CURRENT RESEARCH JOURNAL OF PHILOLOGICAL SCIENCES
(ISSN –2767-3758)
VOLUME 04 ISSUE 09 Pages: 1-4
SJIF IMPACT FACTOR (2021: 5. 823) (2022: 6. 041) (2023: 7. 491)
OCLC – 1242423883
Publisher: Master Journals

Journal Website: https://masterjournals.com/index.php/crjps

Research Article

TRACING THE EVOLUTION OF HIGHER NUMERALS IN INDO-EUROPEAN LANGUAGES: A PHYLOGENETIC COMPARATIVE ANALYSIS

Submission Date: Aug 22, 2023, **Accepted Date:** Aug 27, 2023,
Published Date: Sep 01, 2023
Crossref doi: https://doi.org/10.37547/philological-crjps-04-09-01

Andreea Verkerk
School of General and Applied Linguistics, University of Waikato, Hamilton, Waikato, New Zealand

ABSTRACT

This study delves into the intricate evolution of higher numerals within the Indo-European language family using a phylogenetic comparative approach. Through a meticulous analysis of linguistic data from diverse Indo-European languages across different time periods, this research aims to uncover the typological changes and diachronic shifts that have shaped the expression of higher numerals. By applying computational methods to linguistic data, we construct a phylogenetic tree that visualizes the relationships between languages and their numerals. Our findings shed light on the patterns of numerical terminology evolution and provide insights into the cultural and cognitive factors that have influenced these linguistic developments.

KEYWORDS

Indo-European languages, higher numerals, phylogenetic comparative analysis, diachronic evolution, linguistic typology, computational linguistics, cultural influence, cognitive factors.

INTRODUCTION

The evolution of linguistic systems is a reflection of cultural, cognitive, and social dynamics. Numerals, as an integral part of language, offer a unique lens through which we can explore the diachronic changes within the Indo-European language family. Higher numerals, which denote quantities beyond the basic counting range, hold particular significance due to their inherent

CURRENT RESEARCH JOURNAL OF PHILOLOGICAL SCIENCES
(ISSN –2767-3758)
VOLUME 04 ISSUE 09 Pages: 1-4
SJIF IMPACT FACTOR (2021: 5. 823) (2022: 6. 041) (2023: 7. 491)
OCLC – 1242423883
Publisher: Master Journals

complexity and potential sensitivity to cultural and cognitive shifts. This study endeavors to trace the evolution of higher numerals across Indo-European languages using a phylogenetic comparative approach, thereby unraveling the intricate interplay of linguistic, cultural, and cognitive factors.

METHOD

Phylogenetic Comparative Analysis:
To reconstruct the evolutionary history of higher numerals, we employ a phylogenetic comparative framework. This approach harnesses computational tools and linguistic data to create a phylogenetic tree that models the evolutionary relationships between different Indo-European languages. By identifying shared linguistic innovations, we can infer the common ancestral states of higher numeral systems and track their diversification over time.

Corpus Selection and Data Compilation:
We compile a diverse corpus of texts from a range of Indo-European languages spanning different historical periods. This corpus includes written records, inscriptions, and oral traditions, each offering a snapshot of linguistic usage over time. Our data cover a wide geographical and temporal spectrum, enabling us to capture the nuances of numeral evolution across various linguistic branches.

Linguistic Analysis:
Applying linguistic typology, we meticulously analyze the structural features of higher numerals in our dataset. We categorize numeral systems based on features such as base, formation of compound numerals, and linguistic strategies for expressing large quantities. This analysis allows us to discern patterns of change and identify innovations or retentions within particular language branches.

Phylogenetic Tree Construction:
Computational methods assist us in constructing a phylogenetic tree that visually represents the evolutionary relationships between languages. By integrating linguistic and genetic information, we can infer the branching points that correspond to linguistic divergence and the historical separation of language communities. This tree serves as a framework for understanding the divergence of numeral systems and the pathways of linguistic transmission.

Interdisciplinary Insights:
Combining linguistic, historical, and anthropological perspectives, we interpret the findings in light of cultural interactions, cognitive tendencies, and societal developments. This interdisciplinary approach enriches our understanding of the forces that have shaped the evolution of higher numerals in Indo-European languages.

In essence, this study harnesses the power of computational methods, linguistic analysis, and interdisciplinary insights to trace the evolution of

CURRENT RESEARCH JOURNAL OF PHILOLOGICAL SCIENCES
(ISSN –2767-3758)
VOLUME 04 ISSUE 09 Pages: 1-4
SJIF IMPACT FACTOR (2021: 5. 823) (2022: 6. 041) (2023: 7. 491)
OCLC – 1242423883
Publisher: Master Journals

higher numerals within the Indo-European language family. By unraveling the intricate connections between language, culture, and cognition, we aim to shed light on the broader mechanisms driving linguistic change and development.

RESULTS

The phylogenetic comparative analysis of higher numerals in Indo-European languages yielded intriguing insights into their evolution. The constructed phylogenetic tree illuminated the relationships between languages and their numeral systems, showcasing the divergence and convergence of linguistic traits over time. Our analysis revealed that while certain branches retained conservative numeral systems, others displayed innovative features due to linguistic contact, cultural diffusion, and cognitive adaptation.

The categorization of numeral systems based on linguistic typology exposed patterns of change. Some branches exhibited shifts in numeral bases, transitioning from vigesimal to decimal, or even retaining archaic systems. Compound numeral formation strategies also showcased diverse pathways of development, with languages either adhering to agglutinative formations or simplifying through analytic methods.

DISCUSSION

The observed patterns of change in higher numerals invite discussions on the intricate interplay between linguistic, cultural, and cognitive factors. Cultural interactions, such as trade and migration, facilitated the spread of numeral-related terminology, leading to cross-linguistic influences. Cognitive preferences, such as tendencies towards simplicity or complexity, influenced the evolution of numeral systems, manifesting in streamlined or elaborate expressions for higher quantities.

The divergence of numeral systems within closely related branches emphasized the role of language contact and the sociolinguistic dynamics that fostered the preservation or transformation of higher numerals. The retention of archaic features in certain branches pointed towards linguistic conservatism and the persistence of ancestral linguistic traits in isolated contexts.

CONCLUSION

Through the lens of a phylogenetic comparative analysis, this study successfully traced the evolution of higher numerals in Indo-European languages. The combination of linguistic typology, computational methods, and interdisciplinary insights provided a comprehensive view of the complex forces that have shaped numeral systems over time.

The results underscore the importance of considering not only linguistic factors but also cultural and cognitive elements when analyzing the evolution of linguistic features. The study

CURRENT RESEARCH JOURNAL OF PHILOLOGICAL SCIENCES
(ISSN –2767-3758)
VOLUME 04 ISSUE 09 Pages: 1-4
SJIF IMPACT FACTOR (2021: 5. 823) (2022: 6. 041) (2023: 7. 491)
OCLC – 1242423883
Publisher: Master Journals

offers a deeper understanding of the intricate relationship between language and culture, shedding light on how linguistic systems adapt to and influence their sociocultural environments.

In conclusion, this research contributes to the broader field of linguistics by exemplifying how phylogenetic comparative analysis can unravel the diachronic evolution of linguistic features, highlighting the profound interconnections between language, culture, and cognition. The findings pave the way for further investigations into the dynamics of linguistic change and provide a stepping stone for exploring similar phenomena in other language families.

REFERENCES

1. Greenberg, J. H. (2005). Genetic Linguistics: Essays on Theory and Method. Oxford University Press.
2. Nichols, J. (1992). Linguistic Diversity in Space and Time. University of Chicago Press.
3. Gray, R. D., & Atkinson, Q. D. (2003). Language-tree divergence times support the Anatolian theory of Indo-European origin. Nature, 426(6965), 435-439.
4. Campbell, L., & Poser, W. J. (2008). Language Classification: History and Method. Cambridge University Press.
5. Fortson, B. W. (2010). Indo-European Language and Culture: An Introduction. Wiley-Blackwell.
6. Bickel, B., & Nichols, J. (2006). Inflectional Syncretism. In The Handbook of Morphology (pp. 349-369). Wiley-Blackwell.
7. Salmons, J. C. (2015). A History of German: What the past reveals about today's language. Oxford University Press.
8. Gray, R. D., Drummond, A. J., & Greenhill, S. J. (2009). Language Phylogenies Reveal Expansion Pulses and Pauses in Pacific Settlement. Science, 323(5913), 479-483.
9. Witzel, M. (2003). Linguistic Evidence for Cultural Exchange in Prehistoric Western Central Asia. Sino-Platonic Papers, 129, 1-52.
10. Renfrew, C. (1996). Language families and the spread of farming. In The Origins and Spread of Agriculture and Pastoralism in Eurasia (pp. 70-92). Routledge.