

Declination and finality in spontaneous and read speech in Russian

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ABSTRACT

This paper deals with two central phenomena of sentence intonation: the perceived finality or non-finality of intonation units and the observed F_0 -declination in intonation contours. Our aim was to find out whether there exists any relationship between these intonation features and whether the presence of F_0 -declination can aid the hearer in perceiving finality even in the absence of other means of signalling finality, such as deep final fall. In addition, we made observations on speech data collected in the INTAS-00-915-project in order to clarify the differences in signalling finality in read and spontaneous speech in Russian.

1. INTRODUCTION

1.1. Intonation of final statement

The majority of intonation descriptions of Russian start with the analysis of the intonation of final statement, which serves as a background of the study of all other intonation types. This intonation type, though, can hardly be considered either the simplest or the most frequent both in spontaneous and read aloud speech. Nevertheless, the intonation of final statement can really be considered the original one, i.e. unmarked, as it is in this type that the declination of the frequency baseline is distinctly felt, the latter being one of the universal features of human speech.

1.2. Declination

The phenomenon of declination has been widely discussed in intonology since the 60-s. At present there are theories concerning physiological mechanisms of F_0 -declination, and some proofs of its perceptual reality and universal nature has been obtained [1, 2, 3, 4]. But some issues in the declination theory remain unclear, for example, the relation of declination to finality, both being universal phenomena. For Russian the tendency of the fundamental frequency for lowering from the beginning to the end of a sentence was stated independently from western researches as early as in the late 60's by O.F. Krivnova [5,6] and N.D. Svetozarova [7] in the form of both lowering of the average melodic

height (Krivnova) and decreasing of the melodic peaks (Svetozarova).

There is evidence from many different languages (English, German, Russian, Dutch, Japanese) that there exist some basic preconditions for this tendency (see for example: [8]). As to different types of sentences, there is evidence that fundamental frequency declination is more common for declaratives and that it is less marked or even absent in general questions.

Fundamental frequency declination has been studied from three major points of view:

- 1) Concerning different *positions* of the intonation unit in discourse, there is evidence that fundamental frequency declination is more common for final, closing parts of larger intonation units.
- 2) Concerning the *information structure* of the sentence there is evidence that fundamental frequency declination is more common for utterances with the broad focus and less marked or even absent in those with narrow focus (or the so-called "logical stress").
- 3) As to different *types of speech*, there is evidence that fundamental frequency declination is more common (or more marked) in reading and less obvious in spontaneous speech.

1.3. Finality

It is common knowledge that Russian final statements are uttered with a descending tune and end with a deep fall [9, 10]. High falling final tone, so typical of many languages in final statements (English, German) is perceived by Russians as special prominence focus ("logical stress"). And yet, deep final falls in Russian in read aloud final statements are not very frequent, to say nothing of those in spontaneous speech, which is more oriented towards continuation. The final zone of a Russian statement would be more likely to contain a stretch of rather high and/or rising tone which, surprisingly enough, is not perceived as either prominent or non-final.

One of the factors causing this perception effect can be the influence of other than melodic prosodic means: final lengthening of vowel, slowing up of the overall tempo. But

also in the inner structure of the F_0 -contour of a longer utterance there could be found some global features that can cause the impression of full finality. On the other hand, there may exist some other than prosodic means that are employed in speech for signalling finality.

2. PARTICLES SIGNALLING FINALITY IN SPONTANEOUS SPEECH

2.1. Earlier research

It has been revealed in our earlier studies, based on Russian isolated statements, read aloud texts and spontaneous dialogues [11:145; 11:58; 13; see also 14] that some particles, most commonly *vot* and *nu vot* function as finality markers in spoken Russian. Observations on F_0 -contours of these particles have shown that *vot* and *nu vot* that signal finality have falling pitch contour.

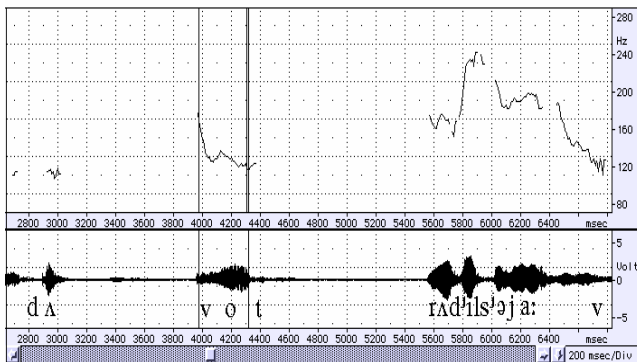


Figure 1: Falling F_0 -pattern of *vot*-particle signalling finality. (SoundScope)

In Figure 1 the speaker (an aged native speaker of Russian living in Finland) first intended to speak about his birth, but then decided to mention about his age. Using *vot*-particle he ends the “sidetrack-topic” of his age and restarts telling about his birth. Thus, it seems that here *vot* with falling F_0 -contour signals ending of a subtopic [11: 56-57].

2.2. Observations on new speech material

For the present paper we have made observations on particles *vot* and *nu vot* in a larger speech material, including tape recordings of spontaneous dialogues of seven Russian native speakers which are a part of a joint project of Department of Phonetics, St Petersburg State University, Institute of Phonetics, University of Amsterdam and Department of Phonetics, University of Helsinki. (INTAS-00-915: “Spontaneous Speech of Typologically Unrelated Languages (Russian, Finnish and Dutch): Comparison of Phonetic Properties”).

This large amount of new speech material confirmed our observations on particles fulfilling “closing function”. In

Figure 2 is presented a typical case of *nu vot* with falling F_0 -pattern. In this case the preceding utterance carries also a falling pattern. Here the speaker has been describing weather conditions and wants to end that topic to tell what happened to him because of the bad weather during his stay in Prague. This kind of use of falling *nu vot* following an utterance with clearly falling tone has the effect of very strong finality. Our hypothesis is that this “double-marking” of finality is used to signal a major boundary in discourse, i.e. to mark an ending of a topic (or a “paragraph” [15:24-25]).

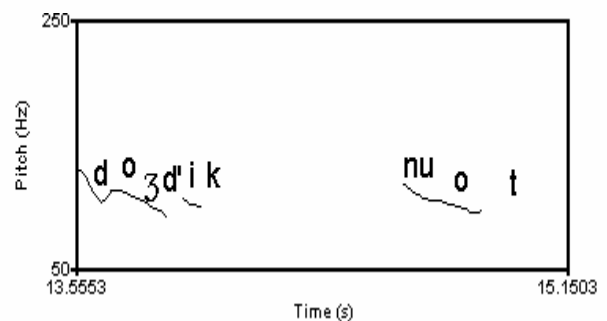


Figure 2: Falling pattern of *nu vot* realized as [nuot] that signals ending of a topic (Analysis by Praat).

We have made a hypothesis that the use of falling tones in spontaneous Russian is rare because of frequently used particles that signal finality. In our material were observed several cases where the utterance preceding particle *nu vot* did not have features of the classical falling tone of finality.

In Figure 3 is presented a case where the nucleus of the preceding utterance carries rising-falling tone, and particle *nu vot* carries falling tone.

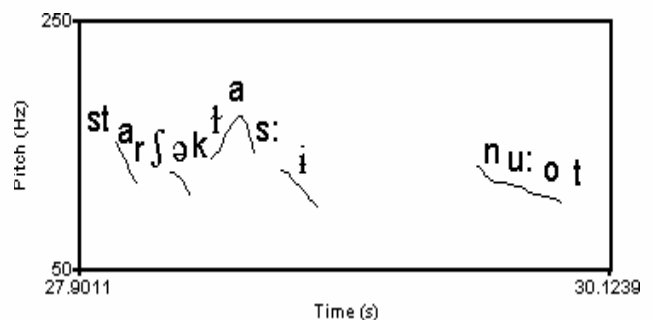


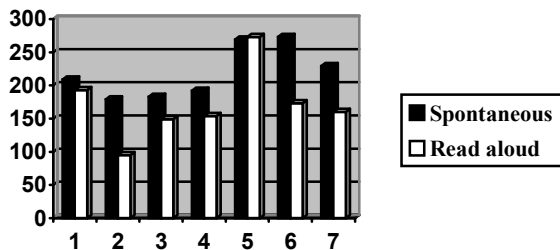
Figure 3: Falling tone in particle *nu vot*, rising-falling tone in the nucleus of the preceding utterance. (Praat)

Rising-falling tone in the final part of an utterance appeared to be very common in our spontaneous Russian data. The functioning of this kind of utterance-final F_0 -pattern needs to be more thoroughly studied in the future.

3. FINALITY IN SPONTANEOUS SPEECH AND READING

In our investigation of the specific nature of spontaneous speech in typologically different languages we tried to compare it with reading aloud of the same or nearly the same samples of text. To get comparable speech material for phonetic investigations is one of the most difficult tasks in prosodic analysis. In our study we have chosen same samples of spontaneous speech and, after smaller editor's corrections, asked the same persons to read them aloud. The prosodic transcription of both texts (spontaneous and read aloud) exposed a significant difference in the number of utterances which were pronounced (spoken or read) with what one can call "full finality". In their spontaneous speech our informants (speakers of standard Russian) used closing prosodic patterns mostly at the end of topics and sub-topics of their conversation. Within these sequences of utterances various kinds of non-full finality were observed. Many of syntactically and semantically complete sentences end in high- or mid-tone level and have high-rising, rising-falling or high-falling nucleus tones. In reading our informants often took into account sentence-final punctuation marks and finished many (but not all) written sentences with more or less marked full-finality features, such as deep fall, low-falling nuclear tone often combined with prepausal lengthening.

Non-finality and non-full finality in spontaneous and read speech



Full finality in spontaneous and read speech

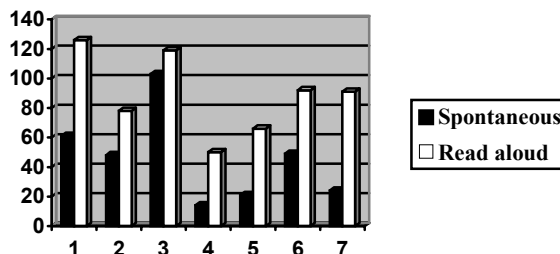


Figure 4: Occurrence of cases of non-finality and non-full finality vs full finality in spontaneous speech of seven speakers compared with the reading aloud of the same fragments.

4. FINALITY AND F₀-DECLINATION

By more thorough and detailed auditory and instrumental analysis of the melodic contours in the cases of perceived "full finality" it was revealed that a great amount of them (not only in spontaneous speech but also in reading) did not contain low or deep falling endings. Utterances that were perceived as final, but ended with high, rising or rising-falling tones were tested for presence or absence of F₀-declination.

Declination was determined by aligning frequency baseline values of unstressed non-final syllables, to the exclusion of final stressed word zone, the bearer of sentence stress as well as of, presumably, finality.

Although cases of clear F₀-declination are relatively rare in spontaneous speech compared to reading (partly because of rather small intonation units), we have found some interesting examples that confirmed our hypothesis on the role of F₀-declination as one of the means helping the listener to perceive a sample of spontaneous speech as final.

In Figures 5 and 6 we see examples of topic-closing intonation units with an obvious F₀-declination-tendency in both spontaneous speech and reading. The intonation of all the four intonation units was judged by trained listeners as full-finality, in spite of differences in nuclear tones (high rise-fall and low fall in Fig.5, mid rise-fall and low fall with preceding rise in Fig. 6).

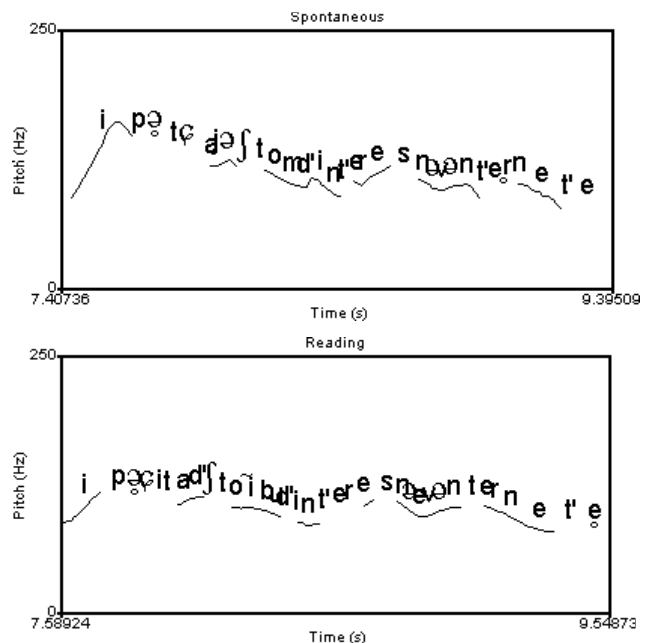


Figure 5: Intonation unit closing a topic in spontaneous speech and reading (male speaker): "... i pochitat' shto-nibud' v internete'" (...and to read something in the Internet).

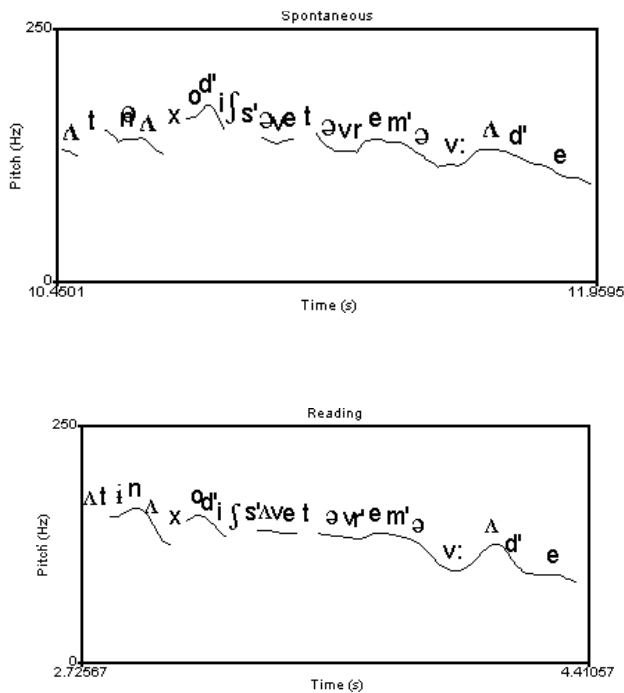


Figure 6: Intonation unit closing a topic in spontaneous speech and reading (male speaker): “... a ty nakhodishsia v eto vremia v vode” (... and you are at that time in the water).

5. CONCLUSIONS

Our study of various relation types of declination to the final fall of tone as well as the intensity and length of the stressed vowel in both spontaneous speech and reading in Russian confirmed many of earlier observations. Our analysis enables us to make a hypothesis that it is the declination in the non-final part of intonation contour that helps the listener to qualify as final the contours containing both low and high final tone. These findings render declination a linguistically relevant component of intonation contour. In spontaneous speech discourse particles *vot* and *nu vot* pronounced with falling tone seem to function as markers of finality. This may be one of the reasons why in spontaneous speech the "classical" cases of falling melodic patterns are less frequent than in read speech.

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