

The role of phonetic detail in determining patterns of sound change

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Sound changes that occur recurrently in different languages have been considered more natural than those which do not. Because natural sound changes have been shown to have a phonetic basis, less common outcomes in the exact same context have been considered phonetically anomalous. I will argue that seemingly opposite sound changes and different outcomes of change may emerge from small variations in articulatory timing (or in articulatory targets) and from adjustments operating along different dimensions directed to achieve the same functional goal.

I will first provide an overview of apparently different paths of change which may be explained by small differences in articulatory detail. I will then focus on two empirical studies. The first study (Solé, Hyman & Monaka, in press) examines the process of post-nasal obstruent *devoicing* in Shekgalagari (found also in other Bantu languages), a process which challenges the alleged universality of postnasal voicing (Hayes 1999, Pater 1999). Voiced /nd/-/Vd/, voiceless /nt/-/Vt/ and devoiced /nd/ [nt] sequences were analyzed. Acoustic and laryngographic data show (i) complete postnasal devoicing, and (ii) that in Shekgalagari voiceless stops do not have longer voicing into the closure postnasally than postvocally (which is at the basis of postnasal voicing), in contrast with the findings for most languages. The results indicate an *early* raising of the velum relative to the oral constriction which inhibits nasal leakage into the stop closure. We argue that in N+voiced obstruent sequences such early closure of the velum results in a long, devoiced stop (due to aerodynamic factors) and a strong release burst which may have been reinterpreted as a voiceless obstruent. Thus, apparently opposite sound changes, such as postnasal voicing and devoicing may stem from differences in the timing of velopharyngeal closure.

The second study (Solé, Sprouse & Ohala, in press) shows that adjustment of different articulatory parameters (e.g., velic leakage, oral leakage, larynx lowering, tongue body lowering) may facilitate sustaining voicing during a stop closure. Such adjustments operating along different dimensions may give rise to qualitatively different outcomes, such as emergent nasals, spirantization, implosivization, retroflexion, though they all originate in an attempt to alleviate the ‘aerodynamic voicing constraint’.

In conclusion, small physical and physiological differences in the way languages implement their target sounds may give rise to qualitatively different patterns. But the same phonetic principles may be used to explain both common and less common patterns of change.

References

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