

Recent proposals such as Licensing by Cue (Steriade 1997, 1999) claim that phonetic explanations for phonological phenomena render structural and syllabic accounts superfluous. This paper argues for the continued relevance of structural limitations on phonological forms.

Misantla Totonac (henceforth Totonac) allows two kinds of coda clusters: nasal-stop (1a) and stop-fricative (1b) (MacKay 1999). Only the former are allowed after long vowels (2). Vowel length thus influences coda content: Only a subset of Totonac’s codas appear with bimoraic nuclei. This effect is derived by capitalizing on the featural difference between the two kinds of clusters and imposing restrictions on syllable size.

The two kinds of clusters differ in their [place] features. Nasal-stop clusters contain a single doubly-linked [place] node because they are always homorganic: nasals always take on the [place] feature of a following consonant in Totonac. Stop-fricative clusters, though, are necessarily non-homorganic, a consequence of the combinatorial possibilities (MacKay 1999:67). As a result, they contain two [place] nodes. Totonac, then, permits only homorganic codas after long vowels.

This interaction can be captured by limiting the number of rime positions per syllable. Improving on proposals such as Selkirk (1982) and Borowsky (1986), an Optimality Theoretic (Prince & Smolensky 1993) analysis grounds these limitations in principled constraints. In Totonac, syllables license three rime segments, allowing maximally VCC or VVC. However, by employing constraints that identify segments by their [place] nodes rather than their root nodes or CV-slots (Itô & Mester 1993), homorganic clusters will also surface after long vowels because these constraints recognize such clusters as single segments.

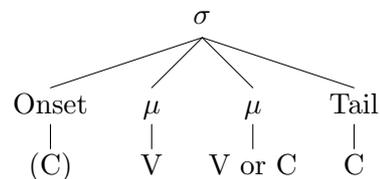
The constraint $*3\mu$ limits syllables to two moras, and NON-BRANCHING MORAS prevents each mora from dominating multiple segments. Together these allow maximally two moraic segments. Further, coda segments may be moraic or nonmoraic, but those that are nonmoraic can be regulated independently of their moraic counterparts. $*\text{COMPLEX}(\text{Tail})$ limits nonmoraic rime constituents (“Tails”; cf. Borowsky’s (1986) “Appendix”) to one [place] node. This constraint penalizes the triple markedness of Tail clusters: They are codas, they are nonmoraic, and they are clusters. Short vowels leave room for one moraic and one non-moraic coda segment (VCC), but only the Tail is available when the vowel is long (VVC; see (3)). $*\text{COMPLEX}(\text{Tail})$ ensures that coda clusters are generally banned after long vowels, but with their single [place] nodes, nasal-stop clusters—the language’s only homorganic codas—are permitted. This accounts for the coda cluster patterns described above. Nasal-stop clusters, by virtue of their featural configuration, are not subject to the cluster-limiting effects of $*\text{COMPLEX}(\text{Tail})$ after long vowels.

This system can also model Selkirk’s (1982) English data. Coda clusters in English must be coronal after bimoraic nuclei: *round*, $*\text{roump}$. This is explained by refining $*\text{COMPLEX}(\text{Tail})$ to ban only non-coronal clusters, capitalizing on the relative unmarkedness of coronals. Additionally, English allows biconsonantal codas (*warm*, *lamp*) but not their triconsonantal combinations ($*\text{larmmp}$). This is a consequence of limiting the rime to three segments. VCC is acceptable, but VCCC is simply too large.

Constraints on the kinds of structures languages allow improve the explanatory power of phonological theory. Nucleus-coda interactions and coda size restrictions are explained by limiting the available syllabic positions. With this approach, the apparently idiosyncratic restrictions of Totonac and English are united under one analysis. Phenomena such as those analyzed here argue for the retention of structurally and configurationally based avenues of investigation in phonology.

- (1) a. Nasal-Stop Clusters
 (i) [lɔŋq.ftɔŋ] ‘he/she was cold’
 (ii) [muu.siiŋk] ‘cave’
 (iii) ta[ŋg.wi.niʔ] ‘money’
- b. Stop-Fricative Clusters
 (i) [tsɔqs] ‘almost/about to’
 (ii) [tuu.tʃu.tɔqf] ‘he/she is lame’
 (iii) [paqɫ.tʃa] ‘tomato’
 (iv) [ʔut paks] ‘X is covered with dew’
- (2) Nasal-Stop Clusters After Long Vowels
 a. [ki.ɫqɔŋɔ.nan] ‘he/she (mouth) snores’
 b. [ʔi.flaa.ɫqɔŋɔ.na] ‘his/her snores’
 c. [muu.siiŋk] ‘cave’
 d. *[ki.ɫqɔqs.nan]

(3)



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