

On substance in phonology

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While 'substance-free' phonology owes its name to Hale & Reiss (2000), the idea echoes Fudge's (1967: 26) proposal that phonologists "ought to burn their phonetic boats and turn to a genuinely abstract framework." One motivation for this is the desire to avoid the redundant formal encoding of physiological facts: Hale & Reiss (2000) argue that no insight is to be gained by positing phonetically motivated universal markedness constraints, and Mielke (2008) argues against attributing to UG an inventory of features that could be derived from the properties of the human vocal and auditory apparatus. However, theories in which phonetic substance is altogether banished from phonology can end up looking surprisingly similar to phonetically based theories in the explanations they posit for phonological patterns that *are* phonetically 'natural.' If phonology is oblivious to phonetic content, then the fact that many phonological patterns are natural must be attributed to phonetics itself. In the case of substance-free theories, the influence of phonetics can exert itself only through acquisition and diachrony, rather than through phonetically based synchronic rules or constraints, but if phonology is "a genuinely abstract framework," much of its explanatory burden must be shifted to phonetics.

Is anything lost in this transfer? This paper argues that something is lost; that it can be regained through the moderate use of phonetic substance in phonology; and that the banishment of substance has been based in part on unwarranted assumptions about the rigidity of phonological representations.

Mielke's case for emergent features draws support from the existence of phonological patterns involving unnatural classes of sounds. If phonology is "a genuinely abstract framework," it offers little reason for skepticism about such patterns. They may arise diachronically through uncommon combinations of phonetically natural changes, but the synchronic learner can easily represent them. However, Hall (2010) and Godfrey (2012) show that several of the 'unnatural' patterns reported by Mielke are subject to reanalysis either as natural or as combinations of natural patterns with independent motivation. For example, what Mielke treats as deletion of nasals before the unnatural class of nasals and fricatives (to the exclusion of obstruent stops) in Bukusu, Hall (2010) analyzes as independently motivated patterns of nasal effacement before fricatives, nasal place assimilation, and a systematic ban on geminates. There is, then, at least a methodological case for pursuing a theory that forces one to look for naturalness.

The proponents of substance-free approaches are correct in observing that the phonetic properties of phonemes do not dictate their phonological behaviour. But there is a way to curtail the role of substance without eliminating it altogether. Contrastive specification based on a cross-linguistically variable hierarchy of features, as proposed by Dresher (2009), offers a principled explanation for the fact that phonemes with a particular phonetic property are sometimes ignored by phonological processes that refer to the corresponding feature. Consider an example from Mackenzie (2013). A three-way contrast among implosives and voiced and voiceless plosives may be encoded by either of two hierarchical orderings of [voice] and [constricted glottis]. If [c.g.] takes wider scope, it distinguishes the implosives, and [voice] is relevant only for the plosives; if [voice] takes wider scope, it distinguishes the voiceless plosives, and [c.g.] is relevant only for voiced stops. As Mackenzie shows, both possibilities are attested. Ngizim [voice] harmony requires agreement between plosives, but ignores implosives. Hausa [c.g.] harmony requires agreement between (homorganic) voiced stops, but ignores the voiceless plosives. Under this view, the task of the learner in acquiring phonological representations is to set up a system of features that is just sufficient to differentiate the phonemic inventory and that allows for the encoding of observed patterns. If the features themselves must be phonetically interpretable, then the learner's job is simplified, and the analyst's hypothesis space is constrained. Representations are substantive enough to make 'natural' patterns the norm, but also abstract enough to account for the fact that phonetics does not determine phonological destiny.

References

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