Derivational Morphology in Urdu: A Lexical Morphology Approach

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Abstract
Within the theoretical framework of lexical morphology (LM), this study looks at neutral and non-neutral affixes and where they fit in the overall structure of derived words in Urdu. It examines the features and behaviours of Urdu affixes as they connect to or insert into roots/bases to generate new words, challenging the assumptions of LM. We randomly extracted nine hundred eighty sample words from our observations, articles in Urdu newspapers, and Urdu news television stations in Pakistan. LM is very helpful for analyzing neutral and non-neutral affixes, but the way it thinks about the hierarchical structure of affixes in derived word formations doesn't match up with how Urdu words are put together. This work represents an initial attempt to formulate a theory regarding the morphology of derived words in Urdu, a language that has not received much theoretical scrutiny in this field.
Keywords: Morphology, derivation, lexical, Urdu, Pakistan

Introduction
This study primarily investigates whether the general derivational behaviour of words in Urdu corresponds with the theoretical principles of lexical morphology (LM), which were developed based on the general derivational and inflectional behaviour of words in English. This paper aims to assess the issue by examining the following three questions: Which affixes in Urdu are neutral and which are non-neutral? Are neutral and non-neutral affixes hierarchically arranged, as the theory posits, within a derived word construction that encompasses both types of affixes? Do the overall derivational properties of Urdu words pose any problems to the theoretical assumptions of language models? This paper analyzes the characteristics of affixes (prefixes, suffixes, infixes, intermixes, circumfixes, and transfixes) in Urdu from the perspective of LM, emphasizing their influence on the consonant, vowel, and stress components of root words during derivational and inflectional processes and highlighting the elements that the theory needs to address.

Literature Review
Urdu exhibits a distinctive approach to word formation, utilizing affixes, roots,

and stems from Arabic, Persian, and native Urdu origins and organizing them into derivatives in a manner distinct from English. The morphological structures in Urdu, recognized as a whole entity, are a synthesis of the morphological components obtained from these three sources (Mangrio 2016:1).

Linguists often see Urdu and Hindi as the same languages due to their similar phonological processes (ibid). Sanskrit is considered the ancestor of both languages; however, Persian and Arabic heavily influence Urdu, while Sanskrit is the origin of Hindi. As a result, both languages exhibit variations in several lexical, morphological, and phonetic dimensions, while sharing many common traits (ibid). India, Bangladesh, Afghanistan, and Nepal, as well as South Asian expatriates worldwide, widely speak Urdu, the official language of Pakistan. Over the past ten years, research on syntactical, lexical, and morphological integration, along with code-switching in Urdu, has significantly progressed (Ahmed & Hautli, 2015; Khan, 2020; Malik, 2017; Raza, 2015). However, it is surprising that there has been a lack of research to produce a theoretical analysis of the language's word morphology, which obstructs the aims of this paper. As a result, we will utilize the theory (LM) that has been previously implemented in English in prior studies (Katamba 1993, Kaisse & McMahon 2011, Kiparsky 1982). This study cites the descriptive research on Urdu by David, Maxwell, Browne, and Lynn (2009) and Mangrio (2016). This research analyses a sample of 980 derived words in Urdu to investigate the characteristics of affixes and their hierarchical structure in words from stratum 1 and stratum 2 (Nawaz et al.,2024). The researchers, who are native Urdu speakers in Pakistan, randomly selected the sample words from their observations, articles in Urdu newspapers, and broadcasts from Urdu news television networks in Pakistan. We made a significant effort to collect a sample that included a varied array of affixes typically used in the construction of derived phrases in Urdu. Although we recognise the Persian, Arabic, or Sanskrit roots of the affixes, we emphasise the examination of their usual influence on the root word during the derivational process and their structural positioning within the derived word in Urdu.

The study ends with general conclusions about the morphological structure of derived words in Urdu. These conclusions are based on the features of sample affixes and where they are organised in the morphology of these words. However, it does not claim to have included all affixes and structural complexities in the derivations. This work is an initial phase in the theoretical examination of the morphology of derived words, underscoring the need for further research to formulate a more comprehensive theory that fully clarifies the morphological structure of derived words in Urdu.

Lexical Morphology/Phonology

Lexical Morphology and Phonology One may refer to the theory of lexical morphology/phonology as lexical morphology (LM), lexical phonology (LP), or both lexical phonology and morphology (LPM). In this theoretical paradigm, the complete word, rather than the morpheme, functions as the primary unit of morphological analysis. Focusing on individual words as the analytical unit aligns with the word-based approach.The morphological frameworks of American structuralists, where the morpheme serves as the principal unit of analysis, contrast with traditional pre-structuralist models of morphology and modern word-and-paradigm morphology. LM classifies English affixes into two

main categories according to their phonological behaviours: neutral affixes and non-neutral affixes. Neutral affixes do not alter the phonological structure of the base they attach to. These examples are from English because the theory was based on English during its development. Examples from Urdu will be given in the analytical section. In English, the adjective abstract (adj.) [ˈabstrakt] changes into the noun abstractness (n.) [ˈabstraktnəs] by adding the suffix [-ness]. There are no noticeable changes to the consonants, vowels, or stresses. [-ness] functions as a neutral morpheme. However, non-neutral affixes alter the consonant or vowel segments, as well as the stress placement in the base they attach to (Katamba, 1993). For example, grammar (n.) [ˈgramə] evolves into grammarian (n.) [grəˈmeːrɪən] by the incorporation of the suffix [-ian], leading to modifications in the vowel segments and stress patterns of the root. Thus, [-ian] is a non-neutral morpheme. The core principle of lexical morphology asserts that a derived word organises its morphological components into a series of hierarchical levels (Allen 1978, Halle & Mohanan, 1985; Katamba, 1993; Kiparsky, 1982). In a multi-layered derived or inflected word, non-neutral affixes, referred to as stratum 1 affixes, are located closer to the root than neutral affixes, known as stratum 2 affixes. This indicates that the inner layer contains stratum 1 affixes, while the outer layer of the derived or inflected phrase, which includes both affix types, contains stratum 2 affixes. The term competitiveness (n.) [kəmˈpetɪtɪvnəs] features the non-neutral prefix [-tive] positioned closer to the root than the neutral suffix –[ness]. In 1982, Kiparsky said that the first layer is made up of irregular inflectional forms (like see ~ saw (past tense)) and derivational affixes (like long (adj.) ~ length (n.)). The second layer is made up of regular derivations (like kind (adj.) ~ kindly (adv.)) and compounding affixes and the third layer is made up of regular inflectional forms (like walk ~ walked (past tense)). Katamba (1993) reduces lexical strata to two, positing that all irregular inflexion and derivation transpire at stratum 1, whereas regular derivation, inflexion, and compounding occur at stratum 2. A crucial premise of the theory is that a symbiotic relationship exists between the morphological and phonological rules that regulate the formation of a word. The principles guiding word structure intertwine with the regulations dictating word pronunciation, and each derivation layer's output must produce a prospective word that adheres to the language's well-formed rules. Each layer of derivation must conform to the phonological rules governing the pronunciation of the resulting term. The lexical rules of LM require the identification of the class of the affected bases, the affix being affixed, the exact point of attachment, the class of the resultant word, the stratum of the affix, and its characteristics. Katamba (1993) references critics like Goldsmith (1990) who challenge the claims of LM, arguing that a single affix may simultaneously belong to two strata. Critics challenge the idea due to the lack of consensus among its proponents regarding the precise number of strata within a word. Counterevidence to the principle of stratum ordering within a word presents a substantial challenge to the concept. Further research challenges numerous aspects of the concept, yet it persists.It is notable "for its legacy of conceptual frameworks concerning phonology and for innovative applications that incorporate it with Optimality Theory [OT]" (Kaisse & McMahon 2011: 1). Optimality Theory (OT), which is mostly about phonology, says that patterns in language come from finding the best way to handle competing constraints, candidates, and conflicts (McCarthy, 2007). This study seeks to examine the

derivational characteristics of affixes in Urdu, emphasizing their classification as neutral or non-neutral and their customary hierarchical placement within multi-layered derived terms while adhering strictly to the application of LM principles. The morphology of Urdu words and their related complexities have not been the subject of any research. Urdu contains a significant variety of affixes, originating from multiple linguistic sources, for word construction. The irregular inflexion pattern in English is less common than in Urdu, which includes infixes and suffixes derived from Arabic and Persian. Due to their markedly different structure from the base word, this leads to an increased quantity of irregularly inflected words, more precisely categorised as derived rather than simply inflected. Examining the characteristics of affixes in Urdu, especially their influence on the morphology and phonology of the corresponding root, along with their hierarchical organization within a multi-layered word while adhering to well-formedness constraints, requires the use of lexical morphology and optimality theory; subsequent theoretical investigations into Urdu morphology should focus on this dimension. Given the seemingly distinctive morphology and phonology of Urdu and the dominance of English-language research in the evolution of the theory, it is crucial to examine whether the analytical application of LM to Urdu substantiates its core principles. The two languages demonstrate considerable differences in their dependence on infixes and interfixes for word construction. In English, the number of root words fragmenting to form new words is somewhat lower and exhibits different characteristics compared to those in Urdu. Thus, one objective of this study is to investigate the possible theoretical impediments to LM and suggest improvements to the theory that incorporate Urdu.

Objectives of the Research Study
- To identify and classify neutral and non-neutral affixes in Urdu derivational morphology.
- To examine whether neutral and non-neutral affixes in Urdu show a hierarchical organization in the formation of derived words, as predicted by Lexical Morphology theory.
- To analyze whether the derivational patterns in Urdu challenge or support the theoretical assumptions of Lexical Morphology.

Research Questions of the Study
1. Which affixes in Urdu are neutral and non-neutral?
2. Are these neutral and non-neutral affixes organized hierarchically (as the theory supposes them to be) in a derived word-formation that contains both of these types of affixes)?
3. Do the general derivational behaviors of words in Urdu pose any challenge to the theoretical assumptions of LM?

Research Methodology
This paper analyses the morphology of derived words in Urdu by applying the theoretical assumptions of lexical morphology. The paper has a two-pronged agenda: to analyze the words according to the LM theory and to check whether the claims of LM cover the morphology of derived words in Urdu. The researchers randomly selected 500 sample words from articles in Urdu

newspapers and Urdu news television channels in Pakistan. The researcher is both an observer and an active participant in the process of data collection. Data collection, coding, identification of patterns in the data, and analysis occurred continuously and recursively throughout this study. Throughout the study, we had to adjust the questions and boundaries to align with the emerging patterns in the data. Finally, this paper identifies neutral and non-neutral affixes and analyzes their properties in Urdu, based on the morphological patterns found in the collected data and the theoretical assumptions of LM. Secondly, this paper examines the hierarchical positions of neutral and non-neutral affixes within the words.

The analysis of both types aligns with the theoretical assumptions. Thirdly, the morphology of Urdu words highlights the challenges to LM claims. Thus, this paper is a descriptive, exploratory, and interpretive study.

It is crucial to emphasize that this paper solely examines non-neutral affixes that significantly impact the root words. This implies that these affixes, during the derivation process, can lead to the addition, deletion, replacement, or mutation of a consonant or vowel segment, as well as a shift in stress within the root or base word. Katamba (1993) has also attempted to look at such drastic changes caused by non-neutral affixes in derived words in his study of lexical morphology.

Analysis and Discussion

Most affixes in Urdu predominantly feature long vowels, possess significant weight, and typically either alter the emphasis or induce changes in the consonants or vowels of the root word. Considering the concepts of neutral and non-neutral affixes, identifying numerous affixes and their hierarchical structure is quite straightforward. Nevertheless, certain affixes do not demonstrate consistent behavioural patterns and hence require analysis of their associations with various bases. The suffixes in Table 1 may be classified as neutral, except -gi and -pən, which exhibit dual behaviours (refer to Table 3), as they do not significantly alter the root word upon attachment. The suffix [-gi] functions neutrally when affixed to a base that does not terminate in [-ɑ(h)]. Likewise, the suffix [-pən] functions neutrally when affixed to a base that does not terminate in [-ɑ/i]. However, when [-gi] is affixed to a base terminating in [-ɑ(h)], significant alterations transpire due to the elimination of the terminal vowels to form new lexemes.

Suffixes	Attach to	Output
- ẽ N. Pl.	[[kɪˈt̪ɑb N] ẽ] N. Pl.	kɪˈt̪ɑbẽ N.Pl
- kʊn Adj	[[hɪˈrɑn Adj] kʊn] Adj	hɪˈrɑnkʊn Adj
-t̪ər Adj	[[ˈt̪ez Adj] t̪ər] Adj	ˈt̪ezt̪ər Adj
-gi N	[[bənd̪ ɑ(h) N] gi] N worshiper [[zɪndɑ(h) Adj] gi] N alive [[hɪrɑn Adj] gi] N astonished	bənd̪ gi N worship zɪndgi N life hɪrɑngi N astonishment

| - pən N | [[ləʈka/i N] pən] N. boy/girl [[pɑgəl Adj] pən] N. mad | ləʈkpən N adolescence pɑgəlpən |
| -mənd̪ Adj | [[ˈsehət̪ N] m ə n d̪] Adj health | ˈsehət̪mənd̪ Adj healthy |

The suffixes [- ẽ], [- kʊn], [- ʈər], and [mənd̪] in Table (1) are classified as neutral suffixes, as they do not significantly alter the consonant, vowel, or stress components of the base words to which they are affixed. The nominal plural marker [-ẽ] predominantly functions as a suffix for Urdu nouns that do not terminate in a long vowel [-ɑ] or [-i]; nouns concluding with [-ɑ] or [-i] typically adopt [-e] or [ɪjã] for pluralization. n.e. [-kʊn], [-ʈər] aaand [mənd̪] can be suffixed to form adjectives from the bases to which they are affixed, without omitting or substituting any morphological elements of the bases. The semantic and categorical alteration of the underlying word will not render the connected affixes neutral or non-neutral. The morphological alteration in the base resulting from affixation determines whether the affixed element is neutral or non-neutral.

Nonetheless, several affixes in Table (2) are difficult to distinctly classify as either neutral or non-neutral due to the intricacy of their syllabic stress. These affixes incorporate lengthy vowels and may create the illusion of a stress shift when affixed to the base. The identification and localization of primary stress is challenging due to the diverse dialects of Urdu, the existence of multiple stressed syllables within a word, and the lack of theoretical research on this aspect of word structures.

Table 2: Neutral, Non-neutral and Complex Affixes

Affixes	Attached to	Output
- d̪ar N	[[d̪ʊˈkan N] d̪ar] N Shop	d̪ʊˌkanˈd̪ar N Shopkeeper
-in N. Pl.	[[ˈsɑrɪf N] in] N. Pl. User	sɑrɪˈfin N. Pl. Users
- in Adj	[[ˈt̪ezt̪ər Adj] in] Adj fastest	t̪ezt̪əˈrin Adj fastest
-dʒat̪	[[kəmˈra(h) N] d ʒ a t̪] N. Pl Room	kəmra(h)ˈdʒat̪ N.Pl. Rooms
- an N. Pl.	[[ˈmʊlzəm N] an] N.Pl. Accused	ˌmʊlzəˈman N. Pl. Those who are accused
-ɪjat̪ N	[[ɪsˈlam N] i j ɑ t̪] N.Pl. Islam	ɪsˌlamɪˈjat̪ N Study of Islam
-at̪ N.Pl	[[t̪ʊəˈlləq N] at̪] N.Pl relation	t̪ʊəˌlləˈqat̪ N.Pl. Relations
-ana Adj	[[ˈzalɪm Adj] ana]Adj Tyrrant	ˌzalɪˈmana Adj Tyrannical
la- Adj	[[la] ɪlm N] Adj knowing/knowledgeable	ˈlaɪlm Adj without knowledge
ba- Adj	[[ba] əməl N] Adj active	ˈbaəməl Adj person of action
ɣer- Adj	[[ɣer] hazɪr] Adj present	ˈɣerhazɪr Adj absent
na- Adj	[[na] mɑlum] N known	ˈnamɑlum Adj/N unknown

Katamba (1993) found in his analysis of English that neutral or non-neutral affixes share certain properties regarding their effect on the root to which they attach. The affixes in Table 2 share a similar behavioural property when attached to a root word. They all take a long vowel, which attracts syllabic stress. This

stress shift effect allows us to classify them as non-neutral, stratum 1 affixes. When there is more than one syllable of almost maximum weight in a word, the last syllable takes the main word stress (Bernard, 1990, cited in Nayyar, 2002). The suffix [-ɖ̯ɑr] usually attaches to noun bases at stratum 1 to make them into an adjective or another noun. When -in suffixes are used with a noun, they result in pluralization, while when they are used with a comparative adjective, they produce a superlative adjective. [-dʒɑt̯], [- ɑn], and [-ɑt̯] usually attach to singular noun bases to pluralize them. The plural marker suffix [-ɑt̯] causes more changes than just attracting the stress in root words ending in [-ɑ(h)], e.g., t̯əbqɑ(h) ~ t̯əbqɑt̯. The process of pluralization deletes the aspiration or glottal fricative [-h]. However, the pharyngeal fricative [-ħ] sound (e.g., ɪslɑh ~ ɪslɑhɑt̯) remains and takes on the word stress in the plural noun. The morphological behaviour of the nominal marker [- ɪjɑt̯] is also generally predictable. Most of the time, it attaches itself to singular nouns, transforming them into the names of certain branches of knowledge and altering the word stress. However, a noun that ends in a voiceless dental stop [-t̯] brings more drastic changes by breaking the base of the word, e.g., səˈhulət̯ ~ səˌhulɪˈjɑt̯. Though semantically different, the prefixes in Table 2 also exhibit similar morphological and phonological behaviour, attracting word stress. Based on their properties, we can classify all the affixes in Table 3 as non-neutral, stratum 1 affixes.

Table 3: Neutral, Non-neutral and Complex Affixes

Suffixes	Attach to	Output
gi N	[[bənɖ̯ ɑ(h) N] gi] N worshiper [[zɪndɑ(h) Adj] gi] N alive [[hɪrɑn Adj] gi] N astonished	bənɖ̯ gi N worship zɪndgi N life hɪrɑngi N astonishment
- gɑn N.Pl	[[nmɑɪnɖ̯ ɑ(h) N] gɑn] N Representative	nmɑɪnɖ̯gɑn N.Pl Representatives
- e N.Pl	[[ləɽkɑ N] e] N.Pl boy	ləɽke N.Pl boys
- ɪjɑ̃ N.Pl	[[ləɽki N] ɪjɑ̃] N.Pl girl	ləɽkɪjɑ̃ N.Pl girls
- pən N	[[ləɽkɑ/i N] pən] N. boy/girl [[pɑgəl Adj] pən] N. mad	ləɽkpən N adolescence pɑgəlpən N madness
- zɑ(h) N.Pl	[[ʊst̯ɑɖ̯ N/Adj] zɑ(h)] N.Pl teacher	ʊsɑt̯zɑ(h) N.Pl teachers

The suffixes in Table (3) are characterised by their ability to effectuate significant alterations by the deletion or truncation of consonant/vowel segments in root words, so generating new nouns that often signify a state or circumstance, which are often pluralised. Nonetheless, [-gi] and [-pən] function as neutral when affixed to a base that does not conclude with [-ɑ(h)]. The plural marker suffix [-g[ɑ(h)]] from [nmɑɪnɖ̯ɑ(h) N] forms [nmɑɪnɖ̯gɑn]. The behaviour exhibited by [-gɑn] induces significant alterations in the root word, rendering the suffix non-neutral. Likewise, [- e] and [- ɪjɑ̃] eliminate [ɑ] and [i] respectively from the bases to pluralise masculine and feminine nouns, rendering them non-neutral. The suffix [-zɑ(h)] serves to pluralise the root.

Table 4: Non-neutral Affixes

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Infixes/transfixes/circum fixes	Insert in	Output
-ɑ- and - ɪ-	[[əməl N] ɑ] N.Pl. action [[h ə ḍəf N]] N.Pl. target	əmɑl N.Pl. actions ɪhḍaf N.Pl. targets
-ə - and -vɑ-	[[bɑb N] ə and vɑ] N.Pl. door/chapter	əbvɑb N.Pl. doors/chapters
-u-	[[rəsəm N] u] N.Pl. tradition [[hɑsɪl N] u] N achievement	rəsum N.Pl. traditions həsul N achievements
-ɑɪ-	[[ʃərt̪ N] ɑɪ] N.Pl. condition	ʃərɑɪt̪ N.Pl. conditions
-i- and -vɑ-	[[xɑt̪un N] vɑ and i] N.Pl. Lady	xvɑt̪in N.Pl. ladies
əm- and -ɪja	[[nəbi N] əm and ɪja] N.Pl prophet	əmbɪja N.Pl prophets

The infixes [-ɑ], [-ɪ], [-u], [-ɑɪ], [-i], and [-vɑ], transfixes [-ə] and [-vɑ] (as in əbvɑb), and circumfixes [-əm] and [-ɪja] in table (4) modify single noun bases primarily to form plurals or, in certain instances, create an alternative noun devoid of singular or plural connotations (e.g., hɑsɪl ~ həsul. Due to their significant alterations to root words, they are classified as non-neutral, stratum 1 affixes. Katamba (1993) examined English affixes that disrupt the base to generate a new word, designating the disrupted bases as 'ablaut' and 'umlaut'. Ablaut denotes the alteration of a root vowel (aɪ ~ əʊ) in terms such as ride [raɪd] and rode [rəʊd]. Umlaut refers to the fronting of a vowel when the subsequent syllable has a front vowel. The processes of base breaking, infixing, circumfixing, and transfixing in Urdu are predominantly executed using affixes derived from Arabic sources. The origin of the affixes adopted by Urdu is inconsequential; nonetheless, their resultant alterations are significant. These modifications cannot be examined using ablaut and umlaut methodologies due to the fundamentally distinct behaviours of Urdu and English bases regarding their derivational processes. Furthermore, ablaut and umlaut vowel alternation patterns originate from ancient Indo-European language practices, of which English is ultimately a descendant.

Table 5: Geminate Affixes

Suffix	Attach to	Output
ɪjjət̪ N	[[həˈsɑs Adj] ɪjjət̪] N sensitive [[ɪlˈmi Adj] ɪjjət̪] N educational	həsɑsɪˈjjət̪ N sensitivity ɪlmɪˈjjət̪ N being educational

The suffix [-ɪjjət̪] in Table (5) is geminate and distinctly attracts word stress. It typically affixes to adjective bases/stems to transform them into abstract nouns denoting a condition, state of being, or scenario. If the root word concludes with [−i], it substitutes or abbreviates it. Consequently, [-ɪjjət̪] is a non-neutral, stratum 1 affix.

Table 6: Complex Affix -i

Suffix	Attach to	Output

-i Adj	[[ɪlm N] i] Adj knowledge [[ɪnsɑn N/Adj] i] Adj human [[lɪˈsɑn N] i] Adj language	ɪlˈmi Adj knowledgeable ɪnsɑˈni Adj humanely lɪsɑˈni Adj linguistic

Unlike its behaviour in Table (4), where it breaks the base as an infix, [-i] in Table (6) is used as a suffix to produce an adjective from a monosyllabic and or disyllabic noun base. It attracts the stress onto the last syllable and is, thus, a non-neutral, stratum 1 suffix.

Stratum Ordering
The following abbreviations (adopted from Katamba (1993) 'r', 's1' and 's2' stand for 'root', 'stratum1 affix' and 'stratum 2 affix' respectively.

[r]	b. [[r]s1]	c. [[r]s1+s1]	d. [[r]s1+s1+s1]
mɑhol	- ɪˈjɑt̪	mɑhol-ɪˈjɑˈt̪-i	
d̪ərˈɑməd̪	d̪ərˈɑməˈd̪-ɑt̪	d̪ərɑməˈd̪-ɑˈt̪-i	
zɪmɑ(h)	zɪmɑ(h)-ˈd̪ɑr	zɪmɑ(h)-d̪ ɑˈr-i	zɪmɑ(h)-ˈd̪ɑr-ɪˈjã

By the fundamental principle of Lexical Morphology, a derived term composed of neutral and non-neutral affixes assigns the non-neutral affix to stratum 1 (i.e., proximal to the root) and the neutral affix to stratum 2 (i.e., distal from the root) within its structural hierarchy. Nevertheless, in the preceding situations, the non-neutral suffixes in (b) induce alterations in the roots by shifting the stress, but in (c), the second suffix (-i) consistently functions as a non-neutral suffix, positioning the stress of the base word on the final syllable. In a polysyllabic word, the final stress typically receives greater emphasis (Bernard, 1990). The examples illustrate how successive layers of suffixes from the same stratum, whether preceding or succeeding, influence the root or base word. -i is positioned distant from the root when additional non-neutral suffixes are affixed to the root initially. A discernible pattern emerges in the multi-suffixed, derived words within the data: the non-neutral suffix -I, instead of a neutral suffix (as per the fundamental principles of LM), serves as the second layer of suffix attached to a noun base, transforming it into an adjective, or, when affixed to an adjective base, altering its classification to that of a noun. The plural marker suffix -ɪjã in 'd' above may also be seen as an additional layer of non-neutral suffix that significantly influences the root word. The prefix [ɣer] constitutes a non-neutral affix, as its distinct stress pattern indicates the negative connotation of the base. Stress on the final syllable (even following several stresses) may preferentially transfer to prefixes (such as lɑ, bɑ, nɑ, ɣer, etc.) containing long vowels, which can occasionally provide negative or, at other times, positive adjectival indicators.

In the examples mentioned above, it might be contended that a stratum 2 affix was absent, which is crucial to the hierarchical concept of LM.
  Therefore, see the following example:

[r]	b. [[r] s2]	c. [[[r] s2] s1]
ˈsehət̪	ˈsehət̪mənd̪	sehət̪mənˈd̪i

This example unequivocally contradicts the Lexical Morphology assumption

concerning the hierarchical arrangement of affixes in a word comprising both neutral and non-neutral affixes. A stratum 2 (neutral) suffix (i.e., mənd) precedes a stratum 1 (non-neutral) suffix (i.e., i). Katamba (1993) has presented analogous difficulties to LM's presupposition of hierarchy, citing the following example. English term

a. [r]	b.[[r] s2]	c. [[[r] s2] s1]
ˈriːd	ˈriːdəbl	riːdəˈbɪlɪti

Nevertheless, comparable problematic instances in English are scarce; the majority of affixes in English conform to LM's predictions. The principal challenge to LM theory in Urdu arises from syllabic stress, as reported in this paper based on spoken Urdu in Pakistan and studies by Nayyar (2002), Bernard (1990), and Katamba (1990), which refute LM's fundamental assumption concerning the hierarchy of affixes within a word containing affixes from both strata. This difficulty regarding syllable stress primarily arises when suffixes with long or heavy vowels are appended to bases that follow stratum 2 suffixes, which consequently tend to draw the word stress and truncate the previous long vowels. The difficulty is not in the convergence of a specific suffix inside a multi-layered word, but rather in the occurrence of a non-neutral suffix succeeding a neutral one in the hierarchical structure and proximity to the root of the suffixes. LM theory posits that non-neutral suffixes are positioned nearer to the root than neutral suffixes, a phenomenon that is not observed in the aforementioned Urdu examples, particularly in instances when the affixes induce a shift in word stress.

Conclusion
This research indicates that the morphological structure of derived words in Urdu only partially aligns with the principles of Lexical Morphology theory, based on an analysis of the data from a theoretical perspective of lexical morphology. The theory aids in analysing neutral and non-neutral affixes; nevertheless, its assumptions on the hierarchical arrangement of affixes in derivational word forms do not align with the morphology of Urdu words. Although the morphological structure of Urdu adheres to certain fundamental principles concerning affix types, it presents significant difficulties to the other core assumption involving the hierarchical arrangement of non-neutral and neutral affixes inside a word that encompasses both categories. LM is highly effective in discerning the neutrality and non-neutrality of affixes concerning their behavioural characteristics. However, the hierarchical structure predicated on proximity to the root, as posited by the theory, is not evident in numerous multi-layered derived terms. Theoretical problems with the hypothesis mostly arise from the elongated and substantial (stress-attracting/shifting) vowels in numerous suffixes and prefixes. The complexity increases when the non-neutral, long front vowel suffix [-i] combines with another non-neutral suffix at the base, preventing the attachment of any stratum 2 suffix (although an additional stratum 1 suffix may attach). Non-neutral suffixes in numerous words are contiguous without any stratum 2 suffixes following them; [-i] is typically regarded as the second adjacent suffix, functioning as either an adjective or noun marker. A multitude of instances from the sample data exhibit many levels of suffixes. Nonetheless, none possessed the expected hierarchical structure of neutral suffixes succeeding non-neutral ones. Conversely, in terms such as [sehəʈmənd̪ i] or [sehəʈmənd̪ ɑnɑ], the inverse of the hierarchical assertion

fundamental to LM is evident. Due to the presence of prolonged and heavy vowels, including geminates such as [-ɪjjət̪], prevalent in numerous Urdu affixes, and the significant occurrence of derived words resulting from the segmentation of the root, the assumptions regarding hierarchical strata are inapplicable to Urdu. Consequently, the theory requires reevaluation based on the properties examined in this study.

Limitations and Implications

This work represents one of the early endeavors by researchers to examine, analyze, and interpret the morphology of derived words in Urdu from a theoretical standpoint, aimed at either corroborating or contesting LM theory; thus, various aspects can be enhanced. A significant quantity of affixes in Urdu is employed to generate new lexemes. This work has endeavored to examine the characteristics and placement of the most commonly utilized affixes. Nonetheless, numerous additional items require inclusion. A more thorough theory is required to encompass the lexical morphology of Urdu, based on the assumptions of LM and the typical patterns observed for the characteristics and organizational location of the affixes in question. Future studies should expand the data sample to encompass a broader range of affixes and their morphological placements. The research may also assist in evaluating the extent to which LM presuppositions are corroborated by data from other Indo-Aryan languages.

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