Temporal aspects of a prevocalic glide in gestural terms in Korean

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Across languages, a glide /j/ may be analyzed differently: as part of a 'segment sequence', a 'complex segment', or a 'diphthong' (e.g., [1-5]). But characterizing its exact nature can be elusive due to different approaches employed by different researchers. The Korean glide /j/ presents such a case. Some findings concern its phonological behavior in forming an onset cluster (e.g., [6]), a complex segment (e.g., [7]), or a diphthong (e.g., [8]). Others analyze its acoustic characteristics: a brief F2 steady state, for example, is used to characterize /j/ as part of a complex segment [9]. But the same acoustic evidence might also support a diphthongal formation as the acoustic form often obscures the temporal relations of the actual articulatory gestures involved. We therefore directly examine temporal realizations of articulatory gestures.

In Articulatory Phonology (e.g., [10, 11]), gestures can be hypothesized to be timed simultaneously for a complex segment, but sequentially for a segment sequence. [12, 13] showed that for a complex segment, C-/j/ gestures are indeed timed together, so that their onset-to-onset lag is much less influenced by variation in C duration, compared to a segment sequence in which timing of /j/-onset relative to C-onset (onset-to-onset lag) is positively correlated with C duration. We adopt this approach to examine /C/-/j/ gestural coordination in /mjV/, compared to the reference case of /mV/ gestures assumed to be timed simultaneously. The aim is to understand the temporal characteristics of the Korean /j/ in gestural terms, which will inform whether /j/ forms a complex segment or a segment sequence.

The results revealed that /mj/ demonstrates a longer onset lag and a shorter glide formation duration compared to /mi/, refuting the possibility of the Korean glide being part of a diphthong. Furthermore, we observe the nearly flat regression lines for both conditions, showing that variations in G1 duration have minimal impact on Onset lag. Crucially, however, this pattern is not consistent across all speakers, where some speakers (F11 and M15) exhibit an English segment sequence-like pattern for Korean /mj/, while showing onset-to-onset coordination for /mi/. The results imply that the surface timing of the C+glide gestures is not as invariant as the phonologically specified gestural coordination (sequential/simultaneous) would predict. This variation seems to accommodate the phonotactics that imposes temporal constraints on the onset (typically a singleton C but two Cs only with a glide overlapping with C1), reflecting the range of coarticulation permissible in the phonetic grammar of the language.

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