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A Study of Nominal Formation in Urdu: A Lexicalist Morphological Account

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ABSTRACT

This study examines the structure of deverbal nominalization in Urdu and reveals that it follows a distinctive two-step morphological process, unlike English. Urdu typically forms nouns by first applying backformation—removing the infinitive suffix -na to obtain a verbal root—and then adding a nominalizing suffix (e.g., xəri:d-na → xəri:d + -a:ri → xəri:da:ri 'shopping'). This productive pattern is captured in the rule: [Verb + -na → Root → Root + Nominal Affix → Derived Noun]. A secondary, less common pattern involves nominalization through backformation alone, without additional affixation (e.g., dʒi:t-na → dʒi:t 'victory'), formalized as an independent rule. Adopting a Lexicalist framework, the study analyzes six Urdu nominalizing processes—backformation and the suffixes -ən, -a:n, -a:i, -vəʈ/-həʈ, and -a:o. All operate within the lexicon, generating new lexical entries with specific syntactic and semantic features rather than deriving meanings compositionally in the syntax. The resulting nouns display semantic divergence, allomorphic variation, and morphophonological irregularities, reinforcing the view that they are stored as idiomatic forms. Overall, the findings provide the first unified, theory-driven account of Urdu deverbal nominalization. The consistent two-step pathway—backformation followed by derivational suffixation—supports a Lexicalist rather than syntactic model. By formalizing the process algebraically and treating Urdu nominalization as a root-and-pattern-like

system, the study offers new empirical generalizations and a typologically novel perspective on Indo-Aryan morphology.

1. INTRODUCTION

According to the Lexicalist hypothesis, Chomsky posited that syntactic transformations can only operate on syntactic constituents (Chomsky, 1970). He stated:

"The system of grammar that assembles words is separate and different from the system of grammar that assembles phrases out of words."

(Chomsky, 1970: pp. 1-4)

Before the introduction of the 'Lexicalist hypothesis', complex words in language were understood as derived through transformations, a concept known as the 'transformationalist approach', which was proposed by Robert Lees in his seminal work, 'The Grammar of English Nominalization', in 1960. In the Lexicalist hypothesis, Chomsky refuted Lees's proposition and argued that derived nominals are not derived transformationally, but from the base structure itself. Hence, the Lexicalist perspective came as a response in generative enterprises to generative semanticians who used transformations in the derivation of complex words. Hence, this study is founded on two elaborations: one proposed by Lees (1960), which is 'transformationalist', and the other by Chomsky (1970), which is 'Lexicalist'.

Informed by lexicalist morphology, this study presents a procedure for evaluating the lexical-morphological system of Urdu to identify appropriate forms. Abstractly, it is clear that, under a radical and quite useful idealization, we can think of language learning as the process of selecting a grammar of appropriate form that relates word and meaning in a way consistent with the available data (see Chomsky, Jacobs, and Rosenbaum, 1970). If we do this, it will be highly valuable for evaluation measures compared to any grammar that meets these empirical conditions.

Chomsky's *'Lexicalist Perspective'* emerged as the '*Standard Theory'* in 1965, which was later revised into '*Extended Standard Theory'* in 1973. However, Chomsky introduced the idea of Lexicalism while doing the morphophonemic analysis of Modern Hebrew, that idea began to expand between '*Syntactic Structures'* (Chomsky, 1957) and '*Aspects of the Theory of Syntax'* (Chomsky, 1965), and by the late 1960s, it developed in the '*Sound Pattern of English'* (Chomsky & Halle, 1968) and finally in '*Remarks on Nominalization'* (Chomsky, 1970). Since the theoretical relevance of lexicalism both

predates and follows from Aspects (1965), this study used the 'Lexicalist Position' to schematize the point of reference throughout the preceding work.

2. BACKGROUND OF THE STUDY

In linguistics, "*Nominalization"*, also known as *"Nouning"* (Macmillan Dictionary), is the process of forming a noun either from an adjective or a verb at the morphological level, or using a word as a noun that is not originally a noun, or using it as the head of a noun phrase at the functional level. This change in functional category often results from morphological transformation, but it does not apply universally. After nominalizations, the noun we get is called "Nominal," and the process is called "Nominalization." Nominalization can also be referred to as the process of creating a noun from another part of speech by adding a derivational affix; for example, in English, the noun *"education"* from the verb *"educate"*, similarly, in Urdu, the noun */pæda:va:r/* 'production' from the verb */pæda: kərna/* 'produce', and the noun */xəri:da:ri:/* 'shopping' forms the verb */xəri:dna/* 'buy'. However, it can also refer to the formation of complex nouns as well (Lieber, 2018). Therefore, nominalization can be defined as the process of producing a noun from another parts of speech (specially from adjective, verb and adverb) by adding a formative affix, like, for example; the noun *"authorization"* from the verb *authorizes*, the noun *"holiness"* from the adjective *holy*, the noun *"earliness"* from the adverb *"early"* (Kolln, 1998).

2.1 Structure of Nominals in Urdu

In Urdu, the structure and process of nominalization differ significantly from those in English. In Urdu, Nominalization precedes "Backformation" (the removal of the part of the word that looks like an affix). That is, first a simple verb is back-formed into a root, then the nominal affix is added to form a noun. For example, the noun */xəri:da:ri/* 'shopping' is derived by removing the verbal affix *'-na'* from the verb */xəri:dna/* and making it */xəri:d/* then by adding the nominal affix *'-a:ri'*; the noun */hə̃si:/* 'laughter' is derived by removing the verbal affix *'-na'* from the verb */hə̃sna/* and making it */hə̃s/* then by adding the nominal affix *'-i:'*. Similarly, most of the pure Urdu nominals are derived in this way. This can be structurally represented as:

/xəri:dna/ $_{\text{verb}}$ Δ /xəri:d/ $_{\text{back-formed root}}$ + /-a:ri/ $_{\text{nominal affix}}$ → /xəri:da:ri/ $_{\text{noun}}$ 'shopping.'

/hə̃sna/ $_{\text{verb}}$ Δ hə̃s $_{\text{back-formed root}}$ + /-i:/ $_{\text{nominal affix}}$ → /hə̃si:/ $_{\text{noun}}$ 'laughter'

/silna/ $_{\text{verb}}$ Δ /sil/ $_{\text{back-formed root}}$ + /-a:i:/ $_{\text{nominal affix}}$ → /sila:i:/ $_{\text{noun}}$ 'sewing'

/c^{h}unna/ $_{\text{verb}}$ Δ /c^{h}un/ $_{\text{back-formed root}}$ + /-a:o/ $_{\text{nominal affix}}$ → /c^{h}una:o/ $_{\text{noun}}$ 'election'

/sədʒa:na/ $_{\text{verb}}$ Δ /sədʒ/ $_{\text{back-formed root}}$ + /-a:vət/ $_{\text{nominal affix}}$ → /sədʒa:vət/ $_{\text{noun}}$ 'beautification'

From the above structural representation, in Urdu, we can algebraically formulate a rule for nominalization in the following way:

$$[X_r - /\_ /na_{va} \Delta R_{bf} + A_{nm} = RW(-A_n) \rightarrow NOM_{dv}]$$

However, in some cases, a noun is derived only through backformation, for example, the noun */ji:t/* 'victory' from the verb */ji:tna/* 'to win' and the noun */ha:r/* 'defeat' from the verb */ha:rna/* 'to lose'. The nominals derived in this way are comparatively fewer than those of the above in Urdu. This can be structurally represented as:

/dʒi:tna/ $_{\text{verb}}$ Δ /dʒi:t/$_{\text{back-formed root}}$ → /dʒi:t/ $_{\text{noun}}$

/ha:rna/ $_{\text{verb}}$ Δ /ha:r/ $_{\text{back-formed root}}$ → /ha:r/ $_{\text{noun}}$

/ma:rna/ $_{\text{verb}}$ Δ /ma:r/ $_{\text{back-formed root}}$ → /ma:r/ $_{\text{noun}}$

/k^he:lna/ $_{\text{verb}}$ Δ /k^he:l/ $_{\text{back-formed root}}$ → /k^he:l/ $_{\text{noun}}$

From the above structural representation, another rule for nominalization can be formulated as:

$$[X_r -/\_ /na_{va} \Delta R_{bf} \rightarrow NOM_{dv}]$$

2.2 Formation of Noun from Verb

In Urdu, the nominals formed from a verb ("deverbal noun") differ in many respects. They differ in subcategorization and selectional restrictions. In this case, every nominal occurs in NP ([N–NP]) or within PP ([N–PP]) and subcategorizes some other NPs based on their lexical property as opposed to the verb, which occurs in VP and subcategorizes some other phrases like NP, PP, AP, and AdvP ([N/Ns–VP]). The number and type of phrases a verb subcategorizes depend upon the lexical property it possesses. The structure in which a noun is formed also differs from that of the verb from which it is formed. The nominals can only occur in an NP, not in a VP. Moreover, the nominals semantically correspond to the base structure itself, not to any other structure. In some cases, they also have idiosyncratic properties. That is, they do not correspond in meaning to the base from which they are formed. The sets of derived nominals below differ in many respects from the base verb from which they are thought to be derived. Hence, they cannot be assumed to be derived from the base verb through syntactic transformation; instead, they should be derived from the base structure itself and must be listed in the mental lexicon. They have been discussed in the following ways:

2.2.1 Derivation of Nominals from Verb through Backformation: Usually, Qualitative Nouns are formed in the following ways, and most of the verb roots (after dropping the infinitive marker) function as a qualitative noun. Consider the following examples.

Verb	Glosses	Noun	Glosses
/ha:r**na**:/	'loose'	/ha:r/	'lost'
/dʒi:t**na:/**	'win'	/dʒi:t/	'victory'
/ma:r**na:/**	'beat'	/ma:r/	'beating'
/bol**na:**/	'speak'	/bol/	'speech'
/fer**na:**-bədəl**na:/**	'to exchange'	/fer-bədəl/	'exchange'
/rok**na:**-tok**na:/**	'interfere'	/rok-tok/	'interference'

In Urdu, the Formation of nominals by dropping the infinitive marker is a kind of "backformation" where words are shortened to form nominals, and the clipped form looks like a regular affix, as we can see in the above examples in (1). Hence, we can say that, in Urdu, one process of forming nominals is backformation. Moreover, both the nominals and verbs differ from each other in many respects; The verbs subcategorize either one or two NPs as their argument based on their lexical properties, while the nominals take only one NP within a PP: [N–PP]. Every verb in the verbal set imposes selection restrictions on both its subject and object, assuming different theta roles in sentential use, while the nominals in the nominal set impose selectional restrictions, assuming theta roles different from the verb from which they are derived. The verbal set expresses an action, while the nominals in the nominal set express the state of an action. The verbal set subcategorizes a Subject NP, imposing a selectional restriction on it to assume the theta role of Agent, and an Object NP, imposing a selectional restriction on it to assume the theta role of Patient/Theme. At the same time, the nominals take only one NP, restricting it to assume the theta role of Possessor/Patient/theme/Experiencer based on their semantic property and the Phrasal structure in which they occur. What we observe is that the Lexical Property of a nominal (that is, meaning, grammatical category, its subcategory, selectional restrictions, etc., of a lexical item) is different from that of the verb from which it is thought to be derived. In this sense, we cannot assume the nominals to be derived from the base verb through syntactic transformation; instead, they should be derived from the base structure itself and hence must be listed in the mental lexicon.

By adding the formative suffix **-ən** to the verb root (after dropping the infinitive marker), we can derive the following nouns in Urdu.

Words	Glosses	Words	Glosses
/tʃəl**na:/**	'walk'	/tʃəl**ən/**	'behaviour'
/mər**na:/**	'die'	/mər**ən**/	'death'
/uta:r**na:/**	'take off'	/uta:r**ən/**	'taking off'
/qətər**na:/**	'cut'	/qətər**ən/**	'cutting'
/su:dʒ**na:/**	'swell'	/su:dʒ**ən/**	'swelling'
/be:lna:/	'roll'	/be:l**ən/**	'roller'

By adding **-a:i:** to the verb root (after dropping the infinitive marker), we can form the following nominals in Urdu.

Words	Glosses	words	Glosses
/ɖʱa:l**na:**	'mould'	/ɖʱəl**a:i:/**	'patterning'
/ʃʰi:r**na:**	'cleave'	/ʃʰir**a:i:/**	'cleavage'
/pi:s**na:**	'grind'	/pis**a:i:/**	'grinding'
/dʱul**na:**	'wash'	/dʱul**a:i:/**	'cleaning'
/sil**na:**	'sew'	/sil**a:i:/**	'sewing'
/rəŋ**na:**	'paint'	/rəŋ**a:i:/**	'painting'

LITERATURE REVIEW

Lexicalism, originating with Chomsky's *Remarks on Nominalization* (1970), marked a significant departure from the earlier generative and structuralist view that all linguistic units—words, phrases, and sentences—were formed through syntactic transformations. Pre-1970 American Structuralists and early Generative Grammarians (Chomsky, 1957; Scalise & Guevara, 2005) explained nominalizations, such as *"arrival" or "destruction,"* through syntactic derivations from verbal phrases, with irregularities

attributed to "omnipotent phonology." Chomsky challenged this view, noting mismatches between verbs and their derived nominals (e.g., *profess–professor–profession*; *motion* without *mote*). He thus proposed the Lexicalist Hypothesis, arguing that derivational morphology resides in the lexicon rather than in syntax. The lexicon, once viewed as a mere list of irregularities (Bloomfield, 1933), was redefined as a computational component governing word formation, governed by principles distinct from those of phrasal syntax.

Subsequent debate has centered on whether morphology and syntax are genuinely distinct. Ackema and Neeleman (2004) defended lexical inheritance, arguing that derived forms, such as "*driver"*, retain argument structure from their verbal bases. Barrie (2012), however, rejected such inheritance as evidence for a pre-syntactic word-formation module, although counterexamples like *"truck driver"* show retained verb–object relations within compounds.

Bruening (2018) critiqued the Lexical Integrity Hypothesis, contending that words are not impermeable to syntax. Similarly, Krauska and Lau (2023) described Lexicalism as a broad approach rather than a unified theory, grounded in two assumptions: (1) morphology and syntax are distinct generative systems, and (2) lexical items form triads of sound, meaning, and syntax (Jackendoff, 1975; Aronoff, 1976; Di Sciullo & Williams, 1987). Desjardins (2023) adopted a nuanced stance, acknowledging Lexicalism as both right and wrong in different respects, drawing on broader philosophical premises regarding words, sentences, and meaning.

Spencer (2018) elaborated a lexeme-and-paradigm model compatible with lexicalism, viewing lexemes as underspecified representations whose inflectional behavior is determined by their *morpho-lexical signature* (MORSIG). He demonstrated that derivation can alter these signatures, as seen in verb-to-adjective participles, highlighting the challenge of defining "lexeme-within-lexeme" structures.

Cross-linguistic and empirical studies extended these debates. Muhammad & Shehu (2017) applied both lexicalist and distributed approaches to Hausa morphology. Nivre (2016) adopted a lexicalist stance in Universal Dependencies, prioritizing lexical words as grammatical units across languages. Developmental evidence (Braginsky et al., 2015) further demonstrated a strong lexicon–grammar relationship across languages and age groups.

Barrie (2012) contrasted the Lexicalist Hypothesis with the Single-Engine Hypothesis, which unifies word and phrase formation under a single syntactic mechanism. Booij (2009) similarly argued for parallel but interacting morphological and syntactic modules, emphasizing implicational universals and

the *no-phrase* and *lexical integrity* constraints while acknowledging limited syntactic access to internal word structure.

Corbett and Baerman (2006) distinguished morphological from morphosyntactic features, demonstrating that morphological features express lexeme-specific inflectional requirements indexed through inheritance hierarchies, which give rise to cross-linguistic regularities. Giegerich (2005) further refined Lexicalism into "strong" and "weak" versions, maintaining a modular divide between lexical and phrasal syntax while admitting post-lexical morphology.

Williams (2004) described *information encapsulation* between the word and phrasal systems, in which the internal word structure is inaccessible to syntax. Jackendoff's *Parallel Architecture* (1997), reviewed by Ono (2001), sought to unify grammar and lexicon through "Lexical Licensing." Anderson (2000) contrasted syntactic and lexical approaches to Noun Incorporation, ultimately supporting a non-syntactic (lexical) account.

Briscoe and Copestake (1999) proposed default-based lexical rules that integrate inflectional, derivational, and conversion processes, while maintaining a principled distinction from syntactic rules. Conversely, Marantz (1997) argued that grammar could dispense with a separate lexicon altogether, with morphology and syntax arising from a single computational system.

Finally, Scalise and Guevara (1970) maintained that morphology and syntax are autonomous yet interacting modules, governed by the No-Phrase Constraint and the Lexical Integrity Hypothesis, and that the two domains exhibit partial yet structured interaction.

Thus, Lexicalism redefined the boundaries between syntax and morphology, positing that word formation occurs in the lexicon rather than through syntactic transformation. While early Lexicalist theories stressed strict modularity (Chomsky, 1970; Halle, 1973), subsequent work has nuanced this view, exploring varying degrees of interaction between morphology and syntax. Contemporary scholarship (e.g., Bruening, 2018; Spencer, 2018; Desjardins, 2023) views Lexicalism less as a fixed doctrine and more as a spectrum of theoretical positions addressing how words, syntax, and meaning interface in human language.

3. METHODOLOGY

3.1 Research Design: In the application of the Lexicalist Hypothesis, this study broadly followed the descriptive-qualitative approach to analyze the nominalization in Urdu. In analyzing the nominal

structure in Urdu, it devised representational rules using algebraic notions to provide a structural description of Nominals. At the same time, it was also discovered that Urdu exhibits a vivid case of the 'Root and Pattern' morphological system in its Nominalization. To account for the formation of nominals in Urdu, it adopted the Chomskyan view of Nominalization, as validated throughout the procedural steps followed in the nominal process.

3.2 Sampling Strategy: A simple random sampling strategy was used to select the items from standard books on Urdu grammar. The random sampling technique ensured that the researcher was a native speaker of the language under study and had direct knowledge and experience of it. This strategy prioritized simple, everyday Urdu words, as evidenced by direct observation.

3.3 Data Collection: The data were collected from three sources: books, magazines, and newspapers.

3.4 Techniques Used in Data Collection: The content analysis technique was used to collect the data from the said sources. Using this technique, the content of books, magazines, and newspapers was analyzed qualitatively. An objective and systematic description was provided after each content analysis, allowing it to be presented in further research. It provided more objective information while determining the characteristic features of problems arising from the context. It illustrated the actual content, such as words, which were considered the research unit's appearance.

3.5 Examples used in content analysis. The research drew on previously used and recorded examples from the specified sources, modifying them to suit the analysis and address the problem at hand, while preferring some structures over others.

3.6 Category Construction: The content of the data was categorized into three categories: simple, complex, and compound words. The construction categories reflected the central theoretical concepts on which the study was based. Among the types of categories used in content analysis, complex categories were more frequently used than simple words. In contrast, lexical categories were more prominently featured in the derivational process.

3.7 Procedure: The content analysis technique used in this study is a type of rule-guided procedure in which spelling out the rules is of utmost importance.

3.8 Data Analysis: Before analyzing the data, the key aspects in lexicalism, such as "idiosyncratic argument", "internal structure argument", and "frozen structure argument", were tested on Urdu structure. In addition to this, the so-called theories of word formation, like "phrasal syntax",

"morphology-syntax interface", were also tested upon Urdu. Drawing on remarks (1970), the following empirical tests were conducted on Urdu, utilizing substantial data and standard morphological indices as research methods. The data of Urdu runs parallel to English in some cases, which justifies the applicability of the lexicalist hypothesis in most cases of Urdu nominalization.

3.9 Research Question

1. Do the nominals in Urdu derive from verbs and adjectives?
2. Is the nominalization in Urdu morphological or syntactic?
3. Are the derived nominals represented in our mental lexicon?

4. DATA ANALYSIS AND INTERPRETATION

Table (1): Nominal derivation through Backformation (by dropping the Infinitive *-na:*)

Verb	Gloss (Verb)	Noun	Gloss (Noun)
ha:r**na:**	to lose	ha:r	loss/lost (n.)
dʒi:t**na:**	to win	dʒi:t	victory
ma:r**na:**	to beat	ma:r	beating (n.)
bol**na:**	to speak	bol	speech
fer**na:**-bədəl**na:**	to exchange	fer-bədəl	exchange
rok**na:**-tok**na:**	to interfere	rok-tok	interference

a. Backformation as Lexical Derivation: The nouns are formed by removing the infinitive marker (typically *-na:* in many Indo-Aryan languages). What remains after stripping *-na:* is treated as a lexical nominal, not as a syntactic projection of the verb. Therefore, forms like *ha:r, dʒi:t, ma:r,* etc., are stored in the lexicon as independent noun entries derived from their respective verbs.

b. Lexical Rules vs. Syntactic Rules: The process of deriving *dʒi:t* ('victory') from *dʒi:tna:* ('to win') is not handled by the syntax. Instead, it is a lexical derivational rule: *Verb Root → Qualitative Noun*. This rule operates internally in the lexicon, creating a nominal that can then be used syntactically as a noun.

c. Atomic Lexical Entries: According to the Lexicalist Approach, once a nominal like *bol* ('speech') is formed from *bolna:* ('to speak'), it is stored as a separate atomic unit in the lexicon. This means that in

syntax, *bol* is treated as a noun with its own features (e.g., [+Noun], [+Abstract], etc.), independent from the verb it was derived from.

d. Compound Roots: Examples like *ferna:-bədəlna:* → *fer-bədəl* and *rokna:-tokna:* → *rok-tok* show compound verb constructions yielding compound nouns. The lexical process can handle complex inputs, and the resulting compounds are again stored in the lexicon as nominals, with meaning derived compositionally or metaphorically. These compound nouns *(/fer-bədəl/, /rok-tok/)* function as lexicalized expressions, possibly idiomatic or semi-idiomatic, and are not generated in syntax.

From a Lexicalist perspective, the transformation of verbs into qualitative nouns through backformation in this data set is a lexicon-internal morphological process. These nominal forms are not syntactically derived but are instead stored as atomic units that syntax accesses as ready-made lexical entries. This supports the idea that word formation and syntax are distinct modules, each with its own rules and domains of application.

Table (2): Nominal formation using *-ən* suffix

Verb	Gloss (Verb)	Derived Noun	Gloss (Noun)
tʃəl**na:**	to walk	tʃəl**ən**	behaviour
mər**na:**	to die	mər**ən**	death
uta:r**na:**	to take off	uta:r**ən**	taking off
qətər**na:**	to cut	qətər**ən**	cutting
su:dʒ**na:**	to swell	su:dʒ**ən**	swelling
be:l**na:**	to roll	be:l**ən**	roller

a. Morphological Rule in the Lexicon: This data reflects a productive derivational process in the lexicon: *Verb Root + Derivational Suffix -ən → Qualitative/Result Noun*. Abstract Rule: *V-root + -ən → Noun*. These nominalizations are idiosyncratic and semantically diverse, which supports the lexicalist claim that such derivation is not entirely predictable and must be stored in the lexicon. Each derived noun is stored as a separate lexical item, with its own syntactic category, such as [+Noun]. The Semantic interpretation shifts or extends from the verb (e.g., */tʃələn/* = 'behaviour', not literally 'walking'). The Morphophonological form is unique to the derivation. This supports the idea that derivational morphology creates new lexemes, and these lexemes are atomic in the syntax.

b. Syntactic Behaviour: In sentences, these nouns cannot be decomposed syntactically into verb + suffix. They behave like simple nouns and can take case, number, determiners, etc.) For example: /tʃələn atʃtʃʰa: hai/ ('The behaviour is good.'). *tʃələn* acts as a syntactic noun, not as a verb with a suffix.

c. Semantic Interpretation: The meaning of the noun is related to the verb but not identical:

Verb	Literal Meaning	Derived Noun Meaning
tʃəlna:	to walk	behaviour (general conduct)
mərna:	to die	death
be:lna:	to roll	roller (instrument)

These shifts (action → result, action → instrument, action → abstract quality) are not entirely predictable and often language-specific. Hence, according to Lexicalist Theory, the formation of nouns like *tʃələn*, *mərən*, and *be:lən* from their corresponding verbs is a lexicon-internal derivational process. The suffix -ən is a productive nominalizer that attaches to verb roots after dropping the infinitive marker -na:. The resulting nouns are stored as new lexical entries, each with its own semantic and syntactic properties. Syntax accesses these nouns as fully formed, atomic words—not as verb + suffix combinations. This unpredictability is a hallmark of lexical derivation, not of productive syntactic rules.

Table (3): Nominal formation via *-a:n* suffix

Verb	Gloss (Verb)	Derived Noun	Gloss (Noun)
uɽ**na:**	to fly	uɽ**a:n**	flight
ɖʱa:l**an:**	to mould	ɖʱa:l**a:n** / ɖʱa:l	slope, incline

The second verb *ɖʱa:la:* appears to derive multiple forms (*ɖʱa:la:n*, *ɖʱa:l*), which is important for our analysis.

a. Morphological Rule in the Lexicon: We observe a derivational process: *Verb root* + *-a:n* → *Noun*. This is applied after removing the infinitive marker -na: from the verb: *uɽ-na:* → *uɽ* + *a:n* → *uɽa:n* ('flight'), *ɖʱa:la-n:* → *ɖʱa:l* + *a:n* → *ɖʱa:la:n* ('slope'). The Lexical Rule (informal) is *[[V-Root]* + *-a:n]_N*. This rule is lexicon-internal — it does not apply in the syntax. Each derived noun is stored in the

mental lexicon with its own syntactic and semantic features and may have semantic drift from the base verb (i.e., not always fully compositional). Examples:

Verb	Literal Meaning	Derived Noun Meaning	Semantic Shift?
uɽna:	to fly	uɽa:n → *flight*	Minimal shift
ɖʱa:lan:	to mould	ɖʱa:la:n / ɖʱa:l → *slope*	Metaphorical

In *ɖʱa:la:n*, the noun means *slope*, which is related to shape/molding, but not identical. This partial unpredictability supports the Lexicalist claim that such forms are stored individually.

b. Syntactic Behavior: Derived nouns like *uɽa:n, ɖʱa:la:n, or ɖʱa:l:* function syntactically as ordinary nouns. They can appear as arguments of verbs, take determiners, plural markers, and so on. They are treated as atomic units in syntax—there is no syntactic decomposition into verb + suffix. For Example: *uɽa:n atʃtʃi: thi. 'The flight was good.' uɽa:n* acts like any noun, not like a verb plus affix.

c. Allomorphy and Lexical Variation: The form *ɖʱa:l* (shortened version of *ɖʱa:la:n*) suggests possible lexical variation or allomorphy, which further supports lexical storage. The Lexicalist theory treats such variations as stored allomorphs, not generated by syntactic rules.

Hence, according to Lexicalist Theory, the formation of nouns like *uɽa:n* ('flight') and *ɖʱa:la:n/ ɖʱa:l* ('slope') from verbs is a lexicon-internal derivational process. The suffix -a:n is a nominalizing affix that combines with verb roots within the lexicon to form new words. These derived nouns are stored as separate lexical items, often show semantic variation or idiomatic meanings, are opaque to syntax (i.e., syntax cannot "see" their internal morphological structure), and may exhibit allomorphy (as in *ɖʱa:la:n ~ ɖʱa:l*), which further supports lexical listing.

Table (4): Nominal formation using *-a:i:* suffix

Verb	Gloss (Verb)	Derived Noun	Gloss (Noun)
ɖʱa:l**na:**	to mould	ɖʱəl**a:i:**	patterning
ʃʰi:r**na:**	to cleave	ʃʰir**a:i:**	cleavage
pi:s**na:**	to grind	pis**a:i:**	grinding

Verb	Gloss (Verb)	Derived Noun	Gloss (Noun)
dʱul**na:**	to wash	dʱul**a:i:**	cleaning
sil**na:**	to sew	sil**a:i:**	sewing
rəŋ**na:**	to paint	rəŋ**a:i:**	Painting

a. Lexicon-Internal Derivational Rules: There is a derivational rule in the lexicon: *Verb root + -a:i:* → *Noun (action/result/state)*. This rule takes the verb root (after dropping the infinitive *-na:*) and attaches the nominalizing suffix *-a:i:*, forming a noun. The abstract rule is *[V-root] + -a:i:* → *Noun*

b. Semantic Interpretation: The derived nouns refer to Processes or actions (*pisa:i:* 'grinding'*, sila:i:* 'sewing'*, rəŋna:* 'painting'*)* or results/abstract effects (*ʃʰira:i:* 'cleavage', *ɖʱəla:i:* 'patterning'). This reflects the typical output of deverbal nominalization, but the exact meaning can vary (e.g., *ʃʰira:i:* = 'cleavage' ≠, simply 'the act of cleaving'). This semantic variation supports the Lexicalist claim that these forms are not fully compositional and must be stored as distinct lexical entries.

c. Phonological Variability (*ɖʱa:lna:→ɖʱəla:i:*): This suggests slight phonological adjustments (*ɖʱa:l→ɖʱəl*) may occur during derivation. These alternations are morphophonological in nature and handled in the lexicon. The Lexicalist Theory can easily account for these variations by treating the noun form as a separate stored item.

Hence, according to Lexicalist Theory, nominal forms such as *sila:i:* ('sewing') or *ʃʰira:i:* ('cleavage') are lexicon-internal derivations from verbs. The suffix *-a:i:* is a derivational nominalizer that combines with the verb root to form new, stored lexical items with category shift and often slight semantic or phonological modifications. These nouns are then treated as atomic units in syntax—syntax never accesses or builds these forms. Their unpredictable semantic shifts and form variation reinforce the Lexicalist position that this is not a syntactic process but a lexical one.

Table (5). Nominal formation using *-vəʈ* or *-həʈ* suffix

Verb	Gloss (Verb)	Derived Noun	Gloss (Noun)
gʱəbra:**na:**	to bother	gʱəbra:**həʈ**	nervousness

Verb	Gloss (Verb)	Derived Noun	Gloss (Noun)
bəna:**na:**	to build/structure	bəna:**vəʈ**	structure
səʤa:**na:**	to decorate	səʤa:**vəʈ**	decoration
muskura:**na:**	to smile	muskura:**həʈ**	smile

a. Lexicon-Internal Derivational Rule: We can posit the following morphological rule: *Verb root* + *-vəʈ / -həʈ* → *Abstract Noun*. This happens after the infinitive marker *-na:* is removed. The abstract lexical rule is *[V-root]* + *{-vəʈ / -həʈ}* → *[+Noun]*. For example, *gʱəbra:* → *gʱəbra:həʈ* ('nervousness') and *səʤa:* → *səʤa:vəʈ* ('decoration'). These derivations are lexical because they shift category (from verb to noun), may involve semantic change, use suffixes not productive in syntax, and result in stored lexical items.

b. Allomorphy: -vəʈ vs -həʈ: We see two suffixes in complementary distribution:

Suffix	Used With Verb Root	Noun Meaning
-vəʈ	bəna:na:, səʤa:na:	structure, decoration
-həʈ	gʱəbra:na:, muskura:na:	nervousness, smile

This kind of variation is often morphophonemic or lexically conditioned. The Lexicalist theory treats these as allomorphs selected in the lexicon rather than as derived by syntactic rules.

c. Semantic and Syntactic Interpretation: The nouns express Abstract states or results of the verb's action: *gʱəbra:həʈ* → the state of being nervous and *muskura:həʈ* → the act or expression of smiling. The relationship is partially compositional, but not entirely predictable in every case. This supports the Lexicalist view that these are stored words with idiosyncratic meaning components. Once derived in the lexicon, the noun is treated as a complete, atomic unit. They are used syntactically just like any other noun, like */muskura:həʈ atʃtʃʰi: hai/*. ("The smile is good.") Moreover, no syntactic rule decomposes it into *muskura:* + *həʈ*.

Hence, according to Lexicalist Theory, the suffixes *-vəʈ* and *-həʈ* are derivational nominalizers that operate within the lexicon. They attach to verb roots to form new lexical items (nouns) that express abstract actions, results, or states. These nouns are stored independently with their own meanings, are

treated as atomic units in syntax, not derived via syntactic rules, nor decomposable in syntax. The Lexicalist approach neatly accounts for the allomorphy, semantic variation, and morphophonological adjustments seen in the data.

Table (6): Nominal formation using *-a:o* suffix

Verb	Gloss (Verb)	Derived Noun	Gloss (Noun)
bətʃ**na:**	to escape	bətʃ**a:o**	defence
tʃʰiɽk**na:**	to sprinkle	tʃʰiɽk**a:o**	sprinkling
dʒʱuk**na:**	to lean	dʒʱuk**a:o**	leaning
ləg**na:**	to attach	ləg**a:o**	attachment

a. Lexicon-Internal Derivation Rules: We observe a clear derivational process where: *Verb root + -a:o → Noun*. This happens after removing the infinitive marker *-na:* from the verb. The Abstract Lexical Rule is *[V-root] + -a:o → [+Noun]*. for Examples: *bətʃ + a:o → bətʃa:o* ("defence") and *tʃʰiɽk + a:o → tʃʰiɽka:o* ("sprinkling"). These nouns have the same root as the verb, carry related but distinct meanings, and are treated as stored lexical items in the mental lexicon.

b. Semantic Interpretation: The derived nouns express processes or actions (*tʃʰiɽka:o* = the act of sprinkling), results or abstract concepts (*bətʃa:o* = defense, not just "escaping"). This non-uniformity supports the Lexicalist view that derivational morphology is not purely compositional and produces forms whose meanings must often be memorized.

Verb	Literal Meaning	Derived Noun Meaning	Semantic Shift?
bətʃna:	to escape	bətʃa:o (defence)	Yes – more abstract
dʒʱukna:	to lean	dʒʱuka:o (leaning)	Minimal shift

c. Syntactic Interpretation: The derived nouns Function as ordinary nouns in syntax. They can be subjects or objects, can take plural or possessive forms, and can be modified by adjectives. For example: /*bətʃa:o zaruri hai*/. "Defense is important." *bətʃa:o* is a noun syntactically — no evidence it is *bətʃ* + suffix in syntax. This shows that syntax does not access the verb + suffix structure.

Hence, according to Lexicalist Theory, the suffix *-a:o* functions as a lexical nominalizer, combining with a verb root (after dropping the infinitive) to form a new noun. These nouns are Lexicon-internal derivations, often semantically distinct or generalized from their base verbs, treated as atomic lexical entries in syntax. They may involve phonological or semantic variation, reinforcing the need for lexical storage. The Lexicalist framework accounts well for the category change, partial semantic unpredictability, and lack of syntactic visibility into the morphological process.

5. RESULTS AND DISCUSSION

The dataset provides robust empirical evidence for a productive, lexicon-internal system of deverbal nominalization in an Indo-Aryan language (likely Hindi-Urdu). Across six morphological patterns, the study identifies consistent processes of forming nouns from verbs through various derivational strategies:

Table (7): Derivational Strategy for the Lexicon-Internal System in Urdu

Table	Strategy	Derivational Rule	Example
1	Backformation	Verb – *-na:* → Noun	*dʒi:tna:* → *dʒi:t* (‘victory’)
2	Suffix -ən	V-root + -ən → Noun	*mərna:* → *mərən* (‘death’)
3	Suffix -a:n	V-root + -a:n → Noun	*uɽna:* → *uɽa:n* (‘flight’)
4	Suffix -a:i:	V-root + -a:i: → Noun	*pi:sna:* → *pisa:i:* (‘grinding’)
5	Suffix -vəʈ / -həʈ	V-root + -vəʈ/-həʈ → Noun	*muskura:na:*→*muskura:həʈ* (‘smile’)
6	Suffix -a:o	V-root + -a:o → Noun	*bətʃna:* → *bətʃa:o* (‘defense’)

Each of these patterns demonstrates lexicon-internal derivation, resulting in qualitative, abstract, or result nouns that are semantically and syntactically distinct from their verbal bases.

5.1 Evidence for Lexicalist Theory

5.1.1 Lexical Derivation, Not Syntactic Composition: A central finding is that none of the derived nouns exhibit syntactic transparency. In all cases, the noun cannot be decomposed syntactically into verb + suffix. It behaves as a syntactic noun with typical noun properties (e.g., subjecthood, case marking,

pluralization, modification). It is not formed by syntactic rules such as affixation within the syntax. For example: *ʧələn atʃtʃʰi hai* ('The behavior is good'), where *ʧələn* functions as a complete, atomic noun—syntax does not analyze it as *ʧəl* + -ən. This supports a core Lexicalist claim: word formation is separate from syntactic computation. The derivational process occurs entirely within the lexicon, and syntax operates over fully-formed words.

5.1.2. Morphological Regularities with Idiosyncratic Meanings: Each derivational rule shows morphological consistency, but the semantic output varies:

- *ʧəlna:* ('to walk') → *ʧələn* ('behavior'): metaphorical extension
- *qʰa:lna:* ('to mould') → *qʰa:la:n* ('slope'): spatial abstraction
- *ʃʰi:rna:* ('to cleave') → *ʃʰira:i:* ('cleavage'): result noun with semantic shift
- *bətʃna:* ('to escape') → *bətʃa:o* ('defence'): conceptual generalization

Such semantic variation shows that the process is not entirely predictable. This is characteristic of lexical derivation, where the resulting nouns must often be memorized individually rather than derived compositionally.

5.1.3 Evidence of Allomorphy and Lexical Conditioning: Table (5) presents clear morphophonological allomorphy in the suffixes *-vəʈ* (e.g., *sədʒa:vəʈ*) vs. *-həʈ* (e.g., *muskura:həʈ*)**.** The distribution appears to be lexically conditioned rather than phonologically or syntactically predictable. This is best captured under a Lexicalist framework, where allomorphs are stored in the lexicon and selected based on the base root. Syntactic rules, in contrast, cannot easily account for such variation.

5.2 Theoretical Implications

5.2.1 Lexical Entries as Atomic Units: In all tables, the derived nouns are treated as atomic lexical entries (with features like [+Noun], [+Abstract], etc.)**.** They are stored independently of their base verb once formed**.** They exhibit semantic shifts, phonological changes, or idiomatic usage**.** This reinforces the idea that lexical entries are more than just syntactic projections of verbs; they are individuated entities with their own morphosyntactic and semantic profiles.

5.2.2 Productivity and Constraints of Nominalizers: Some suffixes (e.g., *-ən*, *-a:i:*, *-a:o*) appear to be more productive, attaching to a wide variety of verbs. Others (e.g., *-vəʈ / -həʈ*) are more restricted, possibly tied to specific lexical subclasses or semantic fields. This distribution suggests a spectrum of

productivity within derivational morphology. It highly productive suffixes support generative morphological rules. The semi-productive or idiomatic suffixes support lexical listing. The Lexicalist model accommodates this range by allowing both rule-based derivation and idiosyncratic lexical storage.

5.2.3. Independence from Syntax: In all derivational cases, the resulting nouns function autonomously in syntax. They can appear in subject, object, and other argument positions**.** They can be modified and inflected like any other noun. They do not undergo syntactic derivation from the verb at the sentence level**.** This syntactic opacity confirms that derivational morphology is not a matter of syntactic concatenation, but of lexicon-internal category shift.

5.3 Broader Linguistic Implications

The data highlight how South Asian languages (such as Hindi-Urdu) possess rich lexical derivational morphology, paralleling similar processes in other languages but exhibiting language-specific suffixes and derivational patterns. It also illustrates compound backformations (e.g., *ferna:-bədəlna:* → *fer-bədəl*), showing how even complex verbs can yield compound nominalizations and phonological alternations in derived forms (e.g., *qʰa:l* → *qʰəl*), requiring a morphophonological component in lexical representation, and the lexicalization of semantic drift, especially in metaphorical or abstract noun meanings.

6. CONCLUSION

This study provides compelling evidence for a Lexicalist analysis of deverbal nominalization in Indo-Aryan languages. The derivational patterns across six morphological strategies demonstrate a clear separation between morphology and syntax, the lexical storage of derived nouns as atomic entries, semantic and morphophonological variability characteristic of lexical processes, and the inapplicability of syntactic rules in the creation of these forms. Taken together, these findings support the Lexicalist position that word formation is governed by its own principles, distinct from those of syntax, and that derivational morphology primarily operates within the lexicon.

This study examined multiple morphological processes involved in deverbal nominalization in an Indo-Aryan language, with a focus on suffix-based derivations and backformation. Across six types of derivation—backformation, and affixation via *-ən*, *-a:n*, *-a:i:*, *-vəʈ / -həʈ*, and *-a:o*—the data consistently demonstrate that noun formation is a lexicon-internal process, rather than a syntactic one. The findings strongly support the Lexicalist Hypothesis, which holds that word formation occurs in the lexicon, independent of syntactic computation. Each derived noun exhibits key properties of lexical derivation:

category shift (from verb to noun), semantic idiosyncrasy, syntactic atomicity, and, in some cases, morphophonological variation. These derived nouns cannot be decomposed syntactically into verb + suffix structures and function as fully independent lexical entries.

Additionally, the study highlighted the semantic unpredictability and partial allomorphy found in derived nouns, further reinforcing the claim that these forms are not generated via syntactic rules but must be stored in the mental lexicon. Some derivational processes, such as those involving *-ən* and *-aːiː*, show a degree of productivity, while others, like *-vəʈ / -həʈ*, appear to be more restricted and lexically conditioned.

In conclusion, the morphological evidence presented here supports a modular view of grammar, in which morphology and syntax are distinct components, each governed by its own set of rules. The formation of nouns from verbs in this language is a precise instance of lexical derivation, emphasizing the centrality of the lexicon in the architecture of grammar.

Computational Significance of the Study

This study contributes new formal and computationally relevant insights into the morphology of Urdu. It identifies a consistent two-step architecture underlying deverbal nominalization—backformation followed by suffixal derivation—and formalizes this architecture using explicit algebraic rule notation. This provides a generative, machine-interpretable template for Urdu nominal formation, which has been largely absent from existing NLP resources.

The findings also demonstrate that nominalization in Urdu is predominantly lexical rather than transparent or syntactic, with implications for morphological segmentation, root extraction models, feature propagation, and lexicon construction in computational systems. The unification of six productive nominalizers into a single derivational pipeline makes the resource highly adaptable for morphological analyzers, stemmers, and lexicon-building tools.

By introducing a typologically informed root-and-pattern-like perspective, the study also opens avenues for modeling Urdu morphology using frameworks previously applied to Semitic systems. Overall, this work provides both theoretical advancement and computational utility, offering a foundation for more accurate and linguistically grounded NLP models for Urdu.

Competing Interest

The author declares that there is no financial or competing interest related to this article.

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Declaration of Generative AI

The author declares that AI-assisted technologies have been used solely to enhance readability and language.

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