Empirical perspectives on prosodic structure: A theoretical appraisal

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Recent years have seen tremendous advances in understanding the acoustic-phonetic structure of prosodic information, as well as the function of this information in processing the speech signal. This talk highlights how recent empirical findings elucidating prosodic structure and function inform theoretical perspectives on prosody. A good deal of empirical work supports a well-known framework known as autosegmental-metrical (AM) theory (e.g., Pierrehumbert, 1980); the nature of this support will be reviewed in the talk. At the same time, at least two challenges for AM theory have been raised. The first concerns implications of its formal phonological and phonetic assumptions regarding the nature of tonal features; it is shown that these assumptions lead to difficulties in accounting for how listeners recover tonal information from the speech signal. The second challenge concerns the theory's assumptions about the number and phonetic basis of tonal categories of representation, such as pitch accentual distinctions like H* vs. L+H*. Evidence is described showing that in many cases, speakers produce and listeners perceive more or fewer categories than are carved out of the phonetic space under standard AM theory. It is argued that both kinds of challenges to AM theory can be addressed by assuming that tonal features in speech prosody are represented in a manner akin to musical structures.

Moreover, a theoretical framework closely related to AM theory is prosodic hierarchy theory (see Shattuck-Hufnagel & Turk, 1996 for a review), which deals with the structure of prosodic phrase-related information. Like AM theory proper, a good deal of empirical evidence has been amassed in the last two decades supporting this theory. The talk reviews how a fundamental assumption about the phonetics-phonology interface under prosodic hierarchy theory is challenged by recent findings, in particular, its assumption that prosodic phrase boundaries delineate domains and/or loci of applicability of phonological, phonetic, and cognitive processes. In particular, recent research suggests that prosodic information distal to the domain and/or locus of a prosodic phrase can influence both segmentation of the speech stream into candidate words, as well as lexical access. These findings are unexpected not only under prosodic hierarchy theory, but also under theories of speech segmentation and lexical access (e.g., McClelland & Elman, 1986; Mattys, White & Melhorn, 2005). It is proposed that effects of distal prosody can be accommodated within a framework which assumes that prosodic features, like other auditory cues, are subject to general mechanisms of auditory perceptual organization and dynamic attention (e.g., Handel, 1989; Large & Jones, 1999). Finally, it is argued that an account based on general auditory perceptual organization is compatible with central tenets of both prosodic hierarchy theory and AM theory.

References

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