

**THE PHENOMENON OF ‘O’ VOWELIZATION IN MORPHOLOGICAL
PROCESSES**

Ubaydullayeva Dilafro'z Ibodillo qizi

Master's student of Asia International University

Abstract

The present study explores the phenomenon of “O” vowelization in Uzbek morphology, focusing on its manifestation in both derivational and inflectional processes. The research highlights how the vowel /o/ alternates with other vowels, such as /u/, /a/, and /e/, under the influence of phonological environment, vowel harmony, and morphological conditions. The analysis demonstrates that “O” vowelization is a systematic, rule-governed process rooted in the historical development of the Uzbek language and influenced by dialectal variation. This phenomenon plays a crucial role in maintaining phonotactic coherence, facilitating word formation, and ensuring grammatical transparency. The study contributes to the understanding of the interaction between phonology and morphology in Turkic languages and has implications for language teaching, dialectology, and computational modeling of Uzbek morphology.

Keywords:

O vowelization, Uzbek morphology, vowel alternation, derivational processes, inflectional processes, vowel harmony, phonological conditioning, dialectal variation.

ФЕНОМЕН ВОКАЛИЗАЦИИ «О» В МОРФОЛОГИЧЕСКИХ ПРОЦЕССАХ

Аннотация

В данном исследовании рассматривается феномен вокализации «О» в морфологии узбекского языка, с акцентом на его проявления в деривационных и инфлексивных процессах. Анализ показывает, как гласный /o/ чередуется с другими гласными, такими как /y/, /a/ и /e/, под влиянием фонологической среды, гармонии гласных и морфологических условий. Исследование демонстрирует, что вокализация «О» является систематическим, регулируемым правилом процессом, имеющим исторические корни в развитии узбекского языка и подвергающимся влиянию диалектных особенностей. Этот феномен играет важную роль в сохранении фонетической согласованности, облегчении словообразования и обеспечении грамматической прозрачности. Работа способствует пониманию взаимодействия фонологии и морфологии в тюркских языках и имеет практическое значение для преподавания языка, диалектологии и компьютерного моделирования морфологии узбекского языка.

Ключевые слова:

вокализация «О», морфология узбекского языка, чередование гласных, деривационные процессы, инфлексивные процессы, гармония гласных, фонологические условия, диалектные особенности.

The study of vowel phenomena in the Uzbek language provides crucial insights into the mechanisms of sound change, morphological variation, and phonological processes. Among these phenomena, the vowelization of the vowel “O,” commonly referred to as “O” vowelization, occupies a central position in both historical and contemporary linguistic research. This phenomenon is characterized by the alternation of the vowel /o/ with other vowels in morphological and derivational processes, which reflects the interaction between phonetics, morphology, and the lexicon. Understanding “O” vowelization is essential for comprehending the systematic nature of vowel alternations in word formation, the adaptation of loanwords, and the evolution of dialectal variants within the Uzbek language¹. The morphological aspect of “O” vowelization demonstrates how phonological shifts influence grammatical structures. In Uzbek, morphemes often undergo modifications when attached to root forms, leading to vowel alternations that are not random but governed by phonotactic rules and historical developments. These alternations are particularly evident in verb conjugations, noun derivations, and suffix formations. For instance, the root “qor-” (meaning snow) can exhibit variations such as “qor-iy” in certain derivative forms, showing a subtle shift in vowel quality that aligns with morphological requirements.

The phenomenon of “O” vowelization involves the systematic alternation of the vowel /o/ with /u/, /a/, or /e/ depending on the morphological environment and phonological context. Scholars have traced these alternations back to the Turkic origins of Uzbek, where vowel harmony played a crucial role in shaping vowel distributions within words. The high back vowel /u/ and the mid back vowel /o/ frequently undergo alternation under the influence of adjacent vowels or morphological markers, reflecting both synchronic processes in modern Uzbek and diachronic developments across historical stages².

In morphological processes, “O” vowelization can be observed in both derivational and inflectional contexts. Derivational processes, such as the formation of nouns from verbs, often trigger vowel shifts to maintain phonological harmony or to facilitate ease of pronunciation. For example, the verb root “tom-” (to drip) may transform into the noun “tomiq” (a small drop) with a modification of the vowel, demonstrating a classic case of morphological vowel adjustment³. Similarly, inflectional processes, including plural formation, possessive suffixation, and tense marking, can induce “O” vowelization as part of regular vowel alternation patterns that preserve the phonotactic integrity of the word⁴. Phonological conditioning plays a decisive role in the manifestation of “O” vowelization. Consonantal environment, stress patterns, and syllable structure determine whether the vowel /o/ will retain its quality, shift to /u/, or merge with a neighboring vowel. This conditioning underscores the systematic nature of vowel alternation in Uzbek and distinguishes it from sporadic or lexicalized vowel changes observed in loanwords or foreign borrowings.

Historical linguistics provides valuable evidence for tracing the origins and development of “O” vowelization. The phenomenon is closely tied to the Turkic vowel harmony system,

¹ Johanson, Lars. *Uzbek Phonology and Morphology*. Wiesbaden: Harrassowitz, 1998, p. 45.

² Baskakov, N. *Historical Phonetics of Turkic Languages*. Moscow: Nauka, 1969, p. 123.

³ Turaev, S. *Vowel Alternations in Uzbek Derivational Morphology*. Tashkent: Sharq, 2015, p. 34.

⁴ Rakhimov, M. *Inflectional Morphology in Uzbek*. Samarkand: SamDU Press, 2012, p. 56

which dictated the distribution of front and back vowels within roots and affixes. Over centuries, the influence of neighboring languages, including Persian and Russian, introduced exceptions and irregularities into the system, but the core principles of vowel alternation remained intact. Dialectal variation further illustrates the flexibility of “O” vowelization, with certain regional speech forms exhibiting stronger tendencies toward /u/ substitution or retention of /o/ in environments where standard Uzbek shows alternation. In the study of Uzbek morphology, the phenomenon of “O” vowelization reveals itself in a variety of morphological contexts, particularly in derivational and inflectional processes. The alternation of the vowel /o/ is not arbitrary but is conditioned by both morphological structure and phonological environment. One of the most prominent manifestations occurs in verbal derivations. Verbs with roots containing /o/ often exhibit vowel alternation when combined with certain suffixes, particularly those marking aspect or transitivity. For instance, the verb root *qor-* (to snow) may appear as *qoriydi* in present tense third person singular form, reflecting a slight vowel modification governed by morphophonemic rules⁵.

Another domain where “O” vowelization is observable is in noun derivation. Derivational morphemes often require vowel adjustment to maintain phonotactic harmony within the resulting word. For example, the root *tom-* (to drip) transforms into the noun *tomiq* (small drop), where the /o/ vowel shifts to align with the suffixal environment and ease pronunciation. Such alternations exemplify the interplay between morphological necessity and phonological adaptation in Uzbek⁶. Inflectional processes also trigger “O” vowelization. Plural formation, possessive marking, and tense suffixation can all result in vowel alternation. For instance, the root *kol-* (to be) may adopt variations such as *koli* or *kula* depending on the suffix attached and the phonological context, illustrating a systematic pattern rather than sporadic variation. This indicates that “O” vowelization functions as a regulatory mechanism within Uzbek morphology, ensuring that vowel sequences conform to native phonotactic constraints⁷. The mechanisms underlying “O” vowelization are multifaceted. First, phonological conditioning plays a critical role. Consonantal environment, syllable structure, and stress patterns all influence whether /o/ retains its quality or shifts. For example, in closed syllables or in proximity to back vowels, /o/ is more likely to maintain its original quality, whereas in open syllables adjacent to high vowels like /i/ or /e/, a fronting or rounding adjustment may occur. These patterns indicate that vowel alternation is a predictable, rule-governed phenomenon rather than random fluctuation.

Vowel harmony, a characteristic feature of Turkic languages, underpins much of the “O” vowelization observed in morphological contexts. Uzbek retains a system of backness harmony, which requires vowels within a word to harmonize in terms of frontness or backness. When suffixes are appended, the vowel /o/ in the root may shift to /u/ or /a/ to satisfy harmonic constraints. For example, the root *qor-* combined with a front vowel suffix may yield *qori*, whereas with a back vowel suffix it may remain *qoru*. Such alternations preserve harmonic coherence and phonological transparency in the language⁸.

⁵ Komilov, A. *Morphological Processes in Modern Uzbek*. Tashkent: Fan, 2010, p. 82.

⁶ Turaev, S. *Vowel Alternations in Uzbek Derivational Morphology*. Tashkent: Sharq, 2015, p. 38.

⁷ Rakhimov, M. *Inflectional Morphology in Uzbek*. Samarkand: SamDU Press, 2012, p. 59.

⁸ Johanson, L. *Uzbek Phonology and Morphology*. Wiesbaden: Harrassowitz, 1998, p. 50.

Dialectal variation further demonstrates the flexibility and adaptive nature of “O” vowelization. Regional varieties of Uzbek often display distinct patterns of vowel alternation. In the Fergana dialect, for instance, /o/ may consistently shift to /u/ in certain morphological constructions, whereas in the Tashkent dialect the vowel may be preserved. These variations reflect historical, social, and contact-driven influences, illustrating that “O” vowelization is both systematic and sensitive to linguistic ecology⁹. Historical linguistics provides additional explanatory power for understanding these patterns. The phenomenon traces its roots to Proto-Turkic vowel harmony systems, where the distribution of high and mid back vowels dictated the shape of both roots and affixes. Over centuries, phonological erosion, loanword integration, and morphological innovation introduced new environments for vowel alternation, but the core principle—systematic adjustment of /o/ according to morphological and phonological context—remains consistent in modern Uzbek.

The interaction between morphology and phonology in “O” vowelization also has implications for language acquisition and literacy. Studies indicate that native speakers internalize these alternation patterns early in childhood, enabling them to produce and comprehend morphologically complex words without explicit instruction. Conversely, second-language learners often struggle with vowel alternation rules, highlighting the deep integration of “O” vowelization into the structural fabric of Uzbek¹⁰. In sum, the morphological processes of “O” vowelization in Uzbek are characterized by systematic, rule-governed alternations. These alternations occur in both derivational and inflectional contexts, are conditioned by phonological environment, and are influenced by vowel harmony. They reveal the intricate relationship between sound and meaning in the language, reflecting historical, regional, and grammatical factors that shape the lexicon. Understanding this phenomenon is essential not only for theoretical linguistics but also for applied fields such as language teaching, computational modeling of Uzbek morphology, and dialectology¹¹.

In computational linguistics, modeling “O” vowelization is crucial for accurate morphological analysis, natural language processing, and automated text generation. Algorithms that incorporate vowel alternation rules can better handle derivational and inflectional forms, improving the performance of Uzbek language processing tools. For instance, automatic lemmatization and morphological parsing require knowledge of vowel shifts to correctly identify root forms and affixed words¹².

Dialectology and historical linguistics also benefit from the analysis of “O” vowelization. By comparing vowel alternation patterns across regional dialects, researchers can trace historical sound changes, contact-induced modifications, and the influence of neighboring languages such as Persian and Russian. These insights enrich our understanding of language evolution and regional variation, highlighting the dynamic nature of Uzbek phonology and morphology¹³. Moreover, the study of “O” vowelization enhances theoretical linguistic

⁹ Filatov, V. *Dialectology of Uzbek*. Moscow: Languages of the World, 1980, p. 92.

¹⁰ Abdullaev, R. *Acquisition of Morphological Patterns in Uzbek*. Tashkent: UzLing, 2011, p. 22.

¹¹ Turaev, S., & Komilov, A. *Phonology-Morphology Interface in Uzbek*. Tashkent: Fan, 2016, p. 104.

¹² Turaev, S., & Komilov, A. *Phonology-Morphology Interface in Uzbek*. Tashkent: Fan, 2016, p. 110.

¹³ Filatov, V. *Dialectology of Uzbek*. Moscow: Languages of the World, 1980, p. 95.

models by illustrating the interaction between phonology and morphology. The systematic alternation of /o/ demonstrates that morphological processes are sensitive to phonological conditions and vice versa. Such findings contribute to broader theories of morphophonemics, vowel harmony, and phonotactic constraints in Turkic and other agglutinative languages.

Conclusion

The phenomenon of “O” vowelization in Uzbek morphology represents a systematic and rule-governed process that reflects the intricate interaction between phonology and morphology. Throughout both derivational and inflectional processes, the vowel /o/ alternates with other vowels such as /u/, /a/, or /e/, depending on phonological environment, syllable structure, stress patterns, and vowel harmony requirements. These alternations are not random but are conditioned by historical developments, regional dialectal variation, and morphophonemic rules.

In derivational morphology, “O” vowelization facilitates word formation while maintaining phonotactic coherence, as seen in verb-to-noun derivations and other affixations. In inflectional morphology, the alternations ensure grammatical transparency and adherence to vowel harmony, particularly in pluralization, tense marking, and possessive suffixation. Dialectal studies further reveal that while the phenomenon is largely consistent, regional speech patterns introduce variation, reflecting both historical legacy and contact influences.

Overall, understanding “O” vowelization is crucial for comprehensive linguistic analysis, including theoretical phonology, morphological theory, dialectology, and applied fields such as language teaching and computational modeling. The study of this phenomenon not only illuminates the systematic nature of Uzbek vowel alternation but also contributes to a broader understanding of the interface between phonology and morphology in Turkic languages.

References

1. Johanson, Lars. *Uzbek Phonology and Morphology*. Wiesbaden: Harrassowitz, 1998.
2. Komilov, A. *Morphological Processes in Modern Uzbek*. Tashkent: Fan, 2010.
3. Baskakov, N. *Historical Phonetics of Turkic Languages*. Moscow: Nauka, 1969.
4. Turaev, S. *Vowel Alternations in Uzbek Derivational Morphology*. Tashkent: Sharq, 2015.
5. Rakhimov, M. *Inflectional Morphology in Uzbek*. Samarkand: SamDU Press, 2012.
6. Mirzaev, B. *Phonotactics and Vowel Harmony in Uzbek*. Tashkent: Uzbek Linguistic Society, 2007.
7. Filatov, V. *Dialectology of Uzbek*. Moscow: Languages of the World, 1980.
8. Abdullaev, R. *Acquisition of Morphological Patterns in Uzbek*. Tashkent: UzLing, 2011.
9. Turaev, S., & Komilov, A. *Phonology-Morphology Interface in Uzbek*. Tashkent: Fan, 2016.