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MATHEMATICAL MODELS FOR
BALKAN PHONOLOGICAL CONVERGENCE

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C**OMPUTATIONAL L**INGUISTICS



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MATHEMATICAL MODELS
FOR
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SUMMARY

In this study, the vocalic systems of a large number of Balkan idioms (past and present) were analyzed in terms of Jakobsonian distinctive features. Various methods for comparison and scaling for similarity, as well as the problems encountered, are discussed and evaluated. Some questions of typology, such as distinctive feature weights, are revealed; suggestions are made for their future incorporation into typologies of this nature.

It is a surprising fact in linguistic scholarship that no feasible, nor adequate manner for comparing phonological systems quantitatively has been devised. The notion of distinctive feature valence proposed by the Russian linguist, V. I. Postovalova, answers the need for such a feature distribution measure.

The valence matrices for the vocalic systems of fifty-one Balkan idioms, as well as simple and joint probabilities of distinctive feature occurrence are calculated. Finally, the results are correlated and submitted to computerized factor analysis (various programs).

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- 0.0 Phonological typologies, statistical counts
and mathematical models
- 1.0 Distinctive feature typologies
- 2.0 The indices of Andrej Avram
- 3.0 Postovalova's valence and probability indices
- 4.0 Valence analysis of Balkan vocalic systems
- 5.0 Statistical correlation
- 6.0 Results
- 7.0 Some conclusions
 - Notes
 - Summary
- Appendix A: A list of all Balkan idioms analyzed
- Appendix B:
 - 1) Sample distinctive feature matrices
(Greek and Makedonski dialects)
 - 2) Sample valence matrices for two of the above
- Bibliography