

The Cretan fall: an analysis of the declarative intonation melody in the Cretan dialect

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1. Introduction

This study is part of a research agenda to trace the diachronic development of intonation as a result of language contact, with regional Greek dialects as its empirical basis. Contact between Modern Greek with Turkish and Italian speakers is claimed as one of the causes of divergence among Greek regional varieties (Delveroudi 2000; Tzitzilis 2000), but perhaps unsurprisingly, neither historical linguists nor intonation experts have ventured into the diachronic investigation of intonation, given the lack of written evidence for it, something that diachronic investigations traditionally rely on.

In this paper we concentrate on a very salient/characteristic melody, ending in low pitch, used in Cretan Greek (CG) declarative utterances. We refer to this melody as *the Cretan fall* to distinguish it from declarative melodies employed in Standard Modern Greek (SMG) also ending in low pitch. We will offer a preliminary phonological analysis of the Cretan fall within the Autosegmental-Metrical (AM) intonational phonology model (Pierrehumbert 1980; Beckman & Pierrehumbert 1986; Ladd 2008) and compare it to one of the SMG fall melodies analysed as a H*+L in GRTToBI (Arvaniti & Baltazani 2005).

An increasing number of recent studies in intonational variation (e.g., Grabe et al. 2000; Arvaniti & Garding 2007; Ladd et al. 2009; Leemann & Zuberbühler 2010) showcase the insights on the phonology and typology of intonation (for intonational typologies see e.g., Hirst & Di Cristo, 1998; Jun, 2005, 2014) provided by intonational differences among dialects of a language. The phonetics and phonology of most Greek varieties, apart from Athenian and Cypriot Greek, are largely unstudied (see Arvaniti 2007 for an overview). This is especially true for the phonetics and phonology of intonation, where research on cross-dialectal intonation differences is lacking (but see Baltazani & Kainada 2015 on a comparison between SMG and Ipiros Greek; Themistokleous 2011 on a comparison between SMG and Cypriot Greek; Arvaniti 2016 on a Vlach variety of Romani spoken in Greek Thrace by Muslim Roma). This study expands linguistic knowledge on intonation variability across regional varieties, as Cretan Greek is an unstudied variety in this respect.

In addition to the comparison of the SMG and Cretan fall, we look into the history of the Cretan variety to understand the possible reasons behind the divergence between SMG and Cretan. Specifically we give preliminary evidence that this melody is very similar to Italian declarative falls and argue that this similarity is not coincidental but stems from the extensive contact of Cretans with Italian speakers during the extended period of Venetian rule of Crete (1204 - 1669 A.D.).

The effects of contact on the lexical and grammatical aspects of languages have been well documented, e.g. borrowing words, morphemes, syntactic structures or phonetic segments (e.g. Thomason 2001; Clyne 2003). However very little is known about the effect of contact on intonation, even on the synchronic level. The most relevant information on synchronic contact-induced intonation change available comes from a small number of studies on bilingualism, which reveal intonation patterns that draw on both languages bilinguals speak. Queen (2001)

observes that Turkish-German bilingual children have a characteristic German rise and a typical Turkish rise, which do not pattern with the pragmatic uses of either the German or Turkish rise, i.e. “bilinguals produce an intonation pattern that is clearly the result of mixing patterns of Turkish and German” (p. 56). O’Rourke (2003) explores the Spanish intonation of bilingual Spanish/Quechua speakers living in Peru and reports that Spanish speakers in constant contact with Quechua display earlier peak alignment than Spanish speakers elsewhere. Relying on the knowledge that intonation patterns are transferred from one language to another through bilingual speakers, we will look into the diachronic effects of bilingualism in the context of long-term historical cohabitation of Italian and Greek speakers (details in section 3.2). The exploratory first step in this study lays the groundwork for further work on the diachrony of intonation.

In the remainder of this paper, section 2 lays out our methodology and section 3 the results. Section 3.1 offers a preliminary AM analysis of the Cretan fall. To implement the comparison with the SMG fall, a tentative analysis of the SMG H*+L is also carried out, which has not been quantitatively examined before to our knowledge (for a qualitative description of this melody see Arvaniti & Baltazani 2005), Section 3.2 outlines the similarities of the Cretan fall to the Italian declarative fall and gives a very brief sketch of the sociolinguistic circumstances of the Cretan-Italian contact during the era of the Venetian rule. Section 4 concludes the paper with a discussion of our findings within the context of the larger agenda on the effect of language contact on intonation change.

2. Methodology

Our analysis, couched within the framework of AM phonology, follows the guidelines of GRTToBI (Arvaniti & Baltazani 2005). Our CG and SMG data have been selected from a corpus of spontaneous speech, where each speaker talks freely about personal experiences and their past (*Vocalect* corpus, <http://www.vocalect.eu>; Baltazani et al. 2011). The corpus contains approximately 6.5 hours of 10 Cretan speakers (5M, 5F) from Assimi, Messara, a rural area in the county of Heraklion, Crete (Figure 1) and approximately 10 hours of spontaneous speech of 10 speakers (5M, 5F) from Athens. The whole corpus was mined for appropriate data but this paper relies on a small subset of this data as explained below. In addition, we compared our data with 26 tokens uttered by 5 Italiot Greek speakers (4F, 1M) from Calabria in Southern Italy, found in the Academy of Athens archives recorded in the 1960s.

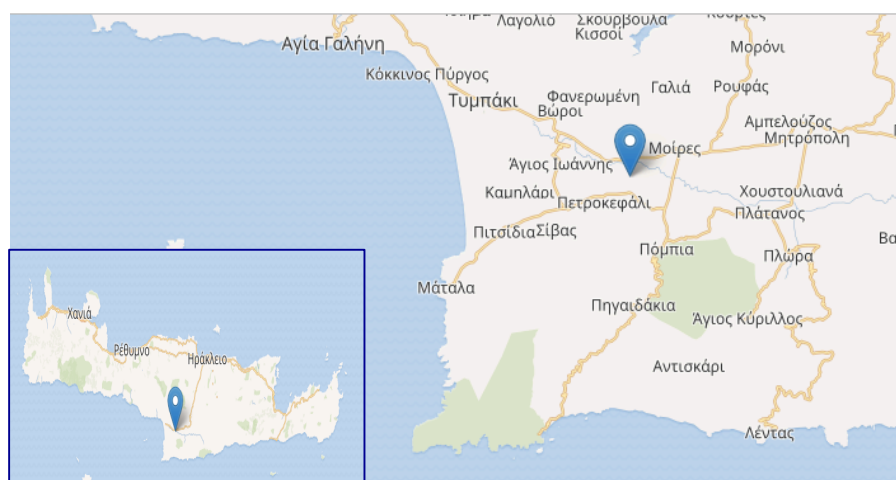


Figure 1: *The recording location of the corpus used in this study, Assimi, Messara, a rural area in the county of Heraklion, Crete.*

In the tradition of AM analysis, mainly controlled experiments are conducted to concentrate on the phonetic details of f_0 behaviour. However, as this is an exploratory study of a melody that has not been examined thus far, the use of spontaneous speech is a more appropriate methodological tool. The Cretan fall: an analysis of the declarative intonation melody in the Cretan dialect

The lack of previous analyses of this melody rendered CG token selection a difficult process, compounded also by the co-occurrence of this melody with other falling melodies, similar to the SMG one. It is worth noting that the frequency of occurrence of the target melody was not balanced across speakers and that its frequency correlated with the amount of code switching between CG and SMG for each speaker. There was a range in the percentage of Cretan and SMG elements used in this code, which varied even within the same speaker. For example the same speaker might use the Cretan pronunciation [tʃe] ‘and’ on some occasions and the SMG pronunciation [ce], on others in the same recording. Similar code-switching was observed in intonation.

The initial auditory token selection was impressionistic: This melody is well known in Greece and easily identified as characteristically Cretan (Gryllia et al. 2011). For representative examples see <http://www.phon.ox.ac.uk/greekincontact>. The two co-authors independently isolated tokens and then, after inter-transcriber comparison, only the tokens on which both transcribers agreed upon were kept. This process resulted in 153 tokens of declaratives, subsequently subjected to segmental and prosodic selection criteria. Utterances with few syllables which did not allow for the full realization of the contour, tokens with many voiceless stops or tonal crowding, creaky voice, hesitations and elongations were excluded. Additionally, utterances with final or antepenultimate stress were excluded, as the location of stress is known to affect the realization of pitch accents due to tonal crowding or undershoot (Ladd 2008; Arvaniti et al. 2006) and thus confound the analysis. Finally, narrow focus utterances were excluded as well. The resulting dataset consisted of 27 utterances whose final words carried penultimate stress and had broad focus, that is, utterances conveying new information with no subpart of the utterance being prosodically highlighted more than the other parts, judging from the context they were uttered in. Despite the small size of the corpus, the melody examined showed fairly stable behaviour (stable tone alignment which was significantly different from the SMG fall), as will be shown in 3.1, so some fairly reliable conclusions can be drawn.

As already mentioned, the description of the H^*+L melody in the literature is qualitative (Arvaniti & Baltazani 2005), i.e., the scaling and alignment details of its component tones necessary for the comparison with CG are not known. We therefore carried out a small-scale analysis of the SMG H^*+L based on approximately 30 tokens whose final word carried penultimate stress, as uttered by 10 SMG speakers (5M, 5F), to balance the number of Cretan Greek tokens.

The CG fall was also compared to the Italian fall ($H+L^*$) whose details are adequately described in the literature (Avesani 1990; Grice 1995; Ladd 1996:128; D’ Imperio 2002), so no analysis of the Italian melody was undertaken.

The prosodic analysis was carried out in Praat (Boersma & Weenink 2017). The location of the pitch accent peak (H) and its L tone inflection point were marked, as well as the L boundary tone. The scaling (i.e., the f_0 value) and alignment (i.e. the timing of the tones with respect to vowels and consonants) measurements were taken for each tone. The onset and nucleus of the pretonic, stressed and post-tonic syllables in each utterance-final word were marked as C1 and V1, C2, V2 and C3, V3 respectively (see Figure 2) and f_0 values were extracted at the beginnings and ends of all vowels to facilitate the study of the fall. For words with initial stress, the final syllable of the previous word was also segmented, to capture the fall, which seemed to us to be realized even outside word boundaries if segmental material is lacking. Figure 2 shows an example of the annotation. The first tier is the result of automatic forced alignment

on the basis of the transliterated sentence in tier 4. Tiers 2 and 3, as well as 5 and 6 include the manual linguistically motivated segmentation in syllables, words, target segment boundaries and identification of tones respectively.

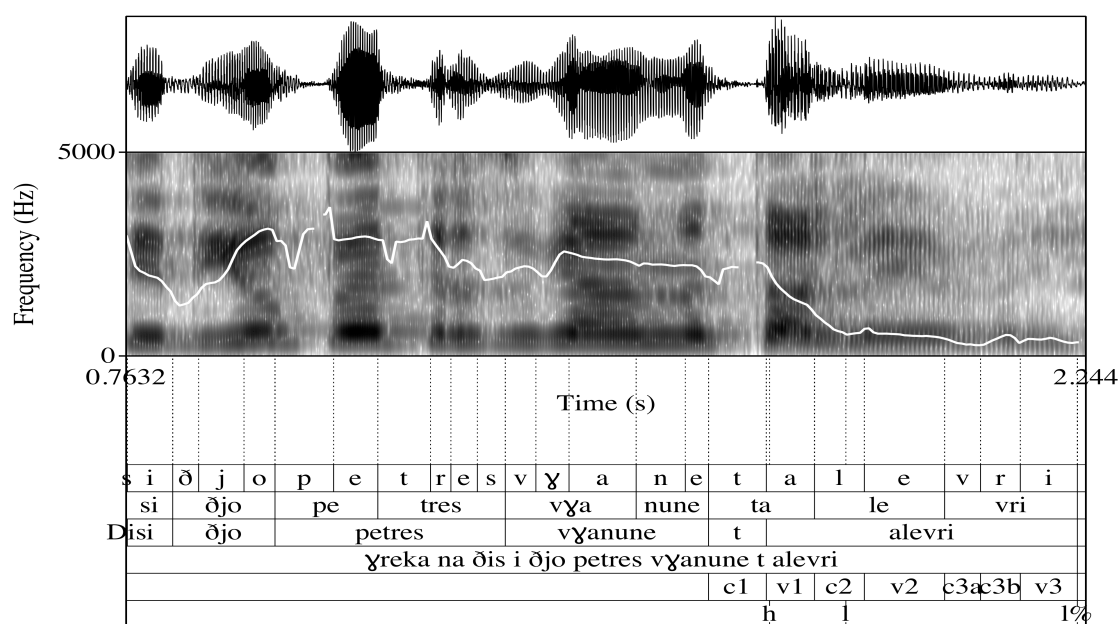


Figure 2: *Illustration of annotation (see text for details).*

Separate univariate analyses examined the effect of dialect (CG, SMG) on segmental durations as well as the alignment and scaling of the H and L tones.

3. Results

The Cretan Greek melody is compared to the SMG in 3.1. In 3.2 it is compared to Italian and also a sketch of the socio-historical contact between Cretan and Italian is given.

3.1. Analysis of the Cretan fall and comparison to SMG

In Standard Modern Greek (SMG) broad focus declarative utterances end in a fall from high pitch which has been described¹ as either H* L-L% (Baltazani 2002, 2003; Arvaniti & Baltazani 2005) or H*+L L-L% (Arvaniti & Baltazani 2005, Figure 3 left). This melody is shared by other Greek dialects, e.g. Cypriot Greek (Themistokleous 2011) and Ipiros Greek (Baltazani & Kainada 2015). The beginning H and the end L tones of the fall are taken to be the phonetic reflexes of the abstract H*+L pitch accent. Although the Cretan Greek fall is also composed of a HL sequence (Figure 3 right), it sounds markedly different from SMG. The results below show that this difference is due to the scaling and alignment phonetic details of the H and L tones.

¹ Only H*+L is realized with a fall throughout the stressed vowel, while in H* f0 rises slightly during the stressed vowel (Arvaniti & Baltazani 2005). Therefore H* will not concern us here.

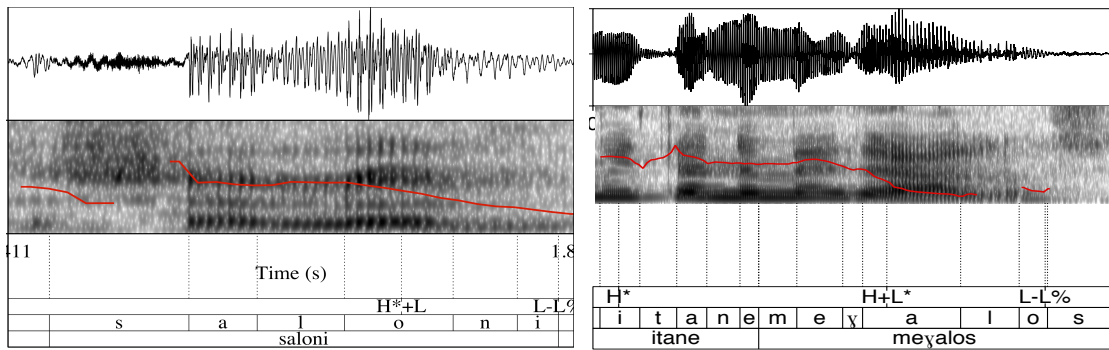


Figure 3: Representative examples from our corpus: H^*+L fall in SMG, left and $H+L^*$ fall in CG, right.

The alignment of both the H and L tones (the beginning and the end of the fall respectively) is earlier in Cretan than in SMG. The CG pitch accent peak occurs on average 193 ms before the beginning of the stressed vowel, in other words in the syllable before the stressed one (since the C2 consonant is 71ms on average), while the SMG pitch accent peak occurs very near the stressed vowel, on average 5 ms before its beginning (Figure 4 left). The CG L tone occurs within the stressed syllable, on average 23 ms before the beginning of the stressed vowel, while the SMG L tone occurs on average 7 ms after the end of the stressed vowel (Figure 4 right).

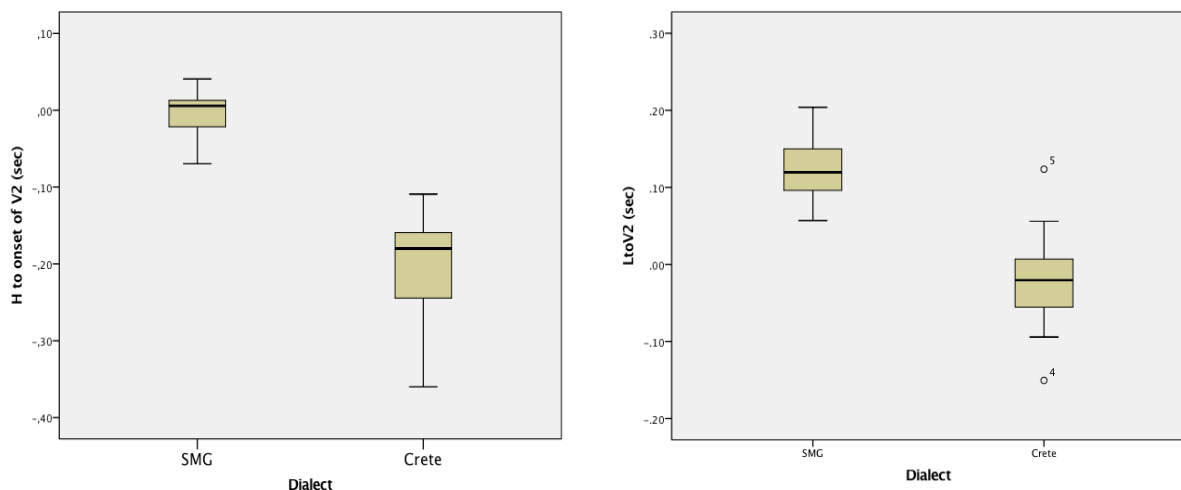


Figure 4: Comparison of the H (left) and L tone (right) phonetic alignment in the SMG and the Cretan fall (see text for details).

There are also differences in the scaling of the peak between SMG and CG. The Cretan accentual peak is realized higher than the SMG one (M: 262 Hz² vs 227 Hz respectively; $F(1, 38)=1.670$, $p=.006$), while no significant difference was found for the L tone (M: CG= 167Hz, SMG= 156Hz). Due to the difference in H scaling, the CG fall from the peak to the L tone (M: 95 Hz) is significantly larger ($F(1, 38)=5.249$, $p=.028$) than the SMG fall (M: 71 Hz), a very salient auditory difference. In addition, the distance in time between the beginning and end of the fall is significantly larger in CG (M: 181 ms) than in SMG (M: 130 ms; $F(1, 52)=10.547$, $p=.002$). In other words, the Cretan fall starts earlier and higher in frequency and lasts on average 50 ms longer than the SMG fall. All three dimensions make it sound a more heavy and grave fall than the SMG one.

² For comparisons involving f_0 values only female speakers were entered into the analysis. There were too few male Cretan speakers for any meaningful comparisons. All remaining analyses included both genders.

Schematically these results can be seen in Figure 5, which shows f_0 values at the beginning and end of the three word final vowels. The CG fall (bottom panel) occurs mostly within the pretonic vowel (V1; average difference between the vowel beginning and end: 40 Hz), while for SMG (upper panel) in the stressed vowel (V2; average difference between the vowel beginning and end: 61 Hz).

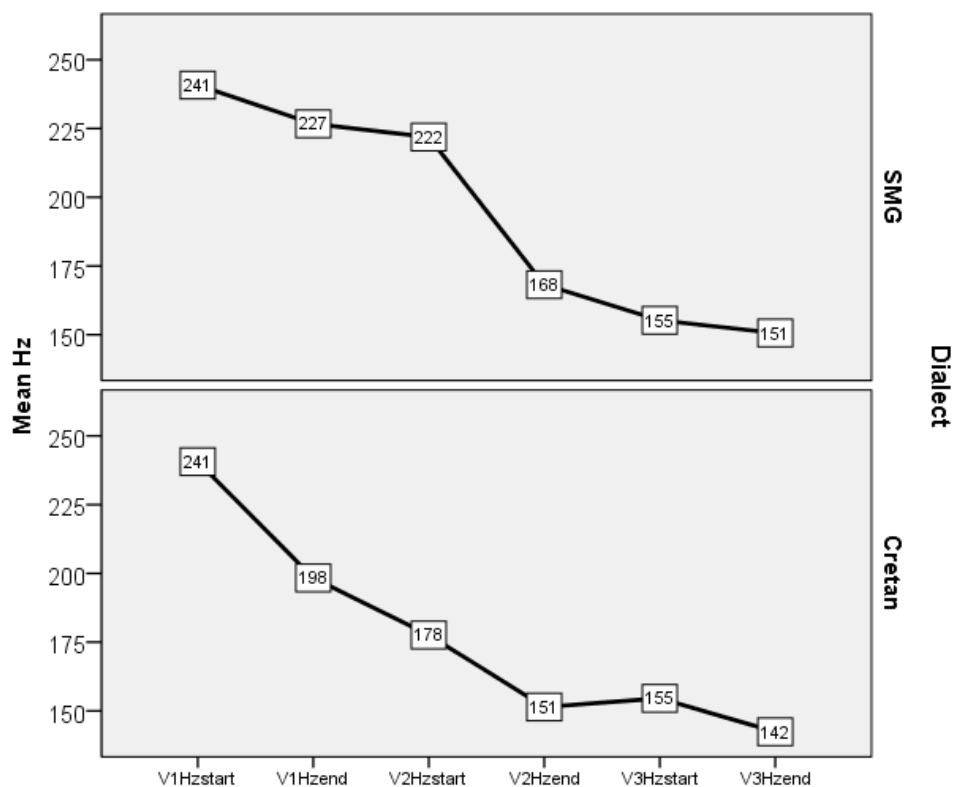


Figure 5: f_0 values at the beginning and end of the three word final vowels: pretonic (V1), stressed (V2) and post-tonic (V3). The fall occurs in the pretonic vowel in CG but in the stressed one in SMG.

We tentatively analyse the nuclear pitch accent in CG as H+L*. We argue that since in Cretan the fall is completed early in the stressed syllable creating a low plateau until the utterance end, the L tone is the head of the bitonal HL pitch accent. This creates a strikingly different tune from the other melodies of Greek, rendering it recognizable as Cretan (Gryllia et al. 2011).

3.2. Comparison with Italian

The Italian melody for broad focus declaratives is similar to the Cretan one, a H+L* fall. This analysis is uncontroversial and has been reported across Italian varieties (Avesani 1990; Caputo & D'Imperio 1995; Grice 1995; Ladd 1996:128; D'Imperio 2002). The peak occurs in the pretonic syllable and the fall ends in the stressed syllable (Figure 6).

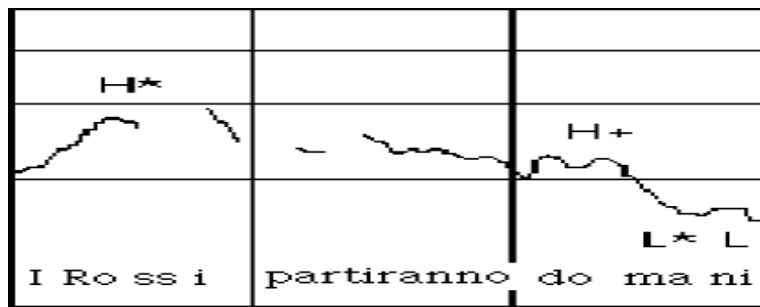


Figure 6: Example of Italian broad focus tune on the word *domani* ('tomorrow') from Avesani (1990).

What is the origin of this tune? Why do the Cretan and SMG falls differ? We argue that one possible reason behind this difference is contact between Cretan and Italian speakers during four centuries of Venetian occupation of Crete.

Cohabitation of Venetians and Cretans both in Greece and Italy was extensive. Venetian Crete was exposed for more than four centuries to Renaissance culture (Crete was the "Kingdom of Candia", 1204 - 1669 A.D.). There is evidence of cultural cross-fertilization in this period ("Cretan Renaissance") alongside intermarriages and bilingualism (Maltezou 1988; Holton 1991; McKee 2000). This cross-fertilization extended beyond the boundaries of the Venetian dominion. It is estimated that more than 1000 Cretans studied in Padua between 1500 and 1700 (Ploumidis 1974) and similar numbers also in Verona, Bologna, Ferrara and Milan. From 1577 Cretans attended College of St Athanasius in Rome founded by Pope Gregory XIII exclusively for Greek students and between 1577 and 1669 about a third of its students came from Crete (Holton 1991). These Cretans returned to Crete after their studies bringing the Italian culture and language with them thus gradually changing the linguistic landscape of Crete. Moreover, during the first century of the Venetian rule in Crete a substantial percentage of the population in Crete (approximately 1/6 of the 10,000 inhabitants of Crete) was Italian, owing to the establishment of Venetian settlers in Crete in order to strengthen their position on the island (Watrous 1982). Linguistic contact induced influences are determined in large part by the history of social relations among populations, including economic, political and demographic factors (Sankoff 2001), which seem to have resulted in intonation change in Venetian Crete.

Another Greek dialect which also shares the Cretan and Italian declarative fall melody is Calabrese, an Italiot Greek dialect spoken in the south of Italy, heavily influenced by Italian. A rudimentary analysis of the broad declarative melody in a small number of recordings of Calabrese speakers, (recording date in the 1960s) obtained from the Academy of Athens archive reveals a fall similar to the Cretan and the Italian ones (Figure 7; see <http://www.phon.ox.ac.uk/greekincontact> for representative examples from these recordings). The similarity between these melodies is unmistakable. The utterance in Figure 7, [prámata ton peðíon] "things of the children" carries the H+L* pitch accent in the penultimate stress word [peðíon]. The peak is realised a little before the beginning of the pretonic vowel [e] and the L tone inside the stressed vowel [i], alignment behaviour similar to the Italian and CG falls. This similarity is strong evidence that the Cretan melody is the result of the historic contact between Greek and Italian speakers 400 years ago in Crete.

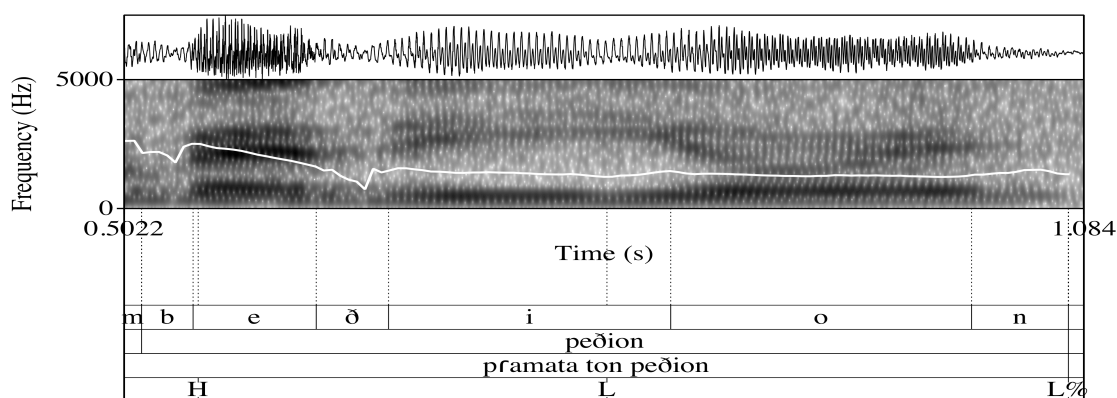


Figure 7. A representative example of the broad focus declarative fall of Calabrese Greek (see text for details).

4. Discussion

The data analysed in this paper showed that the Cretan broad focus declarative melody is clearly different from its analogous SMG one and very similar to the Italian declarative melody in intonation structure. We argued that this melody is the result of contact between Cretan and Italian speakers during the Venetian rule of Crete (1204 - 1669 A.D.). To support our claim about this four centuries old contact-induced transfer we showed that the same melody is used in the Italiot variety of Greek spoken in Calabria, which has been undoubtedly influenced by Italian.

In the process of exploring the Cretan fall melody, we also offered a quantitative analysis of the SMG broad focus declarative (H^*+L $L-L\%$ in GRTToBI), which had been lacking so far, to our knowledge. A second declarative melody has been described in SMG, $H^* L-L\%$, which also signals broad focus. According to GRTToBI (Arvaniti & Baltazani 2005), the difference between the two is their pragmatic interpretation: the interpretation of H^*+L additionally conveys a sense of "stating the obvious" that is, the implication that the addressee should have known or expected the answer. This distinction is not empirically supported by our corpus because H^*+L did not always seem to have such implications.

This cross-dialectal analysis forms part of a larger research project aiming to address questions about the diachronic development of intonation. What is the role of language contact in intonation change? How long can the influences of one language on another last? What is its rate of change? Which melodies are most commonly influenced and why? What units of intonation are subject to change, individual pitch accents/boundary tones or whole melodies?

In addition to the questions about the development and structure of intonation structure, theoretical questions arise about the sociolinguistic forces shaping intonation change. The circumstances of contact have been frequently mentioned as a regulating factor, for example whether contact lasted long periods of time (Sankoff 2001) like the Cretan-Italian contact. In such cases of long-lasting bilingualism, transfer of structural elements from one language to the other is very likely.

Moreover, the differing temporal and sociolinguistic circumstances of contact between the same two languages in different geographic regions might result in differences in the linguistic changes in the recipient language. Robust Italian influences are also evident in the intonation of the Heptanese who were under Venetian rule until 1870 but the intonation patterns of the Heptanese differ from the Cretan ones. The Cretan-Italian contact during the Venetian rule was followed by Ottoman rule (1699 to 1898), adding to the complexity of linguistic influences on this island's dialect. In contrast, there was no Ottoman rule in Corfu, where contact with Italian continued well beyond the end of the Venetian rule in 1870, until the early 20th century. In addition to the temporal and sociolinguistic circumstances of contact, the different internal

structure of each variety may produce different outcomes for each recipient variety even when the donor language is the same (Sankoff 2001). So even though Italian influenced both Cretan and Corfiot, the contact-induced changes diverge in the two Greek varieties. Therefore, the comparison between Corfiot and Cretan lends itself to exploration of types of socio-historical situations that have given rise to different linguistic outcomes.

A related issue arises by the impressive survival of Italian influence on the intonation of Cretan Greek, even though the Italian-Greek cohabitation in Crete ended four centuries ago. How can such contact-induced changes last for so long after the contact has ceased? The same variety, Cretan Greek, was receptive enough to be influenced by Italian and at the same time, paradoxically, conservative enough to resist change after having borrowed this melody (cf. Podesva et al. 2015). Furthermore it seems that in recent decades the rate of attrition in Cretan intonation has increased. Will increased contact with SMG erode the use of such melodies, i.e. increase the rate of attrition? As already mentioned, the Cretan speakers in our corpus code-switch between SMG and Cretan, but it is not clear what percentage of each dialect is used. Corpus studies are necessary to determine the amount of variability in the use of H*+L and H+L* in Cretan (as well as between H*+L and H* in SMG), and the contexts they are used in to understand their pragmatic interpretation.

The pilot we presented today takes this kind of analysis in an exciting new direction, by analysing intonational instead of segmental information. Aside from its descriptive purpose, the present paper highlights how cross-dialectal studies of intonation can enrich our understanding not only of the typology and phonology of intonation, but also of the mechanisms of transfer between languages in contact. The findings are relevant beyond the empirical focus of this paper, Greek. Their applicability to other languages will expand the field of linguistic research into an exciting new area, broadening comprehension of intonation structure and variability and enriching typological scholarship.

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References

- Arvaniti, A. (2016) Analytical Decisions in Intonation Research and the Role of Representations: Lessons from Romani. *Laboratory Phonology: Journal of the Association for Laboratory Phonology* 7(1): 6, 1–43.
- Arvaniti, A. (2007) Greek Phonetics: The State of the Art. *Journal of Greek Linguistics* 8 (1): 97-208.
- Arvaniti, A. & Baltazani, M. (2005) Intonational Analysis and Prosodic Annotation of Greek Spoken Corpora. In: S.-A. Jun (Ed.), *Prosodic typology: The phonology of intonation and phrasing*. Oxford: Oxford University Press, 84-117.
- Arvaniti, A. & Garding, G. (2007) Dialectal Variation in the Rising Accents of American English. In: J. Cole & J.H. Hualde (Eds.), *Papers in Laboratory Phonology* 9. Mouton de Gruyter, 547-576.
- Arvaniti, A., Ladd, D.R. & Mennen, I. (2006) Phonetic Effects of Focus and “Tonal Crowding” in Intonation: Evidence from Greek Polar Questions. *Speech Communication* 48: 667–696.
- Avesani, C. (1990) A Contribution to the Synthesis of Italian Intonation. *Proceedings of ICSLP '90* 1: 833-836.

- Baltazani, M. (2002) *Quantifier scope and the role of intonation in Greek*. Ph.D. thesis. UCLA.
- Baltazani, M. (2003) Broad Focus across Sentence Types in Greek. *Proceedings of the 8th European Conference on Speech Communication and Technology (Eurospeech 2003 - Interspeech 2003)*. Geneva, 89-92. http://www.isca-speech.org/archive/eurospeech_2003_
- Baltazani, M. & Kainada, E. (2015) Drifting Without an Anchor; How Pitch Accents Withstand Vowel Loss. *Language and Speech* 58 (1): 84-115.
- Baltazani, M., Foudos, I., Kainada, E., Kappa, I., Lengeris, A., Mattheoudakis, M., Mikros, G., Nicolaidis, K., Papazachariou, D., Revithiadou, A., Topintzi, N. & Tzakosta, M. (2011) VOCALECT: A Project for the Analysis of Dialectal Vocalic Systems. Paper presentation at the in *11th International Conference on Greek Linguistics*. Rhodes, University of the Aegean.
- Beckman, M. & Pierrehumbert, J. (1986) Intonational Structure in Japanese and English. *Phonology Yearbook* 3: 255-309.
- Boersma, P. & Weenink, D. (2017) *Praat: doing phonetics by computer [Computer program]*. Version 6.0.31, retrieved 21 February 2017 from <http://www.praat.org/>
- Colantoni, L. & Gurlkian, J. (2004) Convergence and Intonation: Historical Evidence from Buenos Aires Spanish. *Bilingualism: Language and Cognition* 7 (2): 107–119.
- Delveroudi, R. (2000) La Variation Linguistique et la Formation de la Langue Nationale Grecque. In: A.F. Christidis (Ed.), *La langue Grecque et ses dialectes*. Thessaloniki: Centre de la Langue Grecque, 117-126.
- D'Imperio M. (2002) Italian Intonation: An Overview and some Questions. *Probus* 14 (1): 37-69.
- Grabe, E., Post, B., Nolan, F. & Farrar, K. (2000) Pitch Accent Realisation in Four Varieties of British English. *Journal of Phonetics* 28: 161-185.
- Grice, M. (1995) The Intonation of Interrogation in Palermo Italian: Implication for Intonation Theory. *Linguistische Arbeiten* 334: Tübingen, Niemeyer.
- Gryllia, S., Arvaniti, A., Baltazani, M., Adamou, E., Terkourafi, M., Vergis, N. & Tsiplakou, S. (2011) Identification and Social Evaluation of Dialectal Greek Intonation. Paper presentation at the *10th International Conference on Greek Linguistics*. Komotini: Democritus University of Thrace.
- Hirst, D. & Cristo, A.D. (Eds.) (1998) *Intonation systems. A survey of twenty languages*. Cambridge: Cambridge University Press.
- Holton, D. (2001) The Cretan Renaissance. In: D. Holton (Ed.), *Literature and society in Renaissance Crete*. Cambridge: Cambridge University Press, 1-16.
- Jun, S.-A. (Ed.) (2005) *Prosodic typology: The phonology of intonation and phrasing*. Oxford: Oxford University Press.
- Jun, S.-A. (Ed.) (2014) *Prosodic typology II: The phonology of intonation and phrasing*. Oxford: Oxford University Press.
- Ladd, D.R. (1996) *Intonational phonology*. Cambridge: Cambridge University Press.
- Ladd, D.R. (2008) *Intonational phonology. Cambridge Studies in Linguistics* 79. Cambridge: Cambridge University Press, 2nd edition.
- Ladd, D.R., Schepman, A., White, L., Quarmby, L.M. & Stackhouse, R. (2009) Structural and Dialectal Effects on Pitch Peak Alignment in two Varieties of British English. *Journal of Phonetics* 37:145-161.
- Leemann, A. & Zuberbühler, L. (2010) Declarative Sentence Intonation Patterns in 8 Swiss German Dialects. *Interspeech*: 1768-1771.
- Μαλτέζου, Χ. (1988) Η Κρήτη στη Διάρκεια της Περιόδου της Βενετοκρατίας (1211-1669) [Crete During the Period of Venetian Rule] (1211 - 1669)]. In: Ν. Μ. Παναγιωτάκης (Επιμ.), *Κρήτη: Ιστορία και Πολιτισμός. Τόμος 2*. Ηράκλειο: Βικελαία Δημοτική Βιβλιοθήκη, 105-161.

- McKee, S. (2000) *Uncommon dominion: Venetian Crete and the myth of ethnic purity*. University of Pennsylvania Press.
- O'Rourke, E. (2003) Peak Alignment in Peru: Spanish in Contact with Quechua. Paper presented at the *Linguistic Symposium of Romance Languages 33*. Bloomington, Indiana.
- Pierrehumbert, J.B. (1980) *The phonology and phonetics of English intonation*. Ph.D. thesis. MIT.
- Ploumidis, G.S. (1974) Οι βενετοκρατούμενες Ελληνικές χώρες μεταξύ του δεύτερου και του τρίτου τουρκοβενετικού πολέμου (1503-1537). Στο: C.R. Glenn & T.J. David (Επιμ.), *Πρακτικά Α' Συνεδρίου 'Επτανησιακού Πολιτισμού': Κοινωνία, Οικονομία και Πολιτισμός στα Επτάνησα (1386-1864)*. Δωδώνη: Πανεπιστήμιο Ιωαννίνων - Επιστημονική Επετηρίς Φιλοσοφικής Σχολής, παράρτημα αρ. 4, 127-142.
- Queen, R. (2001) Bilingual Intonation Patterns: Evidence of Language Change from Turkish-German Bilingual Children. *Language in Society* 30: 55–80.
- Sankoff, J. (2001) Linguistic Outcomes of Language Contact. In P. Trudgill, J. Chambers & N. Schilling-Estes, (Eds.), *Handbook of sociolinguistics*. Oxford: Blackwell, 638-668.
- Themistocleous, C. (2011) *Prosodia kai pliophoriaki domi stin Athenaiiki kai kypriaki Ellinici* (Prosody and Information Structure in Athenian and Cypriot Greek). Ph.D. thesis. National and Kapodistrian University of Athens.
- Thomason, S.G. (2001) *Language contact: An introduction*. Edinburgh & Washington, DC: Edinburgh University Press & Georgetown University Press.
- Tzitzilis, C. (2000). Dialectes et Dialectologie du Grec Moderne. In A.F. Christidis (Ed.), *La langue Grecque et ses dialectes*. Thessaloniki: Centre de la Langue Grecque, 83-90.
- Watrous, L.V. (1982) *Lasithi. A history of settlement on a highland plane in Crete*. American School of Classical Studies at Athens. Princeton: New Jersey.