

ON MINIMIZING FEATURE SPECIFICATIONS OF PHONEMES

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This study tells what structurally justifiable orders of feature specification can be used to eliminate redundant features for the phonemes of Russian and what is the minimum number of features necessary for the unique specification of each phoneme.

Background and summary

Jakobson, Cherry, and Halle 1953 specify the 42 phonemes of Russian fully, using eleven binary distinctive features. They show that altering the order of feature specification for different phonemes reduces the average number of features specified per phoneme to 6.5. But they do not justify these different orderings on any structural basis. Next, they show how the 6.5 features/phoneme can be reduced to 3.05 for triphonic groupings by considering sequential constraints. Extensions of the methodology are indicated.

This study uses a generalized description of the Russian syllable, which is probably the limiting phonotactic case. Syllable structure determines the order of specification of features and specifies different sets of features for different classes of phonemes. Each phoneme is directly related to only one feature. All other features pertinent to a given phoneme are supplied redundantly by the phonotactics as a function of the way that phoneme is related to the syllable.

Conclusions

The tactic structure of the Russian syllable predicts the specification of redundant features and identifies each phoneme uniquely by directly relating it to only one feature. This seems to be independent of the feature system chosen.

Reference

Jakobson, R., E.C. Cherry, and M. Halle (1953): "Toward the logical description of languages in their phonemic aspect", Lg. 29, 34-46.