

**Derivational Phonology and Optimality Phonology:  
Formal Comparison and Synthesis**

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## ABSTRACT

This thesis conducts a formal comparison of Optimality Theoretic phonology with its predecessor, Rule-based Derivational phonology. This is done in three studies comparing (i) rule operations and Faithfulness constraint violations, (ii) serial rule interaction and hierarchical constraint interaction, and (iii) derivational sequences and harmony scales. In each, the extent of the correlation is demonstrated, and empirical implications of their differences drawn out. Together, the studies demonstrate that there is no case in which the two frameworks mimic each other at all three points at once: the “Duke of York gambit”, where one rule is reversed by another, is the one case where rule ordering and constraint ranking converge, yet the complexity of this composite mapping demonstrably exceeds that of the input-output mappings of Optimality Theory. It is also argued that the Duke of York mapping is generally unexplanatory, and that its availability falsely predicts that a vowel inventory may be reduced to one in some contexts by deletion and then insertion. The failure of this prediction is illustrated from Yokuts, Chukchee and Lardil.

A synthesis of derivational and optimality phonology is then presented in which constraints accumulate one by one (Constraint Cumulation Theory, CCT). This successfully describes patterns of overapplication, mutual interdependence, and default, each of which was previously captured in one of the systems but not replicated in the other. It also automatically excludes Duke of York derivations except for some attested subtypes. The way the model handles overapplication and underapplication leads to the further prediction that neutralisation and elision processes are transparent except when neutralisation occurs as part of a stability effect – a result which draws on the resources of contemporary phonology to resolve the ‘unmarked rule ordering’ problem from the 1970s, and reinforces the traditional distinctions of neutralisation vs. conditioned variation, and elision vs. epenthesis.

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