' is *ʃəʔu:r* 'intellect' (N). It belongs to the Arabic origin. The fourth main attribute is $AF_1(SUF_1)$***-i***. Its values are paired in attribute-value combination in the sub-matrix, which indicates that it is an adjectival marker, bound morpheme, and category- changing suffix. It is of the Persian origin. Thus, the function analyzer MAVM traces multifarious function and features hosted on each morphological node.

The present section brings to the surface the dual derivational productivity of the same marker according to the morphological ecologies. The nominal-cum-adjectival markers turn nouns into adjectives and vice versa. Likewise, the same marker seems to be a category-changing with one nominal root, and turns out to be a category-maintaining with another nominal root. These dual productive features of the Urdu markers represent a derivational feature of Indo-Aryan languages. This distinct feature distinguishesthe Urdu dual productive markers from the derivational morphemes of other languages.

9. CONCLUSION

The Urdu nominal-cum-adjectival markers present one of the derivational aspects of the Urdu complex derivatives. It is realized that the dual derivational markers occur in the morphological ecologies, which configure and represent certain patterns. They trigger the complex derivation either with the nominal or adjectival roots. The first realization reveals that they convert nouns to adjectives and vice versa. The second realization unveils the category-changing and category-maintaining derivation with the nominal roots.The present work confirms the application of syntactic conventions on the complex derivatives containing the nominal-cum-adjectival markers. FPCs I and II by Lieber (1980) are successfully applied on the morphological trees. The category features are elaborated from the root to the mother node through the curved arrows. The operations of merge and government and binding relations are highlighted.The proposed mechanism of MAVM helps unpack the functions smeared in each morphological node. The syntactic, morphological, semantic, and etymological features are revealed with the proposed feature analyzer. Moreover, the present study orientates to the readership one of the prominent features of the Urdu derivatives, representing the derivational feature of its sister languages. The highlighted feature, thus, contribute to the derivational theory of the Indo-Aryan languages. The major Indo-Aryan languages include Hindi, Urdu, Bungali, Punjabi, Marathi, Rajasthani, and Gujarati. Each major Indo-Aryan language has a n umber of minor languages and dialects. Irrespective to the count of minor languages of other regions, Pakistan is a land of fifty-eight minor languages (Grimes, 2000). The present work, however, seems to represent a derivational feature of one of the largest linguistic communities of the world. It is expected to contribute a prominent share to the legacy of Universal Morphology.It also seems to benefit the study of comparative linguistics by dint of highlighting the structural, distributional, positional, percolational, and distributional perspective of the derivation with the nominal-cum-adjectival markers.

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