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Using Genetic Algorithms



# Optimization Models of Sound Systems Using Genetic Algorithms

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**Abstract** **Authors**

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In this study, optimization models using genetic algorithms (GAs) are proposed to study the configuration of vowels and tone systems. As in previous explanatory models that have been used to study vowel systems, certain criteria, which are assumed to be the principles governing the structure of sound systems, are used to predict optimal vowels and tone systems. In most of the earlier studies only one criterion

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has been considered. When two criteria are considered, they are often combined into one scalar function. The GA model proposed for the study of tone systems uses a Pareto ranking method that is highly applicable for dealing with optimization problems having multiple criteria. For optimization of tone systems, perceptual contrast and markedness complexity are considered simultaneously. Although the consistency between the predicted systems and the observed systems is not as significant as those obtained for vowel systems, further investigation along this line is promising.

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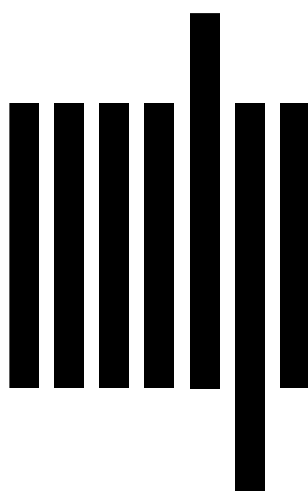
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