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Typological consequences of local constraint conjunction

Phonology

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Phonological opacity has become the subject of several competing analyses in both rule- and constraint-based phonology. One such analysis, local constraint conjunction in Optimality Theory, is shown here to predict a typology of possible and impossible synchronic chain shifts and derived-environment effects. The predictions, which do not follow from the other analyses, appear to be borne out by language data.

In local conjunction, two Optimality-Theoretic constraints C and C' are combined into a new constraint (C & C') which is violated if there is a domain within which both C and C' are violated (Smolensky 1995). This mechanism has been used to account for two kinds of opacity: chain shifts (Kirchner 1996) and derived-environment effects (Lubowicz 1998).

In order for C and C' to be conjoined, there must be a common domain within which both can be violated. In the framework of Correspondence Theory (McCarthy & Prince 1995), certain constraint families inherently cannot share domains, and hence cannot be locally conjoined. The phonological chain-shift and derived-environment effects corresponding to those conjunctions are predicted not to occur.

DEP constraints are violated by a surface segment with no underlying correspondent; MAX constraints, by an underlying segment with no surface correspondent. Therefore, no segment can participate in both a DEP and a MAX violation, and the conjunction (DEP & MAX) is ruled out. It is shown formally that this entails the impossibility of chain shifts of the form $AxB \rightarrow AB \rightarrow AyB$.

Markedness constraints are violated by surface configurations, so no segment can participate in both a markedness and a MAX violation.

The conjunction (Markedness & MAX) is ruled out, which is shown to predict the impossibility of a derived-environment effect of the form {AxyB → AB, AxB → AxB}.

Both predictions are tested against published reports of chain shifts and derived-environment effects. A review of twenty-seven cases to date has found all of them to conform to the predictions of this theory. An apparent counterexample to the chain-shift prediction (Donegan & Stampe 1979) is examined and refuted. The typological pattern is taken to support the local-conjunction account, which is the only one which predicts it.

References

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