Prosodic markers of a narrative type: the case of Greek TV news reports

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0. Περίληψη
Στο άρθρο αυτό υποστηρίζουμε ότι τα ρεπορτάζ στα τηλεοπτικά ειδησεογραφικά δελτία συνιστούν ένα κειμενικό είδος. Στο πρώτο μέρος του άρθρου παρουσιάζουμε τα θεματικά και δομικά χαρακτηριστικά του εν λόγω είδους. Στο δεύτερο μέρος, συζητούμε τις προσωδιακές ιδιαιτερότητες που διαφοροποιούν τα ρεπορτάζ των ειδησεογραφικών δελτίων από το είδος αφήγησης που συναντούμε στον καθημερινό λόγο. Τέλος, επιχειρούμε μία ερμηνεία των προσωδιακών τους χαρακτηριστικών και θέτουμε περαιτέρω ερωτήματα όσον αφορά την αποτελεσματικότητά τους στη μετάδοση της είδησης.

1. The news report as a genre
A TV news program is a series of discourse events constructed in the framework of mediated communication and involves, for every news item, two hierarchically interrelated organizing structures. The inclusive structure is the written text, which is announced by the newsreader and constitutes a narrative, or rather a narrativization, of events of public interest (just like news articles in the press); the included structure is the news report, a multifarious text, either in the form of a voice-over narration commenting on a sequence of scenes, or in the form of a 'live' ('in situ') recount performed by a reporter in front of the camera (Lochard & Boyer 1998). The news report is a necessary – though not necessarily sufficient – condition for the truth (or plausibility) and authenticity of the news, as it records the raw material of the news, the 'voice' (Bakhtin) of institutional actors – when the news concerns political and social issues (issue report) – or eye-witnesses when the news refers to dramatic incidents (news story). It follows that the news report, as opposed to the announced news, is a multi-voiced discourse, since it incorporates extracts from the discourse of 'heroes' (newsmakers/actors) of the news into the journalistic text.

News reports and the visual material they contain can be interpreted only within the framework of the broadcasting the news by a presenter, who is also responsible for the 'contract of lecture' s/he proposes to the audience. More specifically, the presenter is free to define the communicative circumstances unilaterally, namely to introduce the topic of the news report and give the floor to the reporter, conventionally (so that s/he has to communicate the information in a way determined by the thematic framework of the news) and temporarily (the reporter has to return the floor to the newsreader as soon as the report is over) (Scollon 1998).

However, given that the news report displays different contextual and textual features from the announced written piece of news (i.e. 'signature', spatiotemporal frame of reference and deixis, schematic structure, etc.), it can be regarded as an autonomous genre per se. More analytically, the modelization of the structure of a news report follows, on one hand, from the communicative goals of the TV news program (newsworthiness) and the need to attract the spectators' attention, and, on the

other hand, from its inclusion within the broadcasted part of the news. Therefore, clarity, expressivity and, most of all, brevity seem to be the basic discoursal requirements for the effectiveness of the news report. The model that has been established in reply to these requirements consists in the alternating presentation of scenes and interviews framed by the reporter's description and commentary, and organized as follows: first, scenes of the event at issue, accompanied by the reporter's voice (introduction); second, interviews of institutional actors or eye-witnesses (main part); third, more scenes followed by commentary, possibly more interviews (reintroduction), and, four, conclusive commentary (conclusion) often delivered by the reporter on the spot looking directly at the camera.

A number of phonostylistic studies have proposed the hypothesis that prosody is a key-concept for distinguishing genres or discursive modes. In view of this framework, Cotter (1993) argues that news reports are marked prosodically by distinctive and quantifiable variations in pause, tempo, and pitch.

2. Research hypotheses – Corpus

Therefore, the hypotheses of our research were formulated in order to check Cotter's argument, and investigate the possible role of other important prosodic features, such as stress, accent, and intonational phrase. In particular, in order to evaluate the role of pauses, their number and duration were measured. In order to measure the tempo, the number of syllables in a continuous stretch of speech was divided by its time-length. Pitch, on the other hand, is a phonetic value related to different prosodic features. Therefore, pitch was taken into consideration in the measurement of a) the phonetic properties of stress and accent, b) the boundaries of the intonational phrase, and c) particular intonation patterns on intonational phrases.

Our research is based on ten news reports covering different topics, from ethnic cleansing to social gossip. The reports are delivered by both male and female reporters, in five different TV channels, three of them private. Moreover, our research includes a 'control' group of four casual and everyday narratives, two of which are delivered by female, and two by male speakers. A T-Test (Independent Samples) is used for the statistical analysis of the data.

3. Prosodic Analysis

3.1. Pauses

One of the most characteristic prosodic features – if not the most distinctive one – of TV news reports is the absence of pauses. News reports contain two to three times fewer pauses than everyday narratives of equal length. In particular, within the twenty first seconds of a news report, there are two to three pauses. In casual narratives, for the same period of time, there are six to seven pauses. Moreover, the length of pauses in everyday narratives (0,230–1,50 secs; mean length: 0,680 secs) is three times higher than in TV news reports (0,150–0,540 secs; mean length: 0,250 secs), a highly significant difference (T-significance: 0,000). An immediate consequence is that the duration of continuous speech in TV news reports (mean length: 3,8 secs) is two and a half to three times longer than in everyday narratives (mean length: 1,2 secs). Fig. 1 below shows clearly the pause differences between news reports and casual speech.

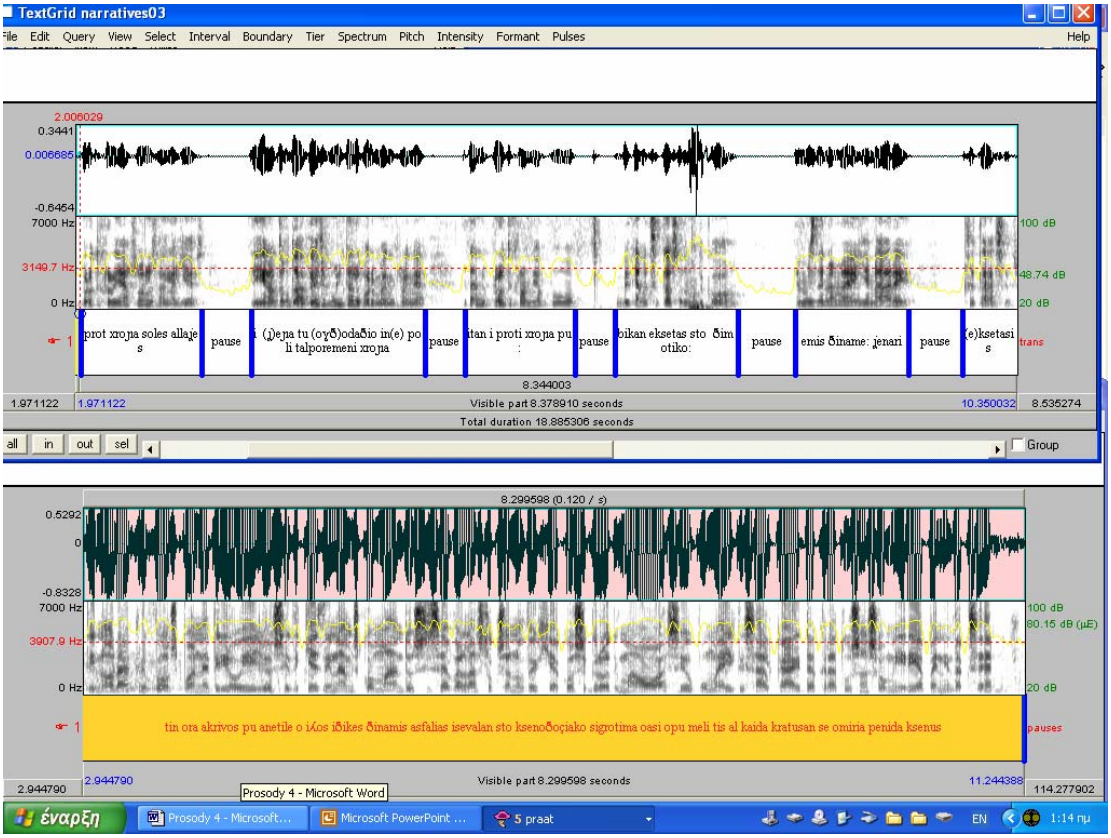


Figure 1. Transcribed waveforms of a news report (bottom) and a casual narrative (top) of the same length (i.e. 8,3 secs)

3.2. Tempo

Tempo is the second parameter that was measured, by dividing the time of the continuous stretch of speech by the number of syllables uttered, in order to calculate the average length of the sentence. We decided to measure the tempo by dividing the duration of the stretch of speech by the number of syllables produced instead of the number of words, in order to avoid a possible influence of word size, as reporters tend to use more elaborated and longer words. Statistical analysis (T-test) showed that although in the news reports the average syllable (mean length: 0,12 secs) is slightly shorter than in the everyday narratives (mean length: 0,134 secs), the difference is not significant (T-significance: 0,120).

3.3 Stress

Although we measured the average syllable length in order to calculate the tempo of news reports, syllable length is also one of the phonetic properties of stress, along with intensity, vowel quality and pitch range (Gussenhoven 2004). Therefore, unstressed and lexically stressed syllables were compared as to the above characteristics. At this stage accented syllables were not included, although they are lexically stressed as well, because they define a different prosodic unit, i.e. accent, related to intonation and not to stress.

3.3.1 Intensity

In the everyday narratives, unstressed and stressed syllables are significantly different in terms of intensity, as stressed syllables are 2–4 db louder than the unstressed syllables. These results are in accordance with Arvaniti (2000) who also found that stressed syllables are significantly louder than their unstressed counterparts. In the news reports of our corpus, however, the difference between unstressed and stressed syllables is maximally 1 db, in most cases being absent.

3.3.2 Duration

In the casual narratives, the average duration of the stressed syllables is 25% longer than the average duration of the unstressed ones (mean length of unstressed CV syllables: 0,110 secs; mean length of stressed CV syllables: 0,145 secs; T-Significance: 0,002)[1]. Moreover, in our casual narratives, unstressed syllables show a great variability in duration – the longest unstressed syllables being twice as long as the shortest ones – as opposed to stressed syllables, which show little variation in length (length range of unstressed CV syllables: 0,075–0,145 secs; length range of stressed CV syllables: 0,135–0,160 secs). As with intensity, the difference in length between unstressed and lexically stressed syllables in the everyday narratives is non-existent in the TV news reports. In particular, the difference in average duration between unstressed and stressed syllables is reduced to 10 msecs, and the duration variability of the unstressed syllables is of the same range as that of the stressed ones (mean length of unstressed CV syllables: 0,135 secs, range: 0,110–0,160 secs; mean length of stressed CV syllables: 0,145 secs, range: 0,120–0,160 secs).

3.3.3 Vowel quality

In many languages, unstressed vowels undergo a quality reduction, usually becoming more centralized and less rounded (Gussenhoven 2004). Unstressed vowels in Greek have a similar behaviour (See Baltazani 2005, in press, Fourakis et. al. 1999, Nikolaidis 2003). A method of measuring this sound change is the comparison of F1 and F2 in unstressed and lexically stressed vowels, as F1 shows the height of the tongue in the mouth during the production of the vowel sound, and the difference between F2 and F1 indicates the position of the tongue along the front-back axis of the mouth. In particular, low F1 values indicate that the position of the tongue is high, while higher F1 values indicate a low position of the tongue. For example, the F1 values of the Italian [i] and the Italian [a] are around 300 Hz and 800 Hz, respectively (Ladefoged & Maddieson 1996). Similarly, a high F2 – F1 value indicates that the vowel sound is produced at the front part of the mouth, and a low F2 – F1 difference shows that the vowel is produced at the back of the mouth; for example, again the F2 – F1 difference in the production of the Italian [i] is almost 2000 Hz and the F2 – F1 difference of the Italian [u] is around 300 Hz (Ladefoged & Maddieson 1996). If unstressed vowels are more centralized than their stressed counterparts in Greek, we would expect their F1 values to be closer to the middle of the high/low axis. Similarly, the unstressed vowels would have more centralized values on their F2 – F1 axis than their stressed counterparts. It is quite interesting that the mean values of unstressed

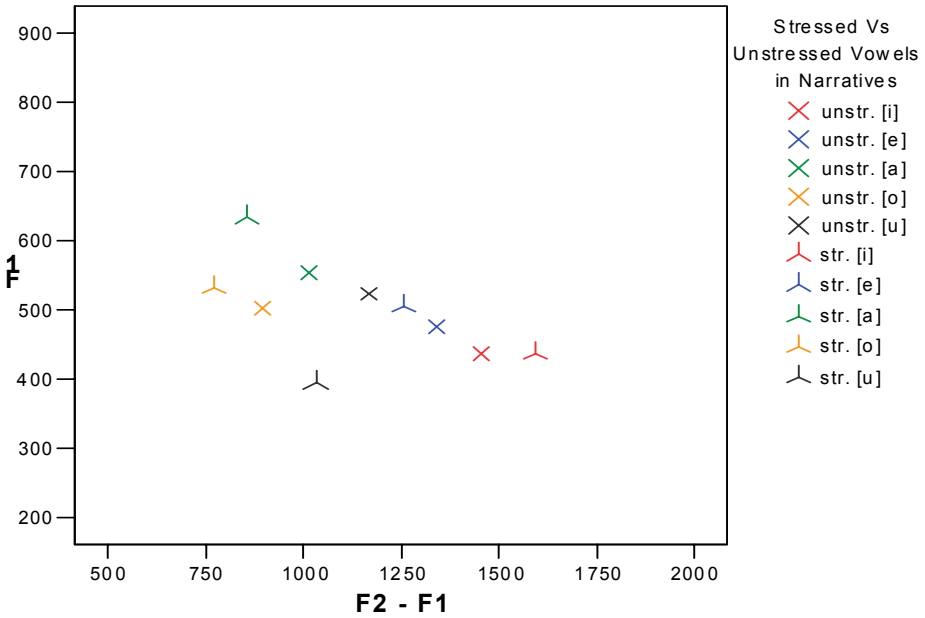
[1] Arvaniti (2000) also verifies the significant difference in duration between stressed and unstressed syllables in Greek.

vowels in the casual narratives are more centralized than their stressed counterparts, as shown in Table 1, a difference which is statistically significant for the /i/, /e/, /a/ and /u/ vowels.

Vowels	Stressed F1	Unstressed F1	T-Sign.	Stressed F2 – F1	Unstressed F2 – F1	T-Sign.
/ i /	437 Hz	436 Hz	0,968	1593 Hz	1456 Hz	**0,030**
/ e /	505 Hz	475 Hz	**0,040**	1257 Hz	1340 Hz	0,207
/ a /	634 Hz	553 Hz	**0,001**	857 Hz	1012 Hz	**0,018**
/ o /	532 Hz	502 Hz	0,233	773 Hz	894 Hz	0,228
/ u /	394 Hz	523 Hz	**0,023**	1032 Hz	1166 Hz	0, 496

Table 1. Mean values of F1 and F2 – F1 of stressed and unstressed vowels in casual narratives

As can be seen in Graph 1, in the casual narratives, both stressed and unstressed vowels are much more centralized than the prototypical five vowels. Moreover, unstressed vowels are more centralized than their stressed counterparts.



Graph 1. The graph represents the stressed and unstressed vowel system of casual narratives. Unstressed vowels are represented by an *x* and stressed vowels by three-ray stars.

Statistical analysis showed that in casual narratives, unstressed /i/'s, /e/'s, /a/'s and /u/'s are significantly more centralized than their stressed counterparts. Moreover, as shown in Graph 1, although the stressed /u/ is quite centralized (comparing to a prototypical [u]), its unstressed counterpart is much more centralized, being more distanced from its stressed counterpart than any other unstressed vowel.

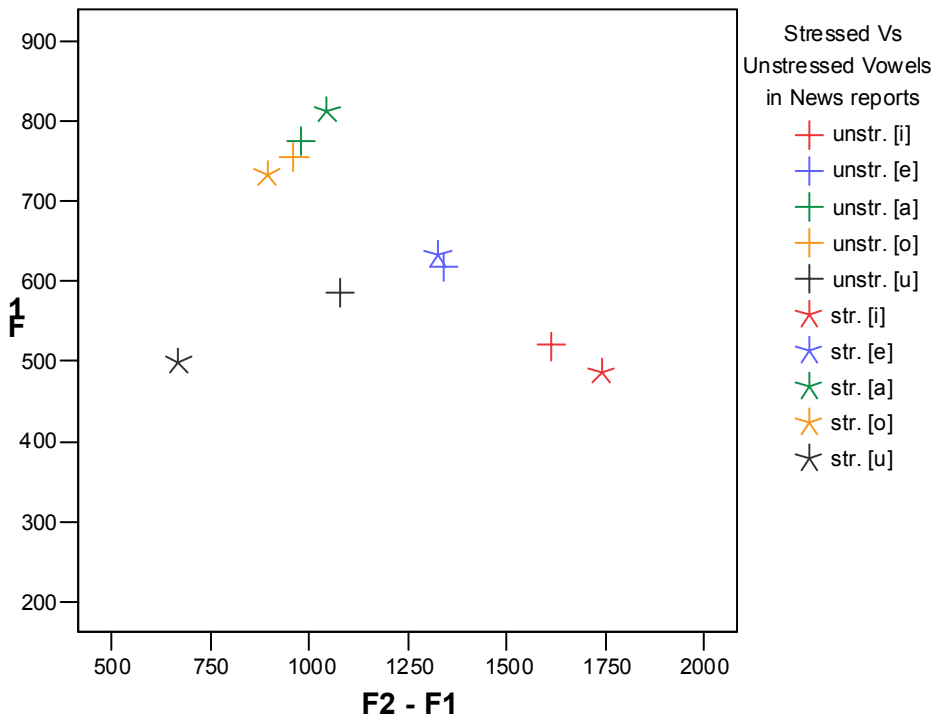
Although in the casual narratives most of the unstressed vowels proved to be more centralized than their stressed counterparts, this difference does not appear in the news

reports. Table 2 below shows the F1 and F2 – F1 values of stressed and unstressed vowels, most of which are not statistically significant.

Vowels	Stressed F1	Unstressed F1	T-Sign.	Stressed F2 – F1	Unstressed F2 – F1	T-Sign.
/ i /	486 Hz	520 Hz	0,554	1740 Hz	1611 Hz	**0,026**
/ e /	633 Hz	618 Hz	0,695	1326 Hz	1339 Hz	0,766
/ a /	813 Hz	776 Hz	0,389	893 Hz	962 Hz	0,137
/ o /	734 Hz	756 Hz	0,512	1047 Hz	980 Hz	0,228
/ u /	500 Hz	586 Hz	0,289	670 Hz	1077 Hz	**0, 049**

Table 2. Mean values of F1 and F2 – F1 of stressed and unstressed vowels in news reports

The absence of difference between stressed and unstressed syllables is clearly pictured in Graph 2.



Graph 2. The graph represents the stressed and unstressed vowel system of news reports. Unstressed vowels are represented by a cross and stressed vowels by a five-ray star.

As shown in Graph 2, it is mainly /u/ that shows a dramatic difference between its stressed and unstressed realizations, with the unstressed ones being really centralized. Statistical analysis showed that there is also a significant difference between the F2 – F1 values of the realizations of /i/. Moreover, if we compare Graph 1 and Graph 2, it turns out that in the news reports reporters produce vowels (either stressed or unstressed) much closer to their prototypical F1 and F2 values, than in the casual narratives. Only the realization of the unstressed /u/ in the news reports is closer to its

production in casual narratives. All the other unstressed vowels in the news reports are produced with F1 and F2 – F1 values closer to their stressed counterparts.

Summarizing the results of the qualitative analysis of stressed and unstressed vowels in the news reports and the casual narratives, we can conclude that a) reporters produce vowels as 'clearly' as possible, i.e. with F1 and F2 values that cannot be ambiguous, by contrast to speakers of casual narratives, who tent to produce more centralized vowels than their prototypical counterparts, and b) in news reports, apart from /u/ and /i/, the unstressed vowels are not significantly more centralized than their stressed counterparts, as opposed to the unstressed vowels of casual narratives which show an obvious tendency for centralization (Graphs 1 and 2).

3.3.4 Fundamental frequency

Pitch, and more particularly pitch change, is another phonetic feature related to stressed and not to unstressed syllables (Fry 1958). Botinis (1989) argues about the significant role of F0 in determining stress in Greek, yet the significance of F0 is questioned by Arvaniti (2000)[2]. Nevertheless, the casual narratives of our corpus verify the relation between fundamental frequency and stress as they show a 10 Hz average pitch change on stressed syllables, as opposed to a 2–3 Hz average pitch change on unstressed ones. The TV news reports also verify the above relation; actually, stressed syllables are marked by a much higher pitch change (a 50 Hz average pitch change!), compared to the stressed syllables in the casual narratives.

To sum up the results of stress analysis, while, in the casual narratives, stressed and unstressed syllables are distinguished in terms of intensity, duration and vowel quality, the distinctive function of these three properties is absent in the case of news reports. Pitch range remains as the only marker of stress, and, consequently, is used in excess.

3.4 Accent

A stressed syllable has the potential for being accented, according to Bolinger (1958), that is to carry the intonational tone that will highlight the focus of the intonational phrase. An accent is phonetically differentiated from stressed syllables mainly by a much wider pitch range (Ladd 1996). This differentiation is witnessed in the everyday narratives of our corpus, as the average pitch range of the accent is three times wider than the pitch range of the stress (pitch range of stressed syllables: 5–22 Hz, pitch range of accents: 10–70 Hz). Interestingly, in the news reports, the pitch range difference between accents and stressed syllables is minimized (65% vs 60% of speakers' overall pitch range), mainly because stressed syllables are produced with a wide pitch range as well (i.e. pitch range of stressed syllables: 5–100 Hz, pitch range of accents: 15–120 Hz). Thus, the distinction between accented and stressed syllables is obscured.

[2] Arvaniti (2000), however, does not take into account the range of the pitch change, but the position (H or L) of the F0 of the stressed syllable on the overall intonation curve.

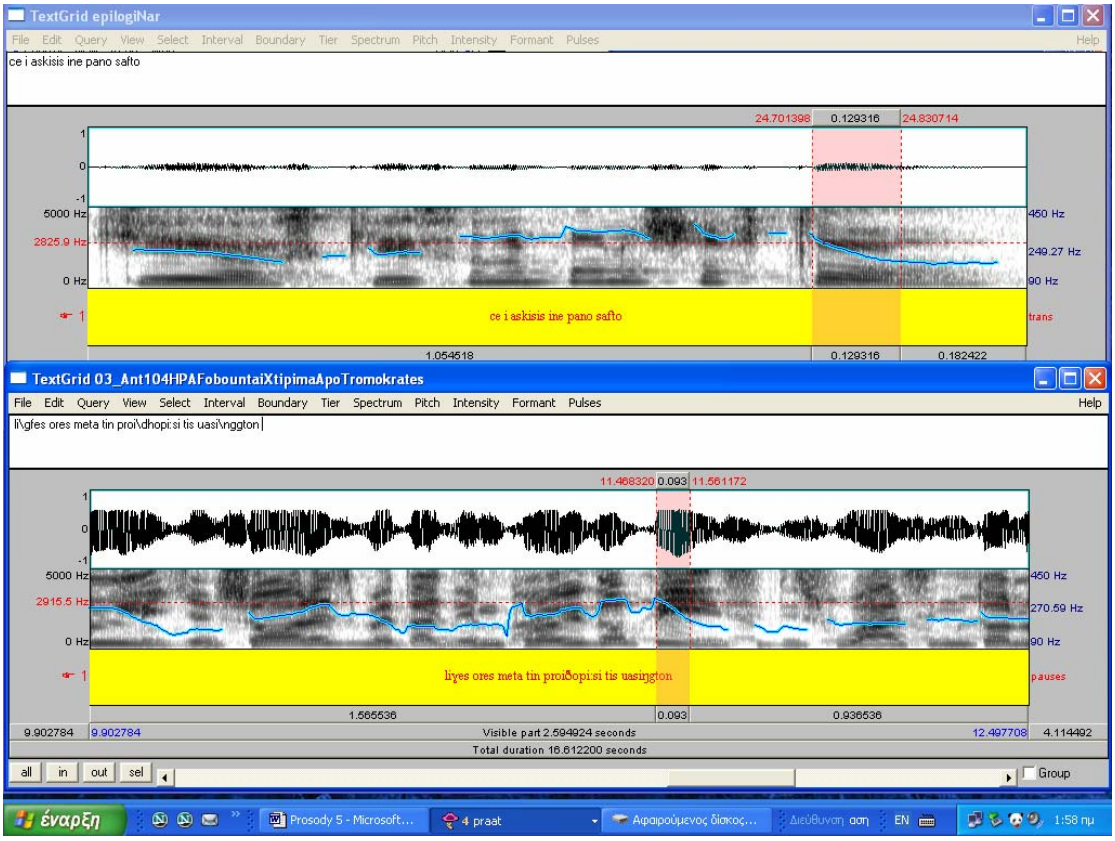


Figure 2. Transcribed waveforms of a news report (bottom) and a casual narrative (top) of similar length. The red blocks indicate the accented syllable of each intonational phrase.

Fig. 2 presents clearly the difference between casual speech and news reports, as in the waveform of the casual speech (top), the greatest pitch change appears clearly on the accented syllable (which is marked by the red block). Nevertheless, this is not the case with the waveform of the news report, where the pitch movement on the accented syllable (which is marked by the red block) is of a range similar to that of the other stressed syllables of the intonational phrase.

3.5 Intonational phrase

Accent is part of a bigger prosodic construction, i.e. the intonational phrase. Our research included the study of intonational phrase, as its pragmatic role is quite important for information structure, therefore it should play a fundamental role in news reports. Before presenting our findings, we will outline its prosodic and pragmatic properties.

First of all, the intonational phrase is conceived as a stretch of speech pronounced under a single coherent intonation contour (Chafe 1987, Du Bois et. al. 1992). The boundaries of the intonational phrase can be a) a pause, b) an abrupt change of the intonation contour, resetting the baseline of the intonational phrase, c) a lengthening of the final syllable of the intonational phrase, or d) a combination of the above parameters (Du Bois et. al. 1992, Cruttenden 1986, Chafe 1980). Its pragmatic function is to regulate the information flow by marking one – and only one – element

as focus, and incorporating it in the shared knowledge of the addressees. The focused element is highlighted by accent (Givon 1984, Chafe 1987, 1994, Du Bois 1987).

The casual narratives of our corpus verify all the above characteristics of the intonational phrase. However, in the news reports the prosodic and pragmatic structure of the intonational phrase is occasionally violated.

3.5.1 Pseudo-boundaries

In news reports, there are instances of a series of resettings of the baseline, which would normally function as boundaries of intonation phrases. However, the resulting stretches of speech do not present the intonational and pragmatic properties of an intonational phrase (see Fig.3).

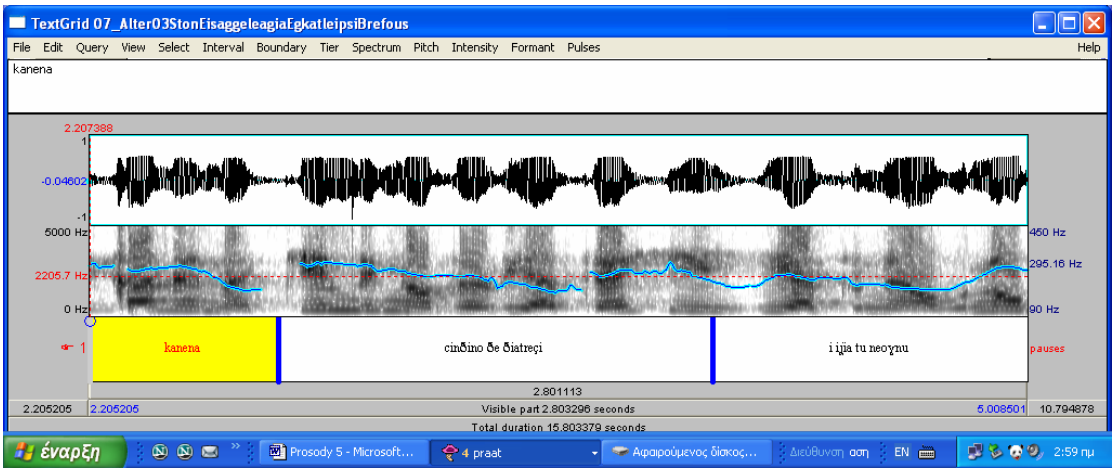


Figure 3. Annotated waveform from a TV news report, which shows prosodically prominent elements, divided by abrupt resettings of the baseline

In particular, the object quantifier seems to be prosodically separated from its object, violating the prosodic unity of this type of noun phrase that we would expect in Greek (see Kennelly 2003). Furthermore, in the second stretch of speech, the reporter highlights prosodically the verb and not the negative particle that would be the appropriate if this stretch of speech would construct a proper intonation phrase (Baltazani & Jun 1999, Baltazani 2003, 2004).

3.5.2 Prosodically prominent elements

In 3.5 we mentioned that focus is indicated by prosodic prominence, mainly in terms of pitch range. Therefore, we would expect only one prosodically prominent element in an intonation phrase, as there should be only one focused element. Nevertheless, in news reports, there are many cases where there is more than one prosodically prominent element, with consequence that prosodic prominence looses its pragmatic function, that is to indicate focus. A very good example is figure 3, where there are at least four prosodically prominent elements, instead of one. In Standard Modern Greek, we would expect the negative quantifier at the beginning of the sentence to carry the contrastive accent with a Low plateau intonation curve on the rest of the intonation phrase (see also Baltazani 2003). Interestingly, both the object and the verb of the phrase receive higher prosodic prominence than the –logically- focused element. Consequently, in situations like in Figure 3, prosodic prominence looses its

pragmatic function, i.e. to present the focused element of the intonation phrase. Furthermore, there are cases, like in Figure 4, where the most prosodically prominent element of the intonation phrase does not indicate its focus. In particular, the most prominent element of the first intonational phrase in Fig. 4 is the word 'prasini' (i.e. the nick-name of the football team the news report is about), which is obviously not a candidate for focus, being the topic of the sentence.

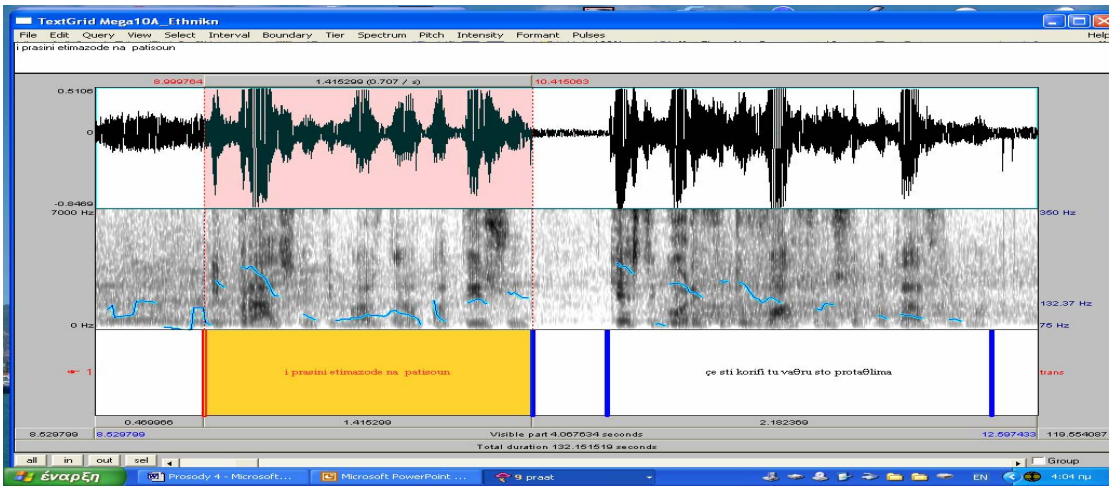


Figure 4. Waveform of an intonational phrase, with the prosodically prominent element clearly being the topic of the utterance

3.5.3 Tones[3]

A comparison between the casual narratives and the news reports revealed the existence of three tones that are particular to the news reports.

*3.5.3.1 H*L%*

A very distinct tone of the news reports appears at the end of the intonational phrase, regardless of the existence of other accented elements in the intonational phrase. In particular, the stressed syllable of the last word of the intonational phrase has a very high pitch level, with the remaining syllables of the word realized with a steep fall (see the intonation curve at the second part of Fig. 5).

3.5.3.2 HL, or an early H*L*

This particular tone usually appears at the middle or the end of the intonational phrase, with a L% (Low boundary tone) or a L* (Low pitch accent) preceding it. Although the preceding intonation contour is low, the intonation contour increases and reaches the peak BEFORE the stressed syllable, where it starts to decrease (see Fig. 5).

[3] For the description of the tones I did not follow the GrTOBI (see Arvaniti & Baltazani 2004), but TODI (see Gussenhoven 2004)

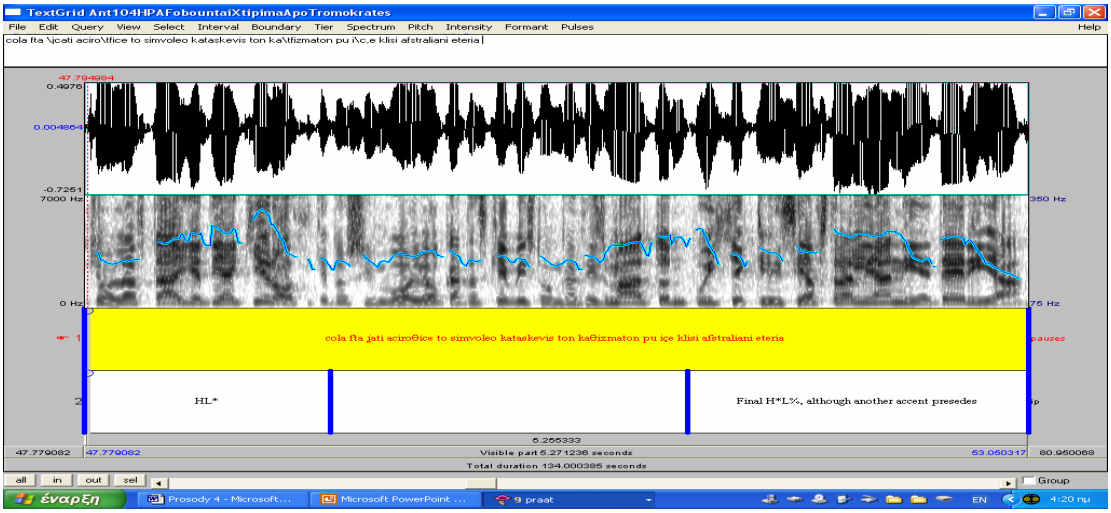


Figure 5. Two of the idiosyncratic tones that appear on TV news reports

*3.5.3.3 H*L + H*H%*

The last particularity is a combination of two tones that appear in intonational phrases expressing a thematic continuation. In particular, a (H*L) bitonal high-star-low accent appears at the beginning of the intonational phrase, with the high tone on the stressed syllable and the low extending up to the last word of the intonational phrase, where a high tone appears on the stressed syllable and the intonational phrase finishes at the same, or even a higher level (see Fig. 6).

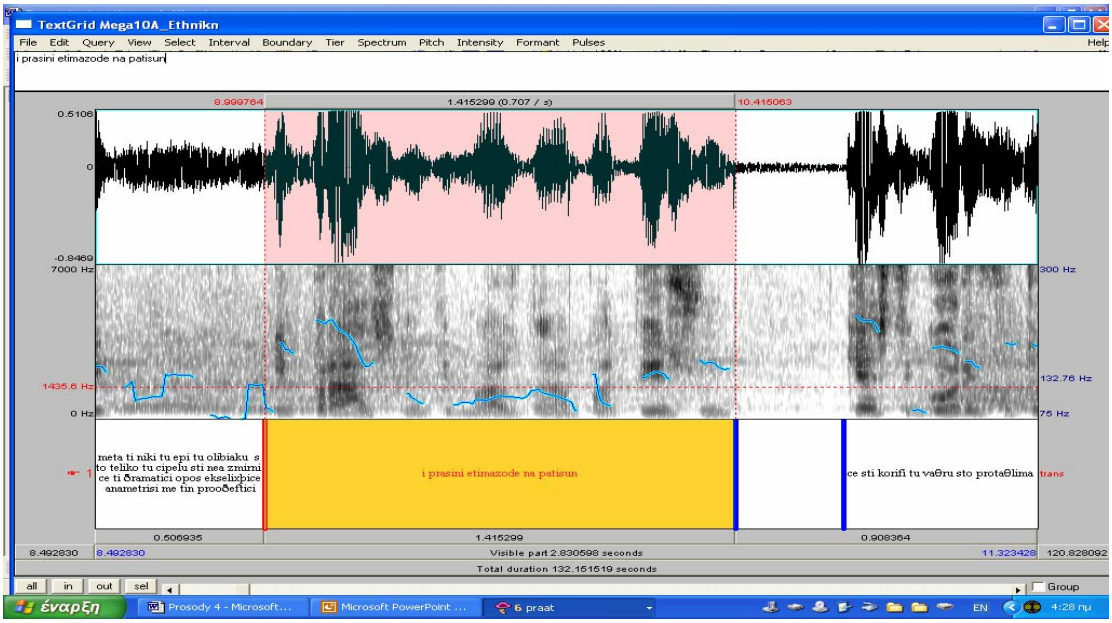


Figure 6. A typical intonation contour of Greek TV news reports, combining *H*L + H*H%*

4 Discussion

To sum up the results of the present research, a surprising number of prosodic features and elements are realized differently in news reports and in everyday narratives. We

have specifically pointed to differences concerning pauses, stress, accent and intonational phrase.

In this part of the paper, we will formulate some hypotheses that could shed light on the appearance of at least some of the prosodic particularities presented above.

First of all, news reports have been shown to contain few and short pauses. This feature can probably be related to the principle of brevity that distinguishes news reports as a genre. In addition, these reports are always pre-constructed, in order for the reporter to achieve maximum clarity in the shortest possible time. Therefore, reporters pause only in order to breathe, and not in order to structure their speech.

Another interesting point concerning news reports is that the function of duration, vowel quality and intensity as markers of stress is absent. A possible explanation is related again to the principle of clarity, which requires that reporters speak as 'clearly' as possible, without deleting sounds, which is of course a normal process in casual speech. Under these conditions, duration, vowel quality and intensity no longer have a distinctive function with respect to stress. Therefore, the only other phonetic feature that could mark stress – i.e. pitch change – is used excessively.

However, the excessive use of pitch change creates a further problem, that is the occasional absence of the prosodic distinction between stress and accent, a problem that is intensified by the existence of ill-formed intonational phrases, and by the idiosyncratic information structure of news reports, which include as much new information as possible in the shortest possible stretch of speech. A result of these particularities is the occasional weakening of the pragmatic function of accent, i.e. focus, along with a parallel tendency for the pragmatic function to be replaced by a metrical function. However, this weakening can sometimes create problems of comprehension.

5 Conclusions

The prosodic particularities of Greek TV news reports discussed in the present paper are not all realized with equal frequency. The limited number of short pauses and the absence of the distinction between stressed and unstressed syllables in terms of duration, intensity and vowel well-formedness, characterize the totality of news reports in our corpus. On the other hand, the widening of the pitch range, the absence of the stress/accent distinction, the ill-formedness of the intonational phrase, and the loss of its pragmatic function in relation to information flow are optional phenomena.

Our tentative suggestion is that the presence of those optional phenomena is related either to the different styles of the news reports, e.g. the difference between a neutral and an emphatic presentation of the news, or to the particular TV channel. The existence of a significant correlation between the optional prosodic particularities of news reports and different news-reporting styles, or TV channels will be the object of further study.

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