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TURKIC LOANWORDS IN HUNGARIAN: A STUDY CONCERNING LOANWORD ADAPTATION

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Introduction

Borrowings, throughout their etymological journeys, frequently undergo phonetic assimilations, evolving within the target language's phonological framework over time. This phenomenon is particularly evident in the material borrowed from West Old Turkic (WOT) languages into Hungarian. The pronounced divergence of almost all known WOT words in Hungarian from their source forms raises the fundamental question: "At what rate did these phonetic changes occur?"

Acknowledging that loanwords inevitably undergo phonological transformations upon integration into the target language, irrespective of their origin, underscores the complexity of linguistic evolution. Contrary to common assumptions, loanwords do not uniformly align with the phonological characteristics of the recipient language; instead, they may exhibit changes in either direction.

This study aims to address the following research questions:

Objectives and Research Questions

RQ1: What are the regular (systematic) aspects regarding phonetic adaptations of Turkic loanwords in Hungarian? Are there regularities in the first place? If changes occur systematically, what are the underlying patterns driving these changes? This question addresses the adaptation patterns.

RQ2: What statistical analysis can be given of loanword adaptations in Turkic-Hungarian words in terms of frequency and regularity? What is the average rate of assimilation for all the Turkic material in Hungarian? This question addresses the quantification of frequency.

RQ3: What are some advantages and troublesome issues about weighted operations regarding phonetic distance calculation? How does a phonetic distance calculation based on distinctive features provide a more coherent approach compared to evaluating operation costs based on more general properties?

RQ4: How adaptive are initial copies compared to long-term nativization of borrowings in the target language?

The period of intensive Hungarian-Turkic cohabitation, spanning the 6th to 10th centuries, coincides with the late ancient Hungarian era. This epoch, representing the transition from late Proto-Hungarian to early Old Hungarian, was characterized by the coexistence of tribal dialects across shifting settlement areas.

The linguistic properties of WOT loanwords in Hungarian serve as valuable indicators for reconstructing the linguistic landscape of the era, shedding light on languages like Hunnic that have left limited traces in historical records. By discerning patterns of loanword adaptation, this study aims to advance our understanding of loanword phonology and contribute to the broader field of linguistic analysis.

Scope and Limitations

Weighted operations allow researchers to assign different costs to specific phonetic or phonological changes, enabling the measurement of similarity between words while considering the specific phonetic properties of the languages involved. However, it's important to recognize the limitations of these operations. While weighted operations provide a more nuanced approach to phonetic distance calculation, the subjective nature of weight assignment and the potential oversight of subtle linguistic patterns should be considered.

The Levenshtein distance formula offers several advantages for linguistic distance calculation, including flexibility, language independence, and non-parametric nature. However, it also has limitations, such as the lack of linguistic context, unequal weighting of edit operations, sensitivity to word length, and lack of phonetic consideration.

Despite these limitations, efforts have been made to overcome them. Researchers have developed extensions and improvements to the Levenshtein distance formula, such as phonetically weighted algorithms, contextualized linguistic distance metrics, and hybrid approaches. These advancements aim to provide more accurate and comprehensive measures of linguistic dissimilarity, particularly in the context of loanword adaptation studies.

In the specific context of researching phonetic adaptations of West Old Turkic loanwords in Hungarian, limitations arise due to the lack of direct sources on the source language. Consequently, researchers must rely on indirect sources, such as loanwords found in other languages or historical references. This limitation may hinder the ability to compare and analyze phonetic changes that occurred during the borrowing process. However, comparative linguistic methods can be employed, drawing on available evidence from related languages to make informed hypotheses.

Overall, while the Levenshtein distance formula and weighted operations offer valuable tools for loanword adaptation studies, researchers should remain cognizant of their limitations and exercise caution in their application and interpretation.

Timeliness of the Study

The investigation into the phonetic adaptations of West Old Turkic (WOT) loanwords in Hungarian is particularly timely given several factors:

1. **Historical Linguistics Relevance:** The study of loanword adaptation provides valuable insights into historical linguistic processes, shedding light on the interactions between different language communities and the mechanisms of language contact and borrowing. Understanding the phonetic transformations undergone by WOT loanwords in Hungarian contributes to our knowledge of the linguistic history of both languages and the cultural exchanges that occurred in the Eurasian region.

2. **Contemporary Linguistic Landscape:** In contemporary linguistics, there is a growing interest in understanding the dynamics of language contact and bilingualism. The examination of loanword adaptation patterns in Hungarian offers valuable data for researchers investigating the phonological integration of loanwords into recipient languages. This knowledge is relevant not only for Hungarian linguists but also for scholars studying language contact phenomena across different language pairs.

3. **Methodological Advances:** Recent advancements in computational linguistics and phonetic analysis techniques have opened up new avenues for studying loanword adaptation. The use of refined algorithms and statistical methods allows for a more precise quantification of phonetic changes and the identification of systematic patterns in loanword adaptation. By leveraging these methodological advances, this study aims to provide a comprehensive analysis of WOT loanword adaptations in Hungarian.

4. **Cultural and Sociolinguistic Implications:** Language contact and borrowing are inherently linked to cultural and sociolinguistic processes. The phonetic adaptations of WOT loanwords in Hungarian reflect not only linguistic factors but also cultural and historical influences. By exploring these adaptations, we gain insights into the socio-cultural dynamics of the Eurasian region and the linguistic identities of communities involved in language contact situations.

In summary, the study of WOT loanword adaptations in Hungarian is timely in its relevance to historical linguistics, contemporary linguistic research, methodological advancements, and cultural and sociolinguistic implications. By investigating the phonetic transformations undergone by these loanwords, this study contributes to our understanding of language contact phenomena and the dynamics of linguistic evolution.

Author's Expectations Regarding the Study

As the author of this study, several expectations and aspirations underpin the research endeavor. These expectations encompass both the academic objectives and the broader implications of the study's findings:

1. **Contribution to Scholarship:** The primary expectation is to contribute novel insights to the scholarly discourse surrounding loanword adaptation and historical linguistics. By rigorously analyzing the phonetic adaptations of West Old Turkic (WOT) loanwords in Hungarian, the study aims to expand our understanding of the mechanisms underlying language contact and borrowing processes. It is anticipated that the findings will fill gaps in the existing literature and stimulate further research in related areas.

2. **Methodological Advancements:** A secondary expectation is to advance methodological approaches for studying loanword adaptation phenomena. By employing refined algorithms and statistical techniques, the study seeks to develop more sophisticated tools for quantifying phonetic changes and identifying regularities in loanword integration. It is hoped that these methodological advancements will enhance the accuracy and reliability of future research in this field.

3. **Interdisciplinary Insights:** Another expectation is to foster interdisciplinary dialogue and collaboration across fields such as linguistics, history, and cultural studies. The study's focus on the phonetic adaptations of WOT loanwords in Hungarian offers insights into the linguistic, historical, and cultural dynamics of the Eurasian region. By engaging with scholars from diverse disciplines, the study aims to enrich our understanding of language contact phenomena and their broader socio-cultural implications.

4. **Pedagogical Applications:** Furthermore, the study aspires to inform pedagogical practices in language education and language revitalization efforts. By documenting and analyzing the phonetic transformations undergone by loanwords, the study provides valuable resources for language instructors and curriculum developers. It is anticipated that the study's findings will inform language revitalization initiatives aimed at preserving and promoting linguistic diversity in multilingual communities.

5. **Public Engagement:** Finally, the study aims to engage with the broader public and raise awareness of the linguistic heritage and cultural significance of loanwords. Through accessible dissemination channels such as public lectures, outreach events, and media engagements, the study seeks to communicate its findings to diverse audiences, including students, educators, policymakers, and the general public. By

fostering public interest and appreciation for linguistic diversity, the study endeavors to contribute to the promotion of linguistic and cultural heritage preservation efforts.

In conclusion, the author's expectations regarding the study encompass contributions to scholarship, methodological advancements, interdisciplinary insights, pedagogical applications, and public engagement. By addressing these expectations, the study aims to make meaningful contributions to both academic research and broader societal endeavors.

Methodology

Levenshtein Distance Formula and Its Applications

The Levenshtein distance formula is a fundamental tool in computational linguistics, quantifying the dissimilarity between two strings by calculating the minimum number of single-character edits required to transform one string into another. These edits include insertions, deletions, and substitutions. This method is adept at capturing both phonetic and orthographic variations, making it suitable for linguistic distance calculation.

In comparative linguistics, the Levenshtein distance formula facilitates the reconstruction of evolutionary relationships between languages by comparing their lexical, morphological, or phonetic features. By measuring the distance between words or sounds in different languages, researchers infer patterns of language change and divergence, contributing to the development of language family trees and the understanding of historical language development.

In sociolinguistics and dialectology, the Levenshtein distance formula is utilized to assess linguistic variation within speech communities or regions. By comparing speech samples from different speakers or geographical locations, researchers can quantify phonetic or lexical divergence between dialects, aiding in the study of language change over time, identification of linguistic boundaries, and investigation of language contact phenomena.

Refinement of the Levenshtein Algorithm

While the classical application of the Levenshtein distance formula is widely used, it has limitations in capturing fine phonetic details. To address this, refined algorithms have been proposed in the literature. One such method is the sound class-based Levenshtein algorithm, which evaluates phonemes based on their distinctive features, allowing for more sensitive and perceptually acceptable edit distances.

Additional refinements include considering gemination, super-sub features, metathesis, and the voiced velar fricative. Gemination, the lengthening of consonants, is incorporated into

the refined algorithm, assigning appropriate penalty points for consonant lengthening and shortening. The refinement considers sub-features within major categories such as labial (round), coronal (anterior, distributed), and dorsal (high, back), applying penalty points accordingly for differences in these sub-features.

Metathesis, the transposition of sounds, is addressed by assigning penalty points for transpositions and substitutions when sounds are transposed and substituted simultaneously. Insertions and deletions of the voiced velar fricative (/ɣ/) incur semi-penalty points, reflecting its transitional or sonorant nature and accounting for its distribution in languages.

Key Components of Distinctive Feature Weighted Levenshtein Algorithm

The distinctive feature weighted Levenshtein algorithm considers distinctive features relevant to the application, assigns appropriate weights to each feature, and computes the weighted edit distance during dynamic programming. This approach offers increased precision and adaptability to specific contexts, although challenges remain in feature selection and weight assignment.

Application of Refined LD Algorithm

In this study, a comprehensive version of the sound class-based Levenshtein algorithm is employed. The algorithm assesses phonemes based on their distinctive features, refining the operation cost to capture nuanced phonetic differences. By considering various phonetic theories and rules, the algorithm aims to provide a more accurate measure of phonetic distance between linguistic units.

Structure of the Dissertation

The structure of the dissertation is organized into several key sections. The introduction provides an overview of the area of research, including main concepts such as the phonological stance model, perceptual stance model, and combined accounts. It also outlines the objectives, importance of research, research questions, scope, limitations, and the exposition of the Turkic material in Hungarian. The methods section details the approach taken to conduct the research. Results are presented in three main categories: borrowing process, adaptation process, and patterns, with subcategories such as heavy syllables, nasal palatalization, high back unrounded vowel, voiced velar fricative, labialization of vowels, and [±low] quality of the front unrounded vowels /a/ and /æ/. The discussion section analyzes and interprets the results, while the conclusions section summarizes the findings and their implications. Finally, the references section lists the sources cited throughout the dissertation. This structured approach ensures a comprehensive and cohesive presentation of the research process and outcomes.

Discussion & Conclusion

This study delves into the integration of loanwords from West Old Turkic into Hungarian, focusing on both the initial borrowing phase and the subsequent adaptation process. It begins by noting a remarkable observation: during the initial stage, the borrowed words exhibit minimal integration into Hungarian phonetics, with an average pronunciation distance of 7.21% from their West Old Turkic counterparts. This close phonetic resemblance suggests that Hungarian did not undergo significant modifications upon borrowing, indicating a direct transfer of lexical material.

Several factors contribute to this minimal change during the initial stage. Firstly, the frequent contact and interaction between Hungarian and West Old Turkic speakers facilitated assimilation with minimal phonetic alterations. Additionally, phonetic similarities between the two languages reduced the need for adjustments in pronunciation. However, it's important to recognize that this borrowing process was not a one-time event but occurred over a period of bilingualism, during which significant changes, such as the introduction of new sounds, occurred in Hungarian.

Cultural and social factors also played a role, with potential prestige associated with West Old Turkic encouraging the preservation of borrowed word phonetics. Nevertheless, further research is necessary to understand the subsequent stages of adaptation within Hungarian.

The study then moves to analyze the subsequent adaptation process, revealing an adaptation rate of 28.67% for loanwords in modern Hungarian. Patterns emerge in these adaptations, reflecting phonological constraints and tendencies within Hungarian. Notably, heavy syllables are preserved, and specific sound substitutions prioritize maintaining certain phonetic features over strict adherence to phonological rules.

For instance, the adaptation of the high back unrounded vowel (/ɯ/ or /ɨ/) prioritizes maintaining certain features, such as [+high] and [+back], over adherence to front-back harmony rules. Similarly, the adaptation of the voiced velar fricative (/ɣ/) demonstrates patterns resembling phonological changes in Hungarian, indicating a convergence between historical linguistic developments and loanword adaptations.

The study also discusses the preference for labialization, attributing it to articulatory characteristics and phonetic harmony. Additionally, the substitution of /j/ with /ɟ/ is explained by ease of articulation and perceptual plausibility.

The study acknowledges challenges in evaluating loanword adaptation, particularly regarding phonetic similarity and perception. It suggests future research avenues, including

comparisons with other language groups in the Eurasian steppes and testing native speakers' perceptions of loanword adaptation.

In conclusion, this research provides valuable insights into the borrowing and adaptation dynamics between West Old Turkic and Hungarian, highlighting the intricate processes of loanword integration. The findings contribute to our understanding of language evolution and change, offering a foundation for further investigations into language contact phenomena.

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