

Natural Class

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Abstract

Logical Phonology (LP) currently uses three operators to model processes that either (a) change segments into other segments by removing or adding **features** (via set subtraction ‘ \setminus ’ or unification ‘ \sqcup ’, respectively) or (b) insert or delete whole **segments** (via the segment operator ‘ \mapsto ’ and a null segment symbol ‘ ϵ ’). LP also includes a model of environments which involves a parameterized SEARCH process built into each rule which is sensitive to the scope of feature specifications. I briefly introduce these aspects of LP, but focus on the notion of *natural class*. Natural classes in LP are a critical part of the specification of a rule’s target and environment of application. In LP segments are analyzed as (basically) sets of valued features such as +VOICED, and natural classes of segments are thus defined intensionally by *sets of sets* of valued features. I explore the interaction of LP natural class logic with the three operators \setminus , \sqcup and \mapsto , as well as with factors such as underspecification and rule ordering, to show how LP reconceptualizes phenomena like the traditional distinction between feature-filling and feature-changing processes. I also look at special cases of natural vs. unnatural classes such as singleton segment classes (which are *sometimes* natural classes), the universal set of all segments (which is a natural class) and the empty set of segments (which is not a natural class). The focus on intensionally defined classes, as opposed to, say, surface or lexical segment inventories, underlines an important difference between LP and markedness or “output driven” approaches like Optimality Theory and “constraint and repair” models. I will apply LP’s natural class reasoning to reduce to narrow phonology phenomena that in other models require some kind of diacritic exceptionality or morphological or lexical conditioning. Examples are drawn from Russian, Turkish, Hungarian, Catalan, Basque, Greek, and Welsh.