

Synchronic Systems in Diachronic Change: The Role of Contrast

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Our paper addresses a question raised in the workshop prospectus, namely ‘how innovation comes into being and, once it has occurred, enters the synchronic computational system’. As suggested there, our account involves the relation between the phonological grammar and ‘non- (or pre-) grammatical phonetic variation’; however, we wish to address a different aspect of this relationship, which leads us to rethink the connection between synchrony and diachrony more generally.

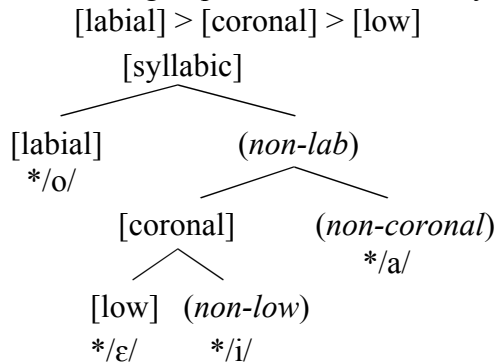
Following the reorientation of linguistic theory toward synchronic systems in the wake of Saussure, the relationship between synchrony and diachrony became unclear. In pre-generative structuralist theories, synchronic grammars were composed of contrasting elements locked into systems of oppositions. If one takes too literally Saussure’s (1972 [1916]: 166) dictum that ‘dans la langue il n’y a que des différences . . . sans termes positifs’, then grammars become incommensurable, and one has no way to relate successive stages of a language, or even closely related dialects (Moulton 1960). Generative grammar (Chomsky & Halle 1968) solves this problem by construing a phonological grammar as a system of rules that mediate between underlying (lexical) and surface (phonetic) forms. Now, grammar change takes the form of the addition, loss, reordering, or restructuring of rules. Kiparsky (1965) demonstrated that a series of changes in Armenian dialects can be understood in terms of the spreading of three rules; furthermore, his analysis ‘highlights the pointlessness of a structural dialectology that...distinguishes dialects according to points of structural difference rather than according to the innovations through which they diverged’.

We think that generative grammar went overboard in jettisoning the structuralist notion of language-particular contrast, and that contrast plays a crucial role in synchronic phonology as well as in diachrony. In particular, we argue that *contrast shift*, a change in the contrastive organization of the phonemic inventory of a language, is an important type of phonological change. The insight that phonological change may involve a reorganization of the phonemes of a language goes back to Jakobson (1931); to the extent that phonemes are contrastive units, contrast shift can be viewed as an inevitable consequence of a structuralist/ generative approach to phonology. However, Jakobson’s program for a truly structuralist approach to change was never implemented. We argue that the true dimensions of contrast shift are revealed when we embed the hypotheses in (1) into a generative grammar:

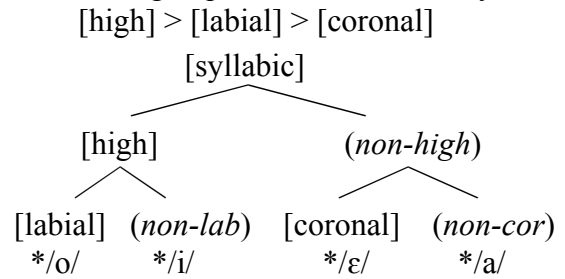
1. Hypotheses about contrastive features
 - a. *The Contrastivist Hypothesis* (Hall 2007): Only contrastive features are active in the phonology.
 - b. *The Contrastive Feature Hierarchy* (Dresher 2009): Contrastive features are assigned by language-particular feature hierarchies.
 - c. Feature hierarchies are subject to diachronic change: features may be reordered, or contrasts may be reinterpreted over time.

The hypotheses in (1) predict that contrast shifts will have observable consequences for synchronic patterns of phonological activity. This prediction is dramatically confirmed in a survey of diachronic changes in the vowel systems of Algonquian languages by Oxford (2012). Oxford proposes that Central Algonquian has the vowel feature hierarchy in (2), which continues the Proto-Algonquian (PA) system. Oxford observes that two groups of changes are particularly common in Central Algonquian (3); these changes are consistent with (2) on the assumptions that (a) contrastive sisters are the most likely merger partners, and (b) palatalization is triggered by a contrastive feature, here [coronal].

2. Central Algonquian feature hierarchy:



4. Eastern Algonquian feature hierarchy:



3. Mergers and palatalizations characteristic of the Central Algonquian languages

- a. */ε/ regularly merges with */i/: Partial or complete mergers of short */ε/ > /i/ occur in Fox, Shawnee, Miami-Illinois, Ojibwe-Potawatomi, and Cree-Montagnais-Naskapi. Long */ε:/ completely merges with /i:/ in Woods Cree and Northern Plains Cree.
- b. Palatalization always includes */i/ as a trigger: PA */t, θ/-palatalization is triggered by */i, i:/; Montagnais */k/-palatalization is triggered by */i, i:, ε:/; Betsiamites Montagnais /t/-palatalization is triggered by /i:/.

Oxford (2012) proposes that in Eastern Algonquian (EA) the feature [low] was reanalyzed as [high] and promoted to the top of the hierarchy (4). The new order leads to dramatically different patterns of merger and palatalization (5):

5. Mergers and palatalizations characteristic of the Eastern Algonquian languages

- a. */ε/ merges with or shifts to */a/: Partial or complete mergers of PA short */ε/ or its PEA reflex */ə/ with */a/ occur in Abenaki, Mahican, Mi'kmaq, and Maliseet-Passamaquoddy; PEA long */ε:/ shifts to /a:/ in Massachusetts and merges with */a/ in Western Abenaki; long and short */ε(:)/ shift to /a(:)/ in Cheyenne; and vowel harmony involves */ε(:)/ and */a(:)/ in Arapaho.
- b. Palatalization is triggered by */ε(:)/ but *excludes* */i/: in Massachusetts */k/-palatalization is triggered by PEA */ε:/ but not /i:/; Cheyenne “yodation” (*k/ > /kj/) is triggered by */ε(:)/ only.

More radical contrast shifts occur in the development of the Mansi and Khanty vowel systems from Proto-Ob-Ugric. Harvey (2012) shows that one can make sense of these changes by keeping track of the changes in their contrastive hierarchies, as revealed by inventories and patterns of activity. He argues that contrast shifts describe phonological events that can be shared and borrowed by neighbouring speech communities, and plotted as isoglosses. For example, front-back ([coronal] vowel harmony is retained in some Mansi and Khanty languages and lost in others. Harvey shows that harmony is lost in dialects where the ranking of [coronal] is lowered to the bottom of the feature hierarchy, and that this change appears to have originated in Northern Mansi and spread along the major regional rivers to both Mansi and Khanty dialects (which excludes the possibility of this being a genetic change).

We will also show examples of how changes in contrastive feature specifications correlate with subtle changes in the phonetic realizations of phonemes. For example, once /ε/ loses its [low] feature, it is potentially free to become a non-low vowel; this kind of phonetic drift may in turn provoke a reanalysis of the governing contrasts by a new generation of learners. As the Algonquian and Ob-Ugric examples show, viewing phonological change in terms of contrast shift accounts for large-scale typological patterns that are hard to explain any other way. These developments in turn lend support to language-particular contrastive feature hierarchies as an organizing principle of individual phonological systems.