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International Speech Communication Association

Proceedings of the third ISCA Tutorial and Research Workshop on
Experimental Linguistics
ExLing 2010

25-27 August 2010, Athens, Greece

Edited by Antonis Botinis

University of Athens
Foreword

The present volume presents the proceedings of the third ISCA (International Speech Communication Association) Tutorial and Research Workshop on Experimental Linguistics, ExLing 2010, held in Athens, Greece, 25-27 August 2010. This Workshop is organised biannually at the same venue in Glyfada, Athens, since 2006.

Every two years, we gather in Athens to discuss current issues in and methodological approaches to research in linguistics. Our main interest is the development of theory based on experimental evidence as well as the unification of different aspects of linguistics research. Phonetics, as a well-established experimental discipline, is in the center of our discussion, along with diverse other disciplines related to the study of language.

Our colleagues are coming from different parts of the world and we wish them a fruitful scientific exchange. ISCA Workshops are indeed an ideal environment for the promotion of new ideas as well as the development of research collaborations.

We would like to thank all participants for their contributions and ISCA for its support in organising this Workshop. Special thanks to the University of Athens for the publication of the proceedings as well as our students from the University of Athens for their assistance.

The organisation committee

Aikaterini Bakakou-Orphanou
Antonis Botinis
Christoforos Charalambakis
Dedicated to the memory of Robert Bannert

On Friday 16th 2010, our colleague and friend Robert Bannert passed away in his home in Freiburg, Germany, at the age of 68. Robert was watching the evening news on Thursday with his beloved wife, Brita, when he was hit by a severe stroke. Although taken immediately to the University hospital, Robert left us for ever the next day, Friday evening.

Robert and I first met at a small party at the Linguistics Department, Lund University, in the early seventies. Some time later, Robert was showing me some intonation curves of a Greek phrase at the Phonetics Department, arguing about intonation similarities in Greek and Swedish. During this time, Robert was working with phonetic typology and some dozens of diverse languages. Later, upon the conclusion of my undergraduate studies, Robert urged me to continue and pursue postgraduate studies.

After studying, teaching and carrying out research for many years at Lund University, obtaining his PhD in 1976, Robert moved to the Department of Phonetics at Stockholm University in the mid-eighties and, in 1992, he was appointed professor of phonetics at Umeå University in northern Sweden. During the last years, Robert had been collaborating with the University of Freiburg, where he had been declared Honoured Professor. Recently, Robert was retired and lived permanently with his wife Brita in a quite neighbourhood on the outskirts of Freiburg.

Much is due to Robert for the present Workshop. In the mid-nineties, Robert and I were sitting and discussing at my home in Athens about the organization of an ISCA event in Athens. Since both of us were prosodists, we agreed on a Workshop on prosody and Robert used all his influence for a positive outcome, which turned out as the Workshop on prosody in 1997. After some years, in Stockholm, we were discussing the prospects of an ISCA Workshop on Experimental Linguistics, which led to the setup of the first one in 2006 and its repetition every two years thereafter.

Robert has been in all our earlier Workshops but he wouldn’t come this time. He was telling me that the summer heat in Athens was becoming intolerable, something that was unlike Robert, as he was always coming at any time, especially in summer. This was our last conversation this summer.

Robert and I have been good friends for nearly forty years. We have been in every opportunity at each other’s home all these years, wherever we happened to live, and in many places in different countries. Many times, when driving though Germany, Robert and Brita were just waiting for me.

I am very lucky and privileged that I came across to meet and become friends with Robert. An honest, straightforward and friendly gentleman with positive attitude, strong will and determination in every step of his life.

Antonis Botinis
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Focus prominence and tonal alignment in Athenian and Cypriot Greek

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Abstract
This study examines the effects of focus prominence production on tonal alignment in Athenian Greek and Cypriot Greek. Information focus has been elicited by using a Wh-Question in utterances with varying number of syllable constituents —from twelve syllables to eighteen— following the constituent under focus prominence. The results indicate significant effects of speech variety on the alignment of tonal targets; utterance length on the other hand showed poor effects on tonal alignment.

Key words: focus, intonation, Athenian Greek, Cypriot Greek.

Introduction
This study examines the effects of focus prominence on tonal alignment, in utterances with varying length, in Athenian Greek (henceforth AG) and Cypriot Greek (henceforth CG). Focus is manifested in speech as a post-lexical prominence realized intonationally by the exploitation of nuclear pitch accents and phrase accents (c.f. Botinis, Bannert, Tatham, 2000). Importantly, the exact alignment of tonal targets comprising the nuclear pitch accents plays a significant role in the phonetic realization of nuclear pitch accents (c.f. Bruce, 1977). Two main questions are addressed: (a) what is the effect of utterance length on the alignment of nuclear pitch accents, and (b) how do the two varieties of Greek differ in the tonal alignment of nuclear pitch accents.

Methodology
Information focus on a prepositional phrase constituent functioning as a verbal compliment has been elicited by the use of Wh-Questions, specific for each language variety. Specifically, the constituent under focus prominence was produced in three different contexts which varied in the number of syllables following the constituent under focus prominence (see Table 1). The materials were produced by ten educated speakers in total, one male and four female speakers for each variety. AG speakers were brought up in Athens and CG speakers in the main urban areas of Cyprus. All speakers were in their early twenties. All ten speakers produced focus prominence in 3 sentence carriers x 5 repetitions, a total of 150 utterances.
Table 1. The Cypriot Greek material with varying number of syllables following the constituent with focus prominence.

<table>
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<td>a. Η Νίνα μιλά [με την Νάνα] δυνατά.</td>
<td>[12] Twelve</td>
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<tr>
<td>[iˈnina miˈla me tin ′nana ðinaˈta]</td>
<td></td>
</tr>
<tr>
<td>“Nina speaks loudly with Nana”.</td>
<td></td>
</tr>
<tr>
<td>[iˈnina miˈla me tin ′nana ðinaˈta stin aˈvi]</td>
<td></td>
</tr>
<tr>
<td>“Nina speaks loudly in the backyard with Nana”.</td>
<td></td>
</tr>
<tr>
<td>c. Η Νίνα μιλά [με την Νάνα] δυνατά στην αυλή του Μάνου.</td>
<td>[18] Eighteen</td>
</tr>
<tr>
<td>[iˈnina miˈla me tin ′nana ðinaˈta stin aˈvi tu ′manu]</td>
<td></td>
</tr>
<tr>
<td>“Nina speaks loudly in the backyard of Manos with Nana”.</td>
<td></td>
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</table>

The utterances were recorded using Praat, with 22050 Hz sampling frequency. The test words were manually segmented and labelled, by using simultaneous inspections of waveforms and wide-band spectrograms following the segmentation criteria of Peterson & Lehiste (1960). The following measurements were obtained from the data (see Figure 1): the distance of local minimum (L) and local maximum (H) (a) from the onset of the first syllable of the word “‘nana” {n}, (b) from the beginning of the nucleus of the first syllable of the word /ˈnana/ {v} and (c) from the right edge of the word /ˈnana/ {we}. The distance of turning point (TP) from the {we} was also measured. A two way ANOVA (language variety x utterance category) was performed for each variable.

Figure 1. Stylized contour of the utterance /ˈmila me ti ′nana ðinaˈta/ and its associated segmental string. The dots represent tonal targets while the solid lines the interpolated pitch contours. L stands for local minimum, H for local maximum, TP for turning point, {n} for the onset of the syllable (na), {v} for nucleus beginning and {we} for word /ˈnana/ right edge.

Results
AG and CG productions show apparent similarities in the realization of focus prominence (see Figure 2). A rise and a fall are associated with the stressed syllable of the lexical constituent in focus. The local minimum of the F0 contour aligns at the onset of the stressed syllable, while the local maximum of the F0 contour aligns at the onset of the post-stressed syllable.
Focus prominence and tonal alignment in Athenian and Cypriot Greek (see Figure 2). The turning point (TP) aligns at the coda of the lexical constituent in focus prominence.

(a) Athenian Greek utterances
(b) Cypriot Greek utterances

Figure 2. Panel (a) shows the productions of a female AG speaker and Panel (b) shows the productions of a female CG speaker for the utterances a-c. The dashed line indicates the onset of the constituent in focus ['nana'].

Language variety however let to different productions in tonal alignment (see Figure 3). ANOVA tests for the effects of variety and utterance type on the distance between L from the onset of the stressed syllable [na] were significant for variety ($F(1,144)=10.286, p < .05, r = .36$) and for utterance category ($F(2,144)=3.157, p < .05, r = .2$). Also, the distance between H from the onset of [na] was significant for variety ($F(1,144)=15.567, p < .0001, r = .39$) and utterance category ($F(2,144)=6.268, p < .05, r = .3$). Language variety affected significantly the distance between L ($F(1,144)=25.622, p < .0001, r = .5$) and $H$ ($F(1,144)=28.489, p < .0001, r = .5$) from the beginning of syllable nucleus {v} and the distance between TP from {we} ($F(1,144)=28.489, p < .0001, r = .5$). All other effects were non-significant.

Figure 3. The mean distance in seconds of local minimum (L) and local maximum (H) from the onset of the first syllable of the word ‘‘nana’’ (panel A) and from the nucleus of the first syllable of the word ‘‘nana’’ (panel B) is shown for each variety. Error bars show SE.
Discussion
This study examined the phonetic realization of nuclear pitch accents signalling information focus on a prepositional phrase constituent functioning as a verbal compliment. Importantly, both language varieties show apparent similarities in the realization of the nuclear pitch accent; a rise and a fall are associated with the stressed syllable of the lexical constituent in focus. The local minimum of the F0 contour aligns at the onset of the stressed syllable, while the local maximum of the F0 contour aligns at the onset of the post-stressed syllable. A turning point following local maximum aligns at the coda of the final syllable of the lexical constituent in focus prominence and functions as the left anchoring point of a level declining contour that terminates at the utterance’s right edge (c.f. Baltazani, Jun., 1999, Botinis et al. 2000).

The results show significant effects of language variety on the alignment of tonal targets of nuclear pitch accent, indicating systematic differences in the phonemic and phonetic realization of nuclear pitch accents in the two language varieties. Both language varieties show structural consistency in the alignment of tonal targets with the segmental string as manifested by the poorly significant effects of utterances’ length on tonal alignment. Further research is needed so as to gain specific understanding of the interaction between different focus categories and their phonemic and phonetic manifestation.

Acknowledgements
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References