

Variation in F0 Shape within and between phonological categories of intonation

Oliver Niebuhr

Mads Clausen Institute, Innovation Research Cluster Alision
University of Southern Denmark, Sonderborg
olni@sdu.dk

Established intonation models, no matter whether they are based on contours (like the Kiel Intonation Model, KIM) or sequences of local tonal targets (like the Auto-segmental-Metrical [AM] Model), always look at intonation in terms of two major (acoustic) variables: alignment and scaling. Alignment refers to how a building block of intonation is timed in relation a building block at the level of sound segments. That is, alignment is about the phonation-articulation coordination. For example, in the KIM the timing of peak and valley contours relative to the accented-vowel boundaries is considered a phonological feature in the pitch-accent paradigm. Similarly (but still differently), in the AM model it is the timing of H and L tones relative to the entire accented syllables that matters in the distinction of pitch- or phrase-accent categories. The second variable, scaling, refers to the fundamental-frequency level at which a building block of intonation is realized, typically in relation to other adjacent building blocks. Broadly speaking, we can additionally note that alignment is the primary variable of pitch accents whereas scaling differences are primarily important for boundaries tones or phrase-final/-initial contours, respectively.

However, one variable that has been largely neglected so far is shape. By "shape" we mean the steepness of the slope of an intonational movement or its curvature or both. In this sense, most intonation models do make references to shape in one way or another, but shape is not considered a variable in its own right. For example, both KIM and the AM model assume that shape differences occur as a result of creating time pressure conditions or combining different types of pitch accents. What these models do not assume is that (1) shape differences occur in a systematic way even if the prosodic structure and context are kept constant, and that these differences are (2) functionally relevant, for example, in that they act as acoustic cues to pitch accents or even make a separate contribution to the (pragmatic) meaning of the corresponding utterance.

Providing supporting evidence for (1) and (2), my talk summarizes the line of research that my colleagues and I have conducted on intonational shape differences in the past decade. The presentation will illustrate why shape should be considered a separate third variable in intonation models (next to alignment and scaling). The summarized research mainly focuses on German, but some cross-linguistic parallels are also drawn (e.g., to varieties of Italian). The presentation ends with a brief outline of ideas about how intonational models can be adapted to include shape differences at the phonological level; ideas that can hopefully stimulate a vivid discussion.