International Journal of Multidiscipline

TLEP – International Journal of Multidiscipline
(Technology, Language, Education, and Psychology)
ISSN: 2488-9342 (Print) | 2488-9334 (Online)

Open Access | Peer-Reviewed | Monthly Publication | Impact factor: 8.497 / 2025

The Role Of Phonetic Economy And Redundancy Factors In Sound Changes

N.S.Kobilova,
PhD, Associate Professor, Bukhara State University n.s.gobilova@buxdu.uz
Kh.E.Ergashova,
Master's student, Bukhara State University xosiyatergashova2@gmail.com

Abstract
Sound change is a fundamental mechanism in the historical and synchronic development of languages. Among the internal forces shaping phonological systems, phonetic economy and phonetic redundancy play crucial yet opposing roles. Phonetic economy promotes articulatory simplification and reduction of effort, while phonetic redundancy enhances perceptual clarity and communicative reliability. This study investigates how these two factors interact in the process of sound change, with particular reference to English phonology. Using qualitative descriptive and comparative analysis, examples of assimilation, elision, vowel reduction, consonant cluster simplification, stress shift, and suprasegmental features were examined. The findings demonstrate that sound changes are rarely driven by economy alone; rather, they reflect a functional balance between effort minimization and perceptual distinctiveness. The results support the view that phonological evolution is shaped by adaptive mechanisms ensuring both efficiency and intelligibility in communication.
Keywords: phonetic economy, phonetic redundancy, sound change, assimilation, vowel reduction, phonological evolution, articulatory effort.

Sound change is an inevitable and systematic phenomenon in language development. Throughout history, languages have undergone continuous phonetic and phonological transformations influenced by physiological, cognitive, and communicative factors. Scholars such as Martinet (1955) and Zipf (1949) emphasized the principle of economy in linguistic systems, arguing that speakers naturally tend to minimize articulatory effort. At the same time, other researchers have highlighted the importance of redundancy in preserving intelligibility and preventing ambiguity.

Phonetic economy refers to the tendency toward simplification in speech production. It manifests in reduced articulation, assimilation, deletion of sounds, and weakening of unstressed syllables. Conversely, phonetic redundancy refers to the presence of additional phonetic cues that enhance clarity, such as aspiration, stress, intonation, and vowel length distinctions.

This study aims to analyze the role of phonetic economy and redundancy in sound changes and to demonstrate that these forces operate simultaneously rather than independently. The research focuses primarily on English but includes general theoretical implications relevant to other languages.

The principle of economy has long been central to linguistic theory. Zipf's (1949) "Principle of Least Effort" proposes that human behavior, including language use, tends toward minimizing effort. Martinet (1955) further developed this idea in functional phonology, suggesting that phonological systems evolve to maintain

optimal balance between effort and distinctiveness[1].

Hockett (1967) introduced the concept of redundancy as an essential feature of language structure, arguing that redundancy enhances reliability in communication. Lindblom (1990) proposed the Hyper- and Hypo-articulation (H&H) theory, which explains variation in speech production as a dynamic adjustment between clarity and efficiency[2].

Recent phonological studies suggest that sound change results from phonetic variation that becomes phonologized over time (Ohala, 1981). According to this view, economy-driven reductions may spread in a speech community if communicative clarity remains sufficient.

Thus, the literature suggests that phonetic economy and redundancy are complementary mechanisms shaping sound systems.

This research applies qualitative descriptive analysis. Data were collected from historical and contemporary examples of English phonological processes. The selected processes include: *Assimilation/ Elision / Vowel reduction*

Consonant cluster simplification / Stress shift / Suprasegmental reinforcement

Each example was analyzed from three perspectives:

1. Articulatory (ease of production)
2. Acoustic (perceptual distinctiveness)
3. Functional (communicative efficiency)

The aim was to determine whether the sound change reflects economy, redundancy, or an interaction of both.

The data confirm that many sound changes originate from articulatory simplification.

Assimilation reduces effort by making adjacent sounds more similar[3].

Example: *handbag → /ˈhæmbæg/*

The nasal /n/ becomes bilabial /m/ before /b/, minimizing articulatory movement.

Elision removes difficult consonants in clusters[4].

Example: *next day → /neks deɪ/*

The /t/ is often omitted in rapid speech.

Vowel reduction weakens unstressed vowels to schwa.

Example: *photograph vs. photography*

The shift reduces muscular effort in unstressed syllables.

These processes demonstrate clear articulatory economy.

Despite simplification, languages maintain intelligibility through redundancy.

Aspiration in English voiceless plosives strengthens phonemic contrast.

Example: /p/ in pin is aspirated [pʰ], distinguishing it from /b/.

Stress patterns differentiate meaning.

Example: record (noun) vs. record (verb).

Intonation provides grammatical and pragmatic cues.

Rising tone signals questions; falling tone indicates statements.

Redundant cues compensate for segmental reductions and preserve clarity.

The results show that sound change reflects a balance. For example, while vowel reduction simplifies articulation, stress patterns remain strong to preserve word recognition. Thus, economy and redundancy function as complementary forces rather than opposites.

The findings confirm that phonological evolution is adaptive. Pure economy would lead to excessive reduction and potential

[1] Zipf, G. K. (1949). Human Behavior and the Principle of Least Effort. Cambridge, MA: Addison-Wesley.

[2] Hockett, C. F. (1967). A Course in Modern Linguistics. New York: Macmillan

[3] Ladefoged, P., & Johnson, K. (2015). A course in phonetics (7th ed.). Cengage Learning.

[4] Roach, P. (2009). English phonetics and phonology (4th ed.). Cambridge University Press.

ambiguity. Pure redundancy would make speech inefficient and overly complex. Therefore, language systems naturally regulate themselves[5].

The interaction between economy and redundancy supports Lindblom's (1990) adaptive dispersion theory, where speech production adjusts according to communicative demands. In fast casual speech, economy dominates. In careful or formal speech, redundancy increases[6].

Historically, sound changes survive only when communicative clarity is not severely compromised. If a reduction causes misunderstanding, compensatory mechanisms develop.

Thus, phonetic change is governed by optimization rather than randomness.

This study has examined the role of phonetic economy and phonetic redundancy in the process of sound change, demonstrating that these two forces function as complementary mechanisms within phonological systems. The analysis confirms that sound change is neither arbitrary nor purely mechanical; rather, it emerges from the interaction between articulatory efficiency and communicative clarity.

The findings show that phonetic economy drives many common phonological processes, including assimilation, elision, vowel reduction, and consonant cluster simplification. These processes reflect the natural human tendency to minimize articulatory effort, especially in rapid or casual speech. From a physiological perspective, speech organs operate more efficiently when movements are reduced or coordinated, which explains why simplified forms frequently arise and spread within a speech community.

However, the study also demonstrates that phonetic redundancy plays an equally essential role in maintaining system stability. Redundant phonetic cues—such as aspiration, stress patterns, vowel length, and intonation—compensate for reductions at the segmental level. Without such redundancy, excessive simplification could lead to loss of contrast and communicative ambiguity. Therefore, redundancy functions as a protective mechanism that safeguards intelligibility and prevents breakdown in communication.

Importantly, the research highlights that successful sound changes are those that preserve a functional balance between economy and distinctiveness. If a phonetic reduction significantly threatens comprehension, it is unlikely to become fully integrated into the phonological system. Conversely, if sufficient perceptual cues remain available, the change may stabilize and become conventionalized over time. This confirms the functionalist view that language evolution is governed by optimization rather than random drift.

The interaction between phonetic economy and redundancy also reflects broader cognitive and communicative principles. Speakers continuously adjust their speech according to contextual demands, interlocutor needs, and communicative goals. In informal contexts, economy tends to dominate, resulting in greater reduction. In formal or careful speech, redundancy increases to enhance clarity. This adaptive flexibility demonstrates that phonological systems are dynamic and responsive rather than static structures.

From a theoretical perspective, the study supports the principles proposed in functional phonology and usage-based linguistics, which emphasize the role of frequency, perception, and communicative efficiency in shaping linguistic structure. The findings suggest that phonetic variation

[5] Crystal, D. (2008). A dictionary of linguistics and phonetics (6th ed.). Blackwell.

[6] Martinet, A. (1955). Économie des changements phonétiques. Francke.

becomes phonologized only when it aligns with both articulatory feasibility and perceptual reliability.

In conclusion, phonetic economy and phonetic redundancy should not be viewed as opposing forces but as interdependent factors that jointly regulate sound change. Their interaction ensures that language remains efficient, adaptable, and communicatively effective across time. Future research may incorporate quantitative acoustic analysis, cross-linguistic comparison, or experimental phonetics to further explore how universal these balancing mechanisms are across different language families.

References:

1.Ohala, J. J. (1981). The listener as a source of sound change. In C. S. Masek, R. A. Hendrick, & M. F. Miller (Eds.), Papers from the parasession on language and behavior (pp. 178–203). Chicago Linguistic Society.

2.Roach, P. (2009). English phonetics and phonology (4th ed.). Cambridge University Press.

3.Trask, R. L. (1996). Historical linguistics. Arnold.

4.Zipf, G. K. (1949). Human behavior and the principle of least effort. Addison-Wesley.

5.Sulaymonovna, Q. N., & Shavkatovna, A. M. (2024). UNDERSTANDING THE CONCEPT OF EVALUATION: A MULTIDISCIPLINARY EXPLORATION. INTELLECTUAL EDUCATION TECHNOLOGICAL SOLUTIONS AND INNOVATIVE DIGITAL TOOLS, 3(28), 192-194.

6.Akhrorovna, N. N., & Kizi, B. S. N. (2024). METHODS OF TEACHING ENGLISH TO ELEMENTARY SCHOOL LEARNERS. SUSTAINABILITY OF EDUCATION, SOCIO-ECONOMIC SCIENCE THEORY, 2(17), 163-168.

7.Akhrorovna, N. N., & Khamidullayevna, K. S. (2024). BENEFITS OF STUDYING FOREIGN LANGUAGES. PEDAGOGICAL SCIENCES AND TEACHING METHODS, 3(32), 55-59.

8.Akhrorovna, N. N. (2024). ENHANCING LANGUAGE TEACHING AND CLASSROOM MANAGEMENT THROUGH INTERACTIVE PEDAGOGICAL PRACTICES. PEDAGOGICAL SCIENCES AND TEACHING METHODS, 3(32), 50-54.

9.Кобилова, Н. (2019). ХУДОЖЕСТВЕННЫЙ ПСИХОЛОГИЗМ И ПРИНЦИП ЭПИЧЕСКОГО ИЗОБРАЖЕНИЯ. Международный академический вестник, (5), 108-111.

10.Kobilova, N. S. (2019). LITERARY PSYCHOLOGY AND STYLE. Theoretical & Applied Science, (10), 254-258.

11.Kobilova, N. S., & Nazarova, G. P. (2016). Elaborated methods in the light of writing. International scientific journal, (4 (2)), 34-36

12.Nazarova, N. (2023). ANTROPONIMLAR MOHIYATI VA SEMANTIK TAHLILI. ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz), 35, 35.

13.Nazarova, N. (2022). Лингвистическое исследование антропонимов в лексической системе. Центр научных публикаций (buxdu. Uz), 13, 13.

14.Ahrorovna, N. N. (2023). Analyses of Anthroponyms in the Novel “The Godfather”. American Journal of Language, Literacy and Learning in STEM Education (2993-2769), 1(10), 523-526.

15.Ahrorovna, N. N. (2023). ANALYSIS OF ANTHROPONYMS IN ENGLISH LINGUISTICS. FORMATION OF PSYCHOLOGY AND PEDAGOGY AS INTERDISCIPLINARY SCIENCES, 2(24), 153-157.

16. Ahrorovna, N. N. (2023). O’ZBEK TILIDA ANTROPONIMLARNING LISONIY TADQIQI. Finland International Scientific Journal of Education. Social Science & Humanities, 11(5), 1687-1692. 18.

17.Назарова, Г. П., & Кобілова, Н. С.

ELABORATED METHODS IN THE LIGHT OF WRITING.

18.Qobilova, N. S., Majidova, Z. M., & Sh, S. X. INTRODUCTION TO GERMANIC PHILOLOGY.

19. Rashidov, J., & Nazarova, N. (2022). Modern methods of increasing the fire resistance of building materials. European International Journal of Multidisciplinary Research and Management Studies, 2(07), 37-42.

20.Ahrorovna, N. N., & Marjona, M. (2021). Essential Memory Improving Techniques in Teaching and Learning Process." ONLINE-CONFERENCES&Quot;