

A MODEL THAT YIELDS ALL ALTERNATIVE PRONUNCIATIONS

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We usually think of phonologies as a means to convert any single base form into a single pronounced form (which is usually the normative form). However, many base forms can be pronounced in more than one way, so it seems that phonologies should be able to produce all observable alternative pronunciations.

Having noted that a fundamental requirement is not met by current phonological theory, this paper presents a phonological model that can produce all observable pronunciation alternatives.

In principle, a phonology that contains n rules can produce a maximum of 2^k alternative pronunciations from any base form, where k is the number of rules that are optional. In practice, the number of possible pronounced forms that can be produced is 2^j , where j is the number of optional rules that can apply to a given base form (as can be determined by an iterative procedure). The observable pronunciations can be found among the 2^j possible pronunciations. Our model produces the set of possible pronunciations, and uses empirically-defined interrule relations to select all observable pronunciation alternatives.

A powerful generalization lies in our finding that the optional/obligatory property of rules is naturally defined by the values along the diagonal of the square matrix that expresses all interrule relations.

This model has been simulated by a computer, so we shall present sample derivations and experimental findings.