

A NEW DESCRIPTIVE SYSTEM FOR RUSSIAN INTONATION

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ABSTRACT

A new descriptive model for Russian sentence prosody was elaborated which is based on a radical combinatorial approach. It presupposes: 1) an enlarged number of prosodic layers: not only tone, duration and intensity, but also phonation (creaky/breathy and tense/lax voice) and articulation (vertical position of the larynx and horizontal position of the tongue body); 2) two modes of functioning for most features: local (as a property of an accented syllable) and integral (as a property of a syntactic constituent); 3) a vast range of combinatorial possibilities for both local and integral prosodies corresponding to possible combinations of prosodically relevant semantic features; 4) an analytical approach to surface prosodic forms searching for their underlying semantically motivated structure.

1. INTRODUCTION

A widely accepted descriptive system for Russian intonation (Bryzgunova [1]) is based on a set of seven accentual units defined by several prosodic features: rising/falling/level tone, +/- intensity on falling accent, +/- glottalization on rising accent. However, it may be easily shown that even these features provide a much more extensive set of combinations than seven «intonational constructions» postulated by Bryzgunova: not only fall-rise but also rise-fall, and not only intense fall but also intense rise, etc.). A different model proposed by Ode [6] provides an enlarged inventory of tonal features (excursion and timing were added), but it completely ignores the non-tonal features with no serious justification. In respect to minimality both systems are similar to their recent Western counterparts ('t Hart et al. [3], Selkirk [8]).

However, our observation (acoustical and perceptual) of great portions of Russian speech shows clearly that such limited systems are not able to cover the whole range of linguistically significant prosodic patterns. Thus, an alternative system was developed which has much more powerful descriptive facilities (Kodzasov [4]). It presupposes a more wide set of basic prosodic means and an unlimited range of their combinations in utterances. The basic assumption is that a phonetic investigation of prosody need to be closely correlated with a semantic one: prosodic configurations are mostly determined by possible combinations of semantic characteristics. This paper deals with the most appealing problems arising in such a model.

2. PROSODIC INVENTORY

2.1. Introduction

Most prosodic features display two modes of functioning: local (accentual) and global (spread). In particular, tonal oppositions are realized locally as tonal accents on stressed or edge syllables and globally as some properties of longer speech stretches. In the

same way, temporal oppositions may be accentual (duration of stressed or edge vowels) or global (overall rate influencing duration of all vowels inside a clause). Also the features of intensity and phonation may appear in two hypostases. In our transcription local properties are presented in parentheses after accented words (the relevant part of a word being underlined), whereas the signs for global prosodies are placed after the right bracket delimiting a scope of features application. For example, *Tebja Vanja(/) - [ja jego vchera videl(\)](L) - prosil pozvonit'(\)*. 'Vanja - I met him yesterday - asked you to ring up to him'. Here '/' and '\' designate rising and falling accents, while 'L' indicates the low register of the constituent (the neutral register has no mark).

Both accentual and non-accentual features may form combinations whose componential structure is mostly transparent. For example, the strong demand is expressed by an intensity jump (a sign '!') which may join both rising and falling tones: - *Ty pozvonil(!) Vane? 'Have you rang up to Vanja?'; - Pozvonil(\!) jemu! 'Ring up to him!'*. There is no need to place such occasional regular combinations into a prosodic lexicon for Russian. At the same time, a combination of increased vocalic duration with a downward movement of the larynx which functions as a marker of contrastivity, probably, needs to be included in the basic prosodic set as a special unit. We think also that some tonal configurations arising as a result of standard modifications of underlying patterns should be included in the prosodic inventory of Russian, being regarded as its «stored» units. In particular, such is an expressive pronunciation of exclamations producing an additional accent which transforms a neutral pattern =\ ('=' stands for a high level tone) into a 'hat' configuration /=\: - *Prevosxodno(=/=)!* 'Wonderful!'. Thus, a provisional lexicon of prosodic units may contain not only features and their combinations but also accentual and global configurations providing an opportunity for generation of unlimited number of different intonational constructions (cf. 'levels of description' in [3]).

2.2. Tonal features and configurations

2.2.1. Direction. Following a Russian intonological tradition we describe pitch accents in terms of glides. The sign '/' designates a rising tone with a trailing fall on the post-stress syllable whereas '\' means a falling tone which is preceded by a rise from the baseline. If the rise on the stressed syllable is followed by a poststress high level tone, the sign '/=' is used and, correspondently, '=\' designates a fall after high level on the prestressed part. We have accepted also level tone as a possibility for accented syllables ('-' for high and '_' for low) because it may accompany a dynamic or quantitative accent.

All possible combinations of level and rising tones inside accented syllables have been found in Russian dialogical replies:

/-, \, /, \. Examples: - *On posetil Ve-enu (/-, Ri-im(/-), Pra-gu(/-)... 'He visited Vienna, Roma, Prague...'; A. - *Eto sdelal Vanja. B. - Ax Va-anja(-).* 'A.- This was done by Vanja. B. - Vanja! I see.' All complex tones with the level component are durationally bimoraic (this is shown here by doubling of the corresponding letter). At the same time combinations of glides (/\, \/) inside a syllable may be both monomoraic and bimoraic. The monomoraic ones may not be regarded as surface realizations of two underlying tones, and phonetically they display properties of single units: they have moderate duration (about 150 msec) and an integrated intensity slope. They are normally used in answers which deny (/\) or confirm (\/) presuppositions of discourse: A. - *Ja mogu govorit' s Ivanovoj?* B. - *V otpuske(/\) Ivanova.* 'A. - May I talk to Ivanova? B. - Ivanova has holidays'; A. - *Ty kogda pridjosh?* B. - *V sredu(\/), kak dogovarivalis.* '- When will you come? B. - On Wednesday, as it was agreed.'*

On the contrary, the bimoraic combinations of glides inside syllables always present underlying pairs of tones. Normally, they go back to the combinations of accents on stress and edge syllables and resulted from their merge caused by the lack of the segmental material in a word. For example, the contour /=\ in exclamations has a forced realization /+\ in the words with initial stress: - *Zdo-orovo(/+)*! (Compound tones are transcribed in the way known in British intonology[2]: /+\ and /+). Their phonetic difference from the corresponding complex tones are rather clear: the accented vowels are much longer (up to 300 msec) and have two picks in the intensity slope. Also the range of tonal changes is much larger.

The similar conditions cause another sort of the compound tones inside the stress syllable, that is the repetition of a glide: \+ or /+/. Again, a prototypical pattern presupposes placement of the repeated glide onto the edge syllable, and just the absence of segmental material forces two accents to join. An example with two separate accents on the neighbour syllables: A. - *Ty razve ne videl etot fil'm?* B. - *Videl (/+).* 'A. - Haven't you seen this film? B. - Why? I have seen.' And now an example with a compound accent inside a syllable: A. - *Ty chto - ne dal jemu den'gi?* B. - *Da-al*(/+). 'Haven't you given him money? B. - Why? I have given.' Our notation reflects a phonologized representation of the tonal curve, because a more phonetically oriented notation would have been like /∇ and \∇ (cf. [2]).

Compound tones inside accented syllables in all cases are representatives of standard tonal configurations for clauses. In the section 3 we discuss further details concerning the relation of these two forms of tonal curves.

The global analogue of tonal fall is widely known as declination. This component of the sentence tonal curve presents the unmarked properties of the baseline and we do not record it in our transcription.

As to inclination, it is a semantically loaded feature (it expresses usually a kind of persuasion and is typical for advertising), and it is marked obligatory as 'incl'.

2.2.2. Range and Register. The first of these features has only a local hypostasis. We distinguish three values: a neutral interval (around 1/2 octave), a large interval (more than 2/3

octave), and a small interval (less than 1/3 octave). Corresponding signs for the marked values are: //, \|\; /', \'. Accents with a small excursion are fixed only in the cases they are perceptually relevant.

An additional tonal gesture on the prestress syllable assisting to reach a larger interval on the stressed one is designated by «z». In the case of a falling accent it marks a preceding rise, whereas before a rising accent it designates a preceding fall.

Five values are envisaged for the feature 'Register': 'neutral' (no mark), 'high' (H), 'falsetto' (F), 'low' (L), and 'extra-low' (EL). This feature may be used both locally and globally. Pairs of polar values may accompany two directionally identical accents in semantically opposed constituents: A. - *Vanja reshil zadachu!* B. - *Ne tol'ko Vanja(L), no i Kolja(\H)!* 'A.- Vanja has solved the problem! B. - Not only Vanja but Nick also!' The global variant of falsetto is typical for ironical questions, whereas the global variant of extra-low serves as a sign of self-evident statements.

We did not include the feature 'Rate of Change' in our inventory because its values is predetermined by values of the 'Range' and 'Duration' features.

2.2.3. Timing. This feature defines the localization of a tonal change inside a syllable. Our treatment of this opposition differs slightly from that of C.Ode's [6] who introduced it into the set of features for Russian. In the Ode's theory the final point of a tonal curve is of relevance: the movement may end at the initial part of a vowel ('early timing') or at the final part ('late timing'). The author follows here the system of the Dutch intonological school [3]. We believe that the difference is rather connected with three modes of tonal shift: a level-like one (a change takes place on the consonantal onset of a syllable) versus a contour-like one (a change takes place on the vocalic nucleus of a syllable) versus a neutral one (a movement spreads over both parts). The corresponding signs for simple tones are: \c, /c; \v, /v; \, /. Also complex accents may have different timing. For example, a rise-fall may be realized just inside a vowel or be distributed between the consonantal and vocalic parts: - *A ved' ona jego ljubit(/c\v)!* '- But she loves him!' (an exclamation of a conjecture).

2.3. Non-tonal features

2.3.1. Duration and Intensity. The feature 'Duration' is of a great semantic importance. Its marked values ('long' vs. 'short') are used for expression of several related oppositions: long vs. short, non-limited vs. limited, extensive vs. pointed. These oppositions function in three pragmatic spaces: physical, temporal, and mental, and are in abundance in texts. But they are usually ignored in phonetic descriptions in favour of such superficial events as final lengthening. Also the global hypostasis of duration (rate) is loaded semantically. In particular, a quick tempo ('qu') is an obligatory sign of repeated questions: - *[Kogda-kogda ty prishol](qu)?* 'Repeat, when did you come?' Thus, a consistent fixation of all durational oppositions in the transcription of intonation is desirable.

Also the feature 'Intensity' does not receive usually a due attention. However, it defines not only overall loudness of long stretches of speech - its accentual form fulfils important semantical functions. For example, an intensity accent is the only sign of a focus in the case of a focal indefinite pronoun which does not accept a tonal accent shifting it to a verb: *Tebe kto-to(!) zvonil(\)*. ' - Somebody called to you'.

2.3.2. Articulatory features. These features are usually ignored in descriptions of intonation as paralinguistic. But in fact they present an indispensable component of the normal discourse. This is especially true in the case of a specific gesture marking contrastivity in Russian. It presents an impulse-like downward movement of the larynx in the initial or final part of an accented vowel which have some appreciable acoustical consequences. A sharp increase of intensity is the most obvious cue. Also considerable spectral changes take place which display a good accordance with those predicted by Lindblom and Sundberg [5]. The way of recording this pattern may be seen from the following example: *Eto ne Vanja sdela! Eto Kolja(-↓:)*! 'It was done by Nick and not by Vanja!' The sign '-↓:' designates a combination of the downward laryngeal movement placed at the end of vowel with a prolongation of vowel. The global variant of the discussed feature is found only in expressive categorizations of large size objects.

Another common articulatory feature has only a global hypostasis. It is a horizontal displacement of the tongue body which is independent of the segmental composition of words. A front oriented movement (it is accompanied by a lip spreading) is used as a gesture of appraisal (the sign '<'), and a back oriented movement (it is accompanied by a lip protrusion) serves as a gesture of discontent (the sign '>').

An integral nasalization of an utterance or a clause (the sign '~') also occurs. Its expressive functions need a further investigation.

2.3.3. Phonation. All non-modal phonation types are actively involved in non-formal speech: creaky (different kinds of evaluation), breathy (a high degree of feeling), lax (a mild posture or a forced agreement), tense (a tough posture or a disagreement). The first two phonations have also accentual variants: glottal stop and aspiration at the end of accented vowels.

Tense voice displays also a non-expressive function: it marks any indication of the outer side of verbal signs. For example: [*Po russki eto nazyvajets'a «fonatsija»*](tense) 'In Russian it is called «fonatsija»'.

3. PROSODIC STRUCTURES

3.1. Introduction

The intonation carries out a number of parallel functions: it marks the communicative characteristics of semantic constituents (focus/topic, new/given, contrastivity), expresses illocutionary properties of utterances, shows evaluations of the introduced content, indicates structural characteristics of clauses, and so on. In general, all these functions are independent and may be realized either by separate prosodic

means or by some clusters. Thus, an intonational analysis of a given clause presupposes a reconstruction of its underlying componental structure. A descriptive model should be able to present both deep and surface structures of intonation.

3.2. Deep and Surface Representations

Accentual characteristics may have different scopes but be realized at the same position. In particular, the accent of question in Russian normally coincides with the focal one whereas in Polish it functions separately being placed on the final syllable of a sentence. Compare Russian and Polish equivalents of a sentence 'Is this your shirt?': - *Eto tvoja(/) rubashka?*; - *Czy to jest twoja(\) koszula(/)?* In Russian, a rising tone of question is separated only in the situation of comparison where the repeated focal member is dropped and the illocutionary tone is shifted onto the final syllable of the accented word: A. - *Vanja prishol.* B. - *A Kolja(\+)?* 'A. - Vanja has come? B. - And what about Kolja?'

A similar situation is found in the case of phase accent with the meaning of continuity which may coincide with the focus of a clause or function separately if the focus does not occupy the final position in the clause: - *Poglazhu rubashku(/), togda pojdem.* or

- *Rubashku(\) poglazhu(/), togda pojdem.* ' - Only after I finish ironing my shirt, we go.' Thus, a division of communicative tonal accents and boundary (illocutionary or phasic) tones presupposed in the generative model for English intonation [7] in most Russian sentences may be shown only in the underlying representation.

Any compound tone inside a syllable undoubtedly goes back to a combination of two tonal accents. It was shown above that the accent /+ \ may appear as a result of mержence of the /=\ \ - structure inside a word. But, probably, it should be regarded as a realization of even more deep structure comprising accents on stress syllables of two independent words. Compare: - *Kakoj prekrasnyj (/=\)!* 'How beautiful!', - *Velikolepnyj (/=\)!* 'Splendid!', - *Di-ivnyj(/+ \)!* 'Wonderful!'. In a similar way, a compound intrasyllabic accent of \+ \-type may be seen as a merged form of the prototypical configuration spread over two words. Compare: - *Xoroshaja(\) mysl'(\)!* 'A good idea!' and - *Zadumano xorosho-a(\+ \)!* 'The plan is good!'

In the case of a focal accent the direction of a tonal change has either semantical (illocutionary) or structural (phasic) motivation. At the same time, the direction of a tonal shift on the accented topic is semantically empty and is conditioned by a pure phonetic tendency to simplify the tonal curve: a tone of topic is adopted to a tone of focus. For example: A. - *Ivanov(\) prijel(/)?* B. - *A Ivanov(/) zabolel(\)!* 'A. - Has Ivanov come? B. - But Ivanov fell ill.'

A similar analytical approach should be spread onto non-tonal prosodic features and combinations of tonal and non-tonal characteristics of utterances. But such investigations are arrested by a still rather limited knowledge of the intonational semantics.

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