Locality and non-linear representations in tonal phonology

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One of the central goals in phonological theory is understanding the nature of speakers' knowledge of language-specific well-formedness generalizations. This talk argues that, for tone, well-formedness is fundamentally local over autosegmental structures in a well-defined sense. This offers a new explanation of cross-linguistic variation in tonal well-formedness, and it is shown how this compares favorably to previous explanations in that it is sufficient in terms of being able to describe patterns in the typology, restrictive in that it does not predict the existence of computationally complex, unattested patterns, and is learnable.

The central idea behind this notion of locality, extended from work on learnable string patterns, is that the well-formedness of an autosegmental structure is determined entirely by the well-formedness of substructures of a fixed size. That tone patterns are fundamentally local in this sense is demonstrated through analyses of tone-mapping phenomena, or variation in how tone melodies are realized over strings of syllables. It is shown how the range of this variation can be captured with language-specific, inviolable constraints which specify forbidden substructures. This is in contrast to previous explanations of this typology, which require global reference to the directionality of association, implemented either with parameterized association conventions (in derivational frameworks) or violable, ranked constraints (in optimization-based frameworks). It is known that this global, as opposed to local, evaluation both undergenerates and overgenerates with respect to the typology of tone mapping patterns.

Finally, it is briefly discussed how local substructure grammars can be learned. This means that this notion of locality not only gives us an attractive theory of the typology of tone, it also gives us an understanding of how native speakers might internalize these patterns. This talk will also briefly discuss how these results make inroads towards future research in studying segmental autosegmental representation, local theories of phonological maps over both strings and other kinds of representations, and constraint definition languages.