Strength-Based Faithfulness and the Emergence of Syllable Complexity

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The axiom of the invariance of linguistic complexity in linguistics is normally applied to the *core grammar*, i.e. morphology and syntax. As a matter of fact, it is evident that phonological complexity differs greatly across languages. One of the major issues of modern phonological theories is to explain why, if the fundamental syllable type is CV, there are languages that allow tautosyllabic CVVVV (e.g., Gilbertese *–kaeei*, 'augmentative suffix', Blevins 2004:213) or CCCCCCCCV (e.g., Georgian *gvprckvnis* 'he peels us', Comrie 1981:200). CVCV theory (Scheer 2004) assumes that all syllables are underlyingly CV. A sequence like [spra] is to be interpreted as being the phonetic realization of abstract /sVpVra/, where empty nuclei can remain silent under particular circumstances. Beats-and-Binding phonology (B&B, Dziubalska-Kołaczyk 2005), albeit abandoning the traditional notion of syllable, claims that the perceptually optimal sequence is a unit called "beat" preceded by a "non-beat". CCV or VCC can occur, but only under certain conditions. Note that whilst B&B is perceptually based, CVCV theory is a phonetics-free phonology. In order to explain [spra], CVCV theory resorts to the notion of infrasegmental government, whereas B&B would instead consider NAD, the Net Auditory Distance between segments. In this contribution I propose an OT-based model where syllable complexity derives from casual speech phenomena (such as coarticulation and misperception). In order to get to the abstract representation of a word, the learner/listener has to analyze an extremely variable input, where the frequency and the perceptibility of certain segments play a role in determining their strength in the underlying representation. FAITHFULNESS constraints function as empty templates (Blaho 2008:41) that are ranked according to the strength assigned to the segments. Let us consider the following ranking: MAX-[_](strength=6) > MAX-[_] (strength=3) > MAX[_](strength=2) and the following possible pronunciations of a hypothetical word like /fspra/: [fspra, fsra, spra, spra, sr, sra]. Out of 6 tokens, [s] appears 6 times, [p] 3 times and [f] 2 times. The relative frequency of these sounds translate into a *strength value* and provides the content of the FAITHFULNESS constraints: MAX[s] > MAX[p] > MAX[f]. If in a given grammar FAITHFULNESS constraints dominate MARKEDNESS constraints like *COMPLEX and NOCODA, complex syllable types will emerge as a consequence of the relative perceptual strength of certain segments in certain positions (cf. Steriade 2001). The model seems to be able to account for acoustic and articulatory phenomena, as well as for the frequency of pronunciation variants, without having to implement them in the grammar. The possibility to have complex syllables is seen as a consequence of a constraint ranking where FAITHFULNESS dominates MARKEDNESS.

References

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