Onset sonority constraints and subsyllabic structure

Jennifer L. Smith

In this paper, I investigate a restriction on syllable-to-melody association that seems at first to resist explanation by functionally motivated well-formedness constraints (WFCs). I show that the apparent problem can be resolved if onset sonority constraints — WFCs that are based on *functional* considerations — are nevertheless defined in terms of *formal* syllable structure.

The *MARGIN/X constraint subhierarchy (Prince & Smolensky 1993) is designed to capture the cross-linguistic preference for low-sonority onsets. This preference has a functional motivation: the auditory system is particularly sensitive to rapid changes, and a low-sonority onset is more distinct from the nucleus than a high-sonority onset is (Delgutte 1997). Therefore, the constraints of the *MAR/X subhierarchy (1), and their universally fixed ranking determined by the sonority scale, are functionally grounded (Archangeli & Pulleyblank 1994).

(1) *MAR/VOWEL >> *MAR/GLIDE >> *MAR/LIQUID >> *MAR/NASAL >> *MAR/OBSTRUENT

The universal ranking in (1) has typological implications. Namely, if some language has a particular *MAR/X constraint ranked high enough to prohibit a certain class of onsets, any higher-ranked *MAR/X constraint should also show effects. So if onsets of a certain sonority level are banned, all higher-sonority onsets should be banned too. This prediction is met in many cases, including the Sestu dialect of Campidanian Sardinian (Bolognesi 1998). However, there are languages that ban syllable-initial liquids *but not syllable-initial glides*. Examples include Iglesias Campidanian (Bolognesi 1998; in word-initial syllables) and Seoul Korean (e.g., Sohn 1987; excluding ambisyllabic liquids and recent loans). Since a high-ranking *MAR/LIQ implies a high-ranking *MAR/GLI, it might seem that these liquid-specific onset prohibitions cannot be attributed to *MAR/LIQ. But apart from sonority, a ban on liquid onsets as a class has no obvious functional motivation. (For example, a liquid-onset ban often extends to central and/or lateral approximant liquids, so simply invoking a constraint that restricts taps and trills to intervocalic position is not enough.) Therefore, if an anti-liquid-onset constraint distinct from *MAR/LIQ were to be proposed for these cases, it would not be a well-grounded constraint.

I argue for an alternative solution to this problem that avoids the positing of a novel and ad-hoc constraint. It has been shown on the basis of a number of languages, including Spanish, French, Slovak, English, and Korean (e.g., Kaye & Lowenstamm 1984, Sohn 1987, Harris & Kaisse 1999), that two syllable positions are available for pre-peak glides. They can be true structural onsets, daughters of the syllable node. Or, they can be nuclear onglides, dominated by a (possibly shared) mora and thus part of a rising diphthong. I propose that *MAR/X constraints are formally defined to evaluate only *non-moraic segments*. Thus, true onset glides violate *MAR/GLI, but nuclear onglides do not. Any language that allows syllable-initial glides while banning liquid onsets is now predicted to have nuclear onglides, not true onset glides. The phonetically grounded *MAR/LIQ can be invoked to explain the absence of liquid onsets even in these cases, because *MAR/GLI *is* obeyed — syllable-initial glides are not syllabified as margins. Support for this analysis is found in the microvariation between two dialects of Campidanian Sardinian (Bolognesi 1998) that have liquid-onset restrictions in initial syllables: the ability to have initial glides correlates with the ability to have nuclear onglides in other contexts as well.

In conclusion, an examination of liquid-specific onset prohibitions shows that the functionally grounded *MAR/X constraints are defined so as to refer to formal aspects of syllable structure. This finding supports Hayes' (1999) argument that even functionally grounded well-formedness constraints are defined over formal phonological elements.