The role of the prenuclear accents in the perception of Greek statements vs. polar questions
Mary Baltazani¹, Evia Kainada², Katerina Nikolaidis³, Angelos Lengeris³
University of Oxford¹, Aristotle University of Thessaloniki²³⁴, University of Ioannina¹²
mary.baltazani@ling-phil.ox.ac.uk; ekainada@cc.uoi.gr; knicol@enl.auth.gr; lengeris@enl.auth.gr

In the 35 years since the inception of the autosegmental-metrical framework (e.g., Pierrehumbert 1980; Pierrehumbert & Beckman 1988; among others) more attention has been paid to nuclear than prenuclear pitch accents, mostly due to the assumption that the former but not the latter contribute to the distinctions in meaning among different types of sentences, for example statements vs. questions (see Petrone & Niebuhr 2014 for discussion and references). However, there is evidence from production studies that there are fine phonetic differences in prenuclear accents (e.g., Baltazani 2006 for Greek; Petrone & D’Imperio 2011 for Neapolitan Italian), which can be used by listeners in perception studies as cues to differentiate between statements and questions (e.g. van Heuven & Haan 2000 for Dutch; Face 2007 for Spanish; Petrone & Niebuhr 2009, 2014 for German).

The present study compares the prenuclear field of Greek statements and yes-no questions, which can be string identical and differ only in their melody. Furthermore, according to previous descriptions, the only melodic difference between such statements and yes-no questions is in the type of their nuclear pitch accent and boundary tones (Arvaniti et al. 1998, 2006; Arvaniti & Baltazani 2005; Baltazani 2006), while their prenuclear field is identical (Arvaniti & Baltazani 2005). Listeners are therefore expected to wait for the nucleus to decide whether an utterance is a statement or a question.

One production and two perception experiments were designed to test this hypothesis; 12 Greek speakers (6M, 6M) produced 3 repetitions of 10 statements and 10 string identical questions. All sentences were designed to have four pitch bearing constituents, the last one being the nuclear one. For the perception experiments, 240 stimuli (10 sentences × 12 speakers × 2 sentence types) were created, by removing the nucleus (the final constituent). In an AX Discrimination task listeners were presented with pairs of stimuli (120 identical statement-statement (ss) or question-question (qq) pairs; 120 non-identical (sq or qs) ones) and they were asked whether the first member of the pair was the same as the second. In an Identification task, listeners indicated whether a stimulus was a statement or a question.

Preliminary results (10 listeners) show high discrimination scores (d’ = 2.05, range = 1.3 - 2.8), moderate identification scores (mean correct identification = 66.6%, range = 56% - 75%), and better identification in statements (75.8%) than questions (57.3%). Moreover, there were large individual differences in performance among the participants analyzed so far and discrimination accuracy correlated with identification accuracy (r = 0.77, p <0.05).

The results from the two perception experiments indicate that despite the absence of the nucleus, participants are still sensitive to differences between statements and questions. In other words, there are enough melodic cues in the prenuclear field for listeners to discriminate between statements and yes-no questions. This in turn indicates that all pitch accents contribute to the meaning of utterances, not only nuclear ones.

References


