

Alternative questions and sentence intonation in Greek

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Abstract

This is an experimental study of intonation as a function of alternative questions in Greek. The results of a production experiment indicate that: (1) compound sentences with alternative question functions are produced with tonal prominence on the disjunctive element, (2) the clause on the left has fairly regular tonal inflections associated with stressed syllables whereas (3) the clause on the right does not exhibit much tonal variability. Thus compound alternative questions have a distinct tonal structure with no apparent similarities with any other type of questions in Greek.

Introduction

This study is an investigation of sentence prosody and alternative questions in Greek. Alternative questions, much like polar (yes/no) ones, lack any morphological and/or syntactic markers in Greek. Earlier research has indicated that the characteristic tonal structure of simple polar questions is a tonal prominence in the vicinity of the right sentence edge whereas complex sentences with main and subordinate syntactic structures are associated with distinct tonal structures (Chaida, 2007, 2010).

The main question addressed in this study is whether alternative questions have similar tonal structures to other types of questions or whether they have distinct tonal structures. In relation to the main question, further questions are addressed with reference to the main tonal characteristics of alternative questions as well as local and global tonal structures in Greek.

In addition to alternative questions, the tonal structures of simple and compound sentences with statement and question functions have been investigated. In this context, comparisons between sentence functions and sentence complexity related to alternative questions will be outlined. Very little is known about the intonation of alternative questions reported in the international literature, including functional constituency and related tonal structures.

Experimental methodology

Four sets of sentence pairs were constructed. Each pair consisted of one statement and one question. The first 2 sets were simple sentences whereas the last 2 ones were compound sentences with coordinative or alternative functions (Table 1).

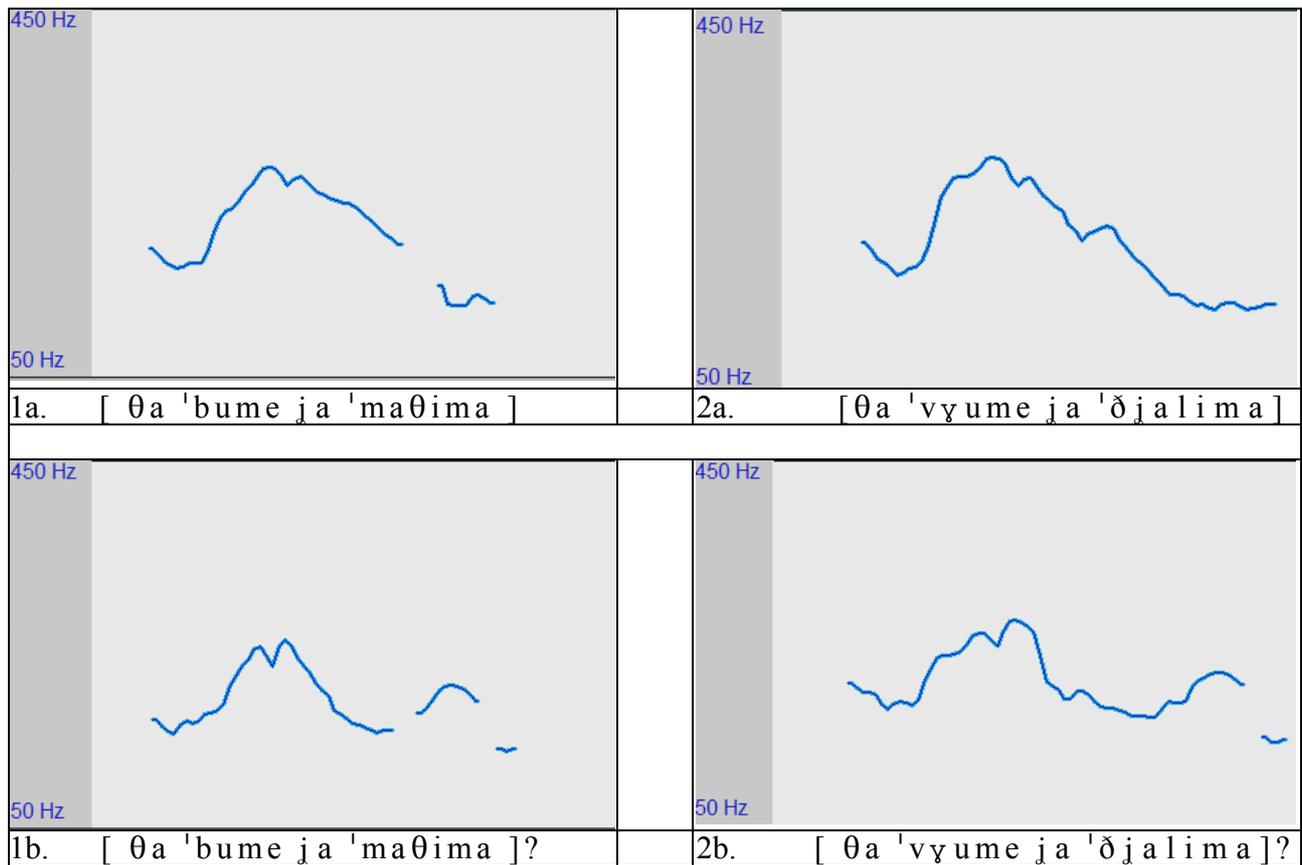
Ten female speakers in their twenties, with standard Athenian pronunciation, produced the speech material at the phonetics studio of the Laboratory of Phonetics and Computational Linguistics at Athens University. The speech material was written in standard Greek orthography and was read from separate cards, each card containing only one sentence. The speakers' productions were recorded directly onto a computer disc and analysed with the Praat software package. Tonal (F0) measurements were made at the beginning and at the middle of each syllable of the total speech material.

Table 1. Speech material: simple statements and questions (1–2) as well as compound coordinative and alternative statements and questions (3–4).

1a.	[θa 'bume ja 'maθima] (We go in for lesson.)
1b.	[θa 'bume ja 'maθima]? (We go in for lesson?)
2a.	[θa 'vyume ja 'ðjalima] (We go out for break.)
2b.	[θa 'vyume ja 'ðjalima]? (We go out for break?)
3a.	[θa 'bume ja 'maθima ce θa 'vyume ja 'ðjalima] (We go in for lesson and we go out for break.)
3b.	[θa 'bume ja 'maθima ce θa 'vyume ja 'ðjalima]? (We go in for lesson and we go out for break?)
4a.	[θa 'bume ja 'maθima i θa 'vyume ja 'ðjalima] (We go in for lesson or we go out for break.)
4b.	[θa 'bume ja 'maθima i θa 'vyume ja 'ðjalima]? (We go in for lesson or we go out for break?)

Results

The results are presented in Figures 1–5. Figures 1–4 show raw tonal curves of one female speaker and Figure 5 average values of 10 female speakers.



Figures 1-2. Intonation exemplification of simple statements over (1a–2a) vs. questions under (1b–2b).

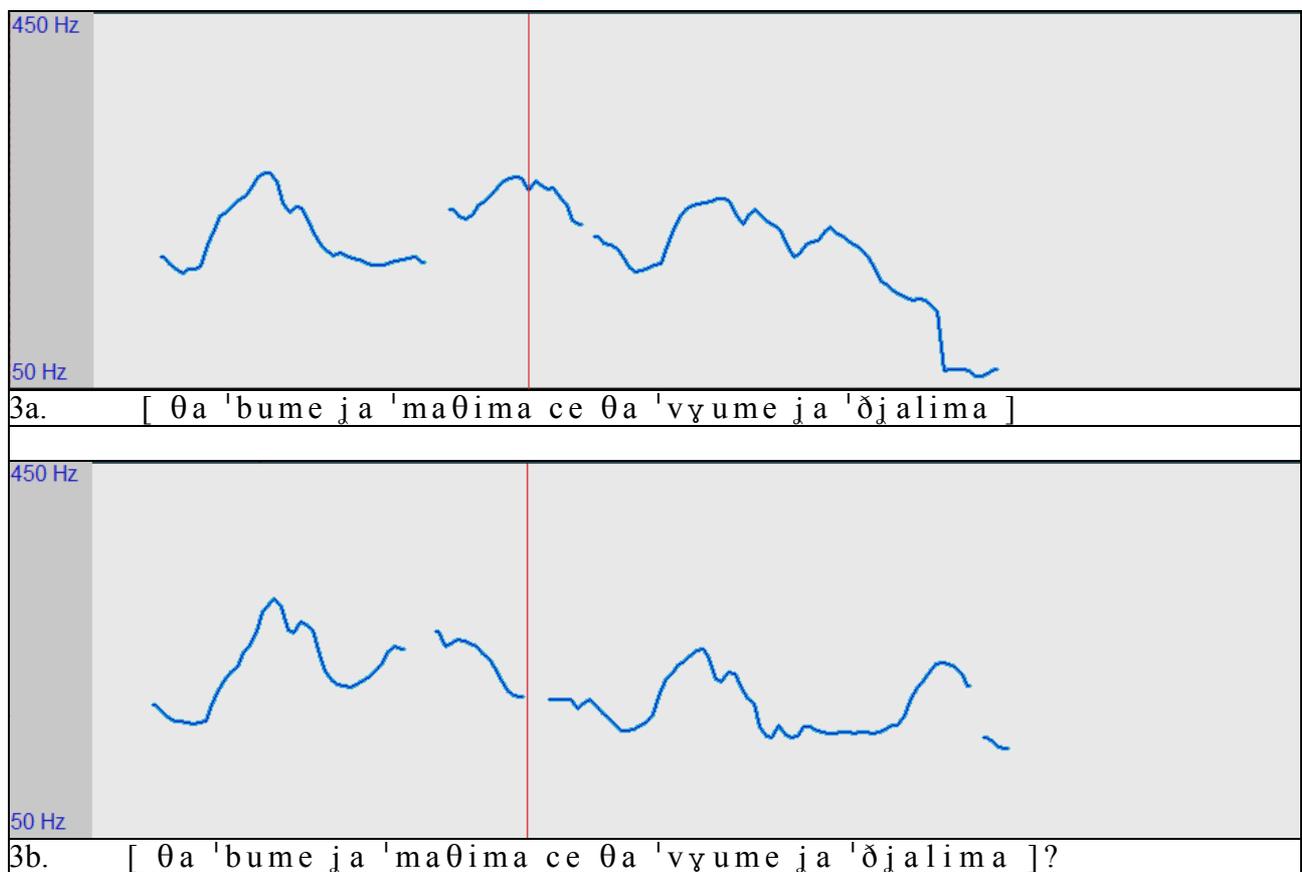


Figure 3. Intonation exemplification of coordinated statements over (3a) vs. questions under (3b).

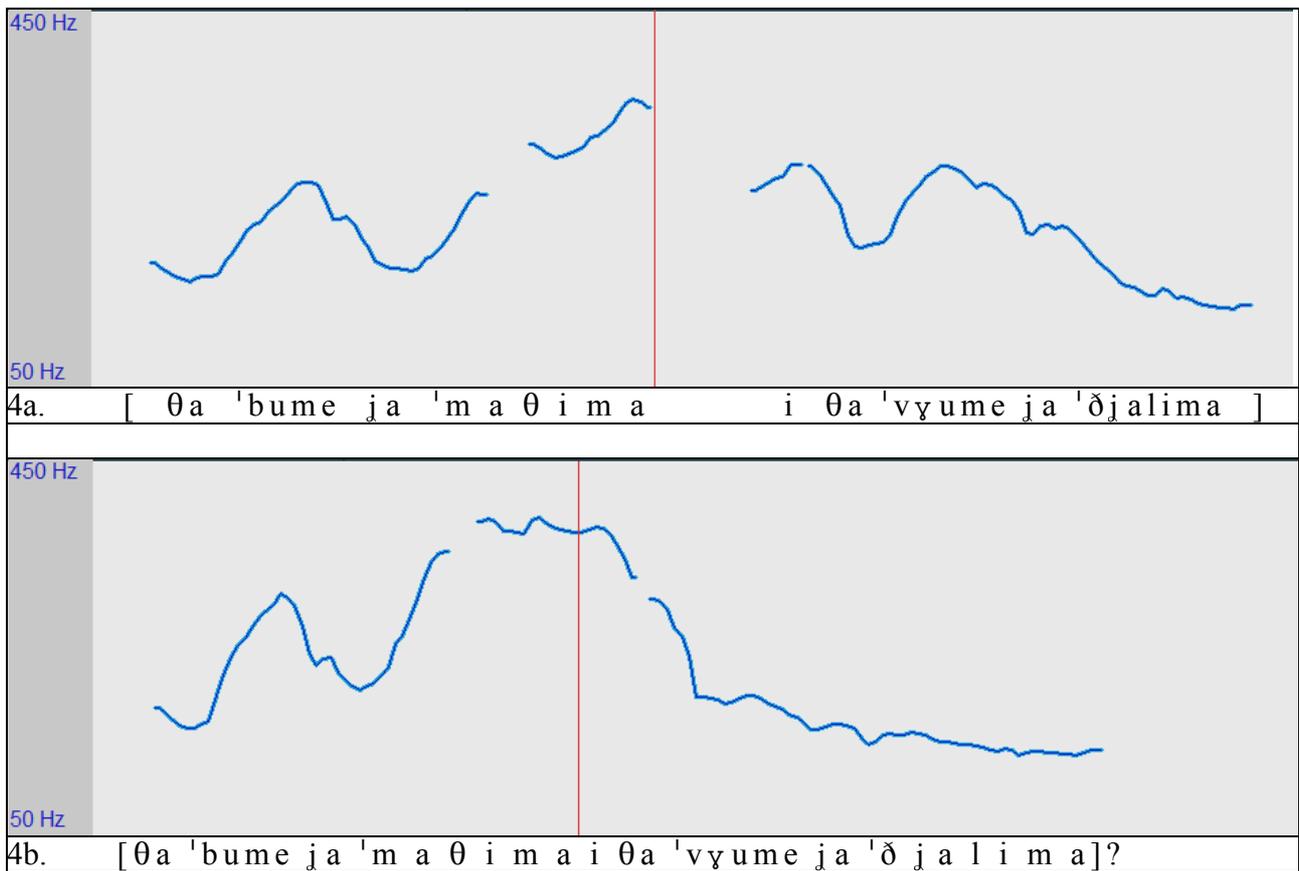


Figure 4. Intonation exemplification of alternative statements over (4a) vs. questions under (4b).

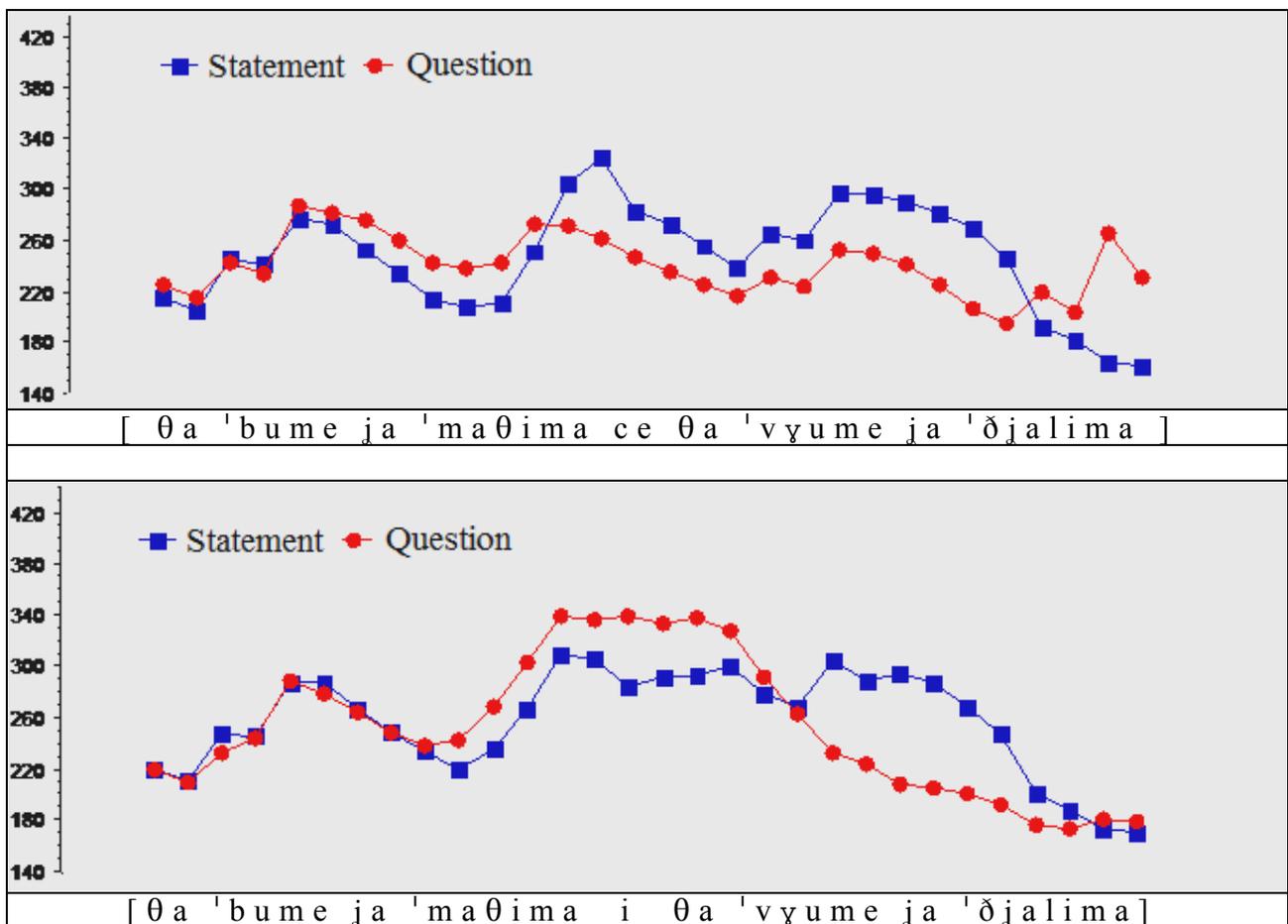


Figure 5. Coordinated statements vs. questions over and alternative statements vs. questions under.

Not accounting for local tonal perturbations, i.e. microprosodic effects, simple statements have a one tonal peak structure whereas simple polar questions have a two tonal peak structure (Figures 1–2). The initial rise of the first tonal peak in both statements and polar questions is associated with the respective stressed syllables whereas the second tonal peak in polar questions is taking place within the last two unstressed syllables of the test sentences.

In the following Figure (3), the first clauses of the compound sentences are associated with two tonal peaks. However, in 3a (statement) a late-rise is associated with the second tonal peak whereas, in 3b (polar question) the respective tonal rise is an early one. On the other hand, the second tonal peak is associated with a late-fall into the next clause vs. an early fall within the first clause, for statements and polar questions, respectively. In the second clauses, each clause has a fairly similar tonal structure to the respective simple statement and polar question one.

Figure 4 shows tonal structures of compound sentences. In alternative statements (4a), a specific tonal event is associated with the alternative disjunctive element [i], which has a rise-fall tonal pattern and thus a tonal peak. In addition, a prosodic phrasing between the two clauses is evident. Apart from the latter differences, alternative statements (4a) and coordinative sentences (3a) have fairly similar tonal structures, especially with reference to the clauses on the right.

In alternative questions (4b), the respective tonal structures show major differences in comparison to both simple and compound sentences under examination. First, a “tonal hat” is formed, including the last stress group of the clause on the left as well as the disjunctive element [i]. The tonal rise is correlated with a stressed syllable on the left clause whereas the tonal fall is concluded by the beginning of the stress group on the right clause. Furthermore, hardly any tonal inflection after the tonal hat is evident.

The quantitative results of this study are shown in Figure 5. As outlined above, polar questions are characterised with a tonal rise-fall at the right edge of the compound sentences (*over*) whereas alternative questions are missing the respective tonal structure (*under*). Instead, a tonal hat pattern associated with the disjunctive element is formed, followed by a tonal flattening to the end of the sentence.

Discussion

The results of the present study indicate that the intonation of compound alternative questions in Greek is very dissimilar to other types of question intonation we have been studying (e.g. Chaida, 2007). Its peculiarity is mainly related to the disjunctive element, which is correlated with a prominent tonal structure (i.e. nucleus) followed by a steep fall and a tonal flattening to the end of the speech material. Thus, alternative questions have a fairly similar tonal structure at global level to focus productions (Botinis, 1989; Themistocleous, 2011; Nikolaenkova, 2013).

Greek is a “stress language” and local tonal inflections have no lexical function in the way “accent” or “tone” languages, such as Swedish or Chinese, may have (Bruce, 1977; Botinis, Granström & Möbius, 2001; Xu, 2011). However, (pitch) accents are as a rule associated with stressed syllables and prosodic boundaries with other tonal patterns. A basic question is the derivation of surface tonal representations. In accordance with the results of this study, alternative questions and different sentence modalities trigger specific tonal structures and tonal combinations with functional distinctions over sentence domains.

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