Post-Nuclear Prominence Patterns in Northern Russian Question
Intonation

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Abstract
In the intonation of polar questions in the Northern Russian dialect of Varzuga (Kola Peninsula), two different intonation patterns are frequently used: the Standard Russian H*L pitch accent, with a high rise and immediate fall, but also a “broad hat” pattern, in which the high rise is followed by a late fall, aligned to the first syllable after the last lexical stress. This contour does not fit into the existing transcription systems developed for Standard Russian. The analysis presented in this paper suggests that the late fall does not present a fully-fledged pitch accent, but is subordinate to the preceding, nuclear accent, similar to phrase accents in the sense of [4].

1. Introduction
Although the Russian traditional dialects show comparatively little variation, they differ substantially in the field of prosody. The Northern Russian dialects deviate from the Central and Southern Russian dialects and Standard Russian in syllable structure [17], in the relative duration and reduction of stressed and unstressed syllables ([11]; [20]) and in the prosodic structure of the utterance, which is less centralised, due to a tendency to attach equally prominent pitch accents to a larger number of words ([1]; [18]).

A remarkable difference between the dialect of the Northern Russian village Varzuga (Kola Peninsula) and standard, Central Russian pronunciation concerns the intonation of polar questions. In Russian, yes/no questions can be formed by using the question particle li and by means of intonation only. In Standard Russian, the most common nuclear pitch accent used in polar questions without li has a high rise on the stressed syllable, immediately followed by a fall to low level, known as i.a. IK-3 in [3]; Ri- in [14]; LH L- in [23]; L+H* L(*) in [13] and H*L in the most recent version of ToRI (Transcription of Russian Intonation; see [15]; [16]); cf. ex. (1) and Fig. (1).

The dialect examples are given in latinised orthographic transcription. Lexical stress is marked by an accent on the stressed vowel. The syllables pronounced on a high pitch level are underlined. Final intonational phrase boundaries are marked with % when no pitch change occurs after the syllable marked with L, and with ´ when pitch keeps falling, as in ToRI ([16]).

H* L % (1) Vy govorite po-anglijski?
you speak in-English
“Do you speak English?”

Following Ladd, the nucleus is defined as the most important accent from the point of view of focus ([12], p. 217). As in many other Eastern European languages ([5]; [12]), the locus of the main, nuclear pitch accent in an “out of the blue”, broad focus polar question with no special contextual requirements is the finite verb ([13], or other carrier of modality; see [21]), as indicated in (1). Any words following after the nuclear rise are usually deaccented. The pattern does not convey an implication that deaccented elements count as given in the discourse ([13]; [21]). The post-nuclear words can carry small, secondary pitch accents, subordinate to the main, falling pitch movement of the post-nuclear stretch, as in (2) and Fig. (3), under conditions that remain to be described, cf. [13]; [21]:

H* L (h 1*) (h 1*) L %
(2) A vy lično ne miate professora Kulikova?
But you personally not know professor.acc Kulikov.acc
“So you don’t know professor Kulikov personally?”

In the Varzuga dialect, apart from this “pointed hat” contour, a “broad hat” pitch pattern is used, as indicated in (3) and Fig. (2). The locus of the nuclear rise is the same as in (2), but the fall is preceded by a long stretch of high pitch:

H* * L %
(3) Vy govorite po-anglijski?
you speak in-English
“Do you speak English?”

This “broad hat” pattern appears to represent a phonological difference between the dialect and Standard Russian. It cannot be described by the available inventories of intonation constructions, pitch accents, phrase and boundary tones, developed for Standard Russian, as described in [3]; [14]; [16]; [23].

The late fall causes several questions concerning its distribution (see §2.1), the alignment of the fall (§3), its phonological status (§4), and the functional difference with the peak pattern, a question for further research (see §5). Section 2 describes the data on which the present analysis is based.

2. Corpus and experiments
The analysis of the broad hat contour is founded on 1) more than one hundred question utterances from a corpus of spontaneous speech, recorded from elderly speakers of the local Northern Russian dialect in Varzuga between 2001-2007 (see [19] for a description of this corpus); 2) on read transcriptions of the original dialogues and of constructed questions by ten speakers of Standard Russian; and 3) on the same material, read by three dialect speakers from Varzuga.

In order to compare the dialect intonation with Standard Russian, which has a very similar intonation system in other respects, ten speakers of Standard Russian were asked to read
the transcription of parts of the dialogues as if it was their own speech. In order to get close to the original discourse situation, parts of the context were included in the reading task and the participants were asked to reread some of the questions as if they were surprised, as if addressing children, as a “wondering question” (see [2]; [22]), and with two prominent accents. An acceptability test with native speakers was carried out afterwards in order to exclude utterances from the reading task with unnatural intonation.

2.1. Distribution

The broad hat pattern has so far been attested in 40 utterances from nine different dialect speakers, including a single attestation from a male speaker. However, no conclusions can be drawn regarding possible gender differences, due to the low number of recordings of male dialectal speech in our data. Apart from one speaker, from whom only three questions were recorded, all speakers also used the peak pattern.

2.1.1. Non-dialect speakers

Reading tasks have the drawback that only the most neutral contour might appear, in this case H*L, but in our reading task with speakers of Standard Russian other contours were produced as well (see [2]; [22]; [10] for a description of alternative pitch accents in polar questions, which occur under specific contextual conditions), including patterns with delayed pitch accents or falls that have not been described previously and do not occur in (contextually and emotionally) neutral speech. However, none of the attested patterns was similar to the dialectal broad hat. The task to produce two prominent accents proved, as expected, to be difficult.

2.1.2. Reading task in Varzuga

In Varzuga we found only three speakers available to read the question utterances. They were on average 20 years younger than the original speakers and their speech had far fewer dialectal traits. One speaker, a male teacher, produced only the standard peak contour, but the other two speakers used both the peak contour and the broad plateau pattern spontaneously.

3. Alignment of the fall

In the “pointed hat” contour (H*L), the fall starts in the first post-tonic syllable in the dialect of Varzuga, as in Standard Russian; see ex. (4) and Fig. (4):

(4) Zaměržla oná, bolòtina-to?

was-frozen it.nom.sg moor.nom.sg-prt

“Was it frozen, the moor?”

In the broad hat contour, the fall starts only in the first syllable following after the last lexically stressed syllable, even when the post-nuclear stretch is long, as indicated in (5):

(5) A ty tam ne plákalas’ ostàlas’ ot mámy dak?

but you there not cried.F.sg left.F.sg from mum prt

“Didn’t you have to cry when you were left without your mother?”

(6) A ty tam ne plákalas’, ostàlas’ bez mámy kogdà?

but you there not cry left without mum when

The pitch contour in (5) is radically different from its Standard Russian counterpart in (6), which is produced with post-nuclear secondary accents; cf. Fig. (5) and (6). The dialectal pragmatic particle dak cannot be stressed (or accented); cf. [19]. Note that the dialect utterance is produced without a prosodic boundary between the main clause and the embedded clause (no pause and no change of pitch), so the embedded clause is not produced as a separate prosodic unit, but as an integrated part of the intonation phrase. The comma in (5) represents a syntactic, not a prosodic boundary.

When the last syllable is stressed, F0 falls on this syllable, as in (7):

(7) – A Ljúda gde? Ne dómà? (– V bol’nice.)

but Lyuda where not at-home in hospital

“Where is Lyuda? Not at home?” (“She’s in hospital.”)

H* *L%

– Vsë eščë v bol’nice onà?

all still in hospital she.nom.sg

“Is she still in hospital!”

When no post-nuclear stresses are available, the fall is situated on the last syllable:

H* L%

(8) Polodinnàcatogo?

half-eleventh.gen.sg

“At half past ten?”

4. Phonological status of the late fall

The form of the broad hat pattern, the semantics of the utterances and comparisons with Standard Russian, with its intonation that is very similar to the intonation of Varzuga in other respects, suggest that it should not be analysed as consisting of two equally important pitch accents – one rising and one falling, but that the final fall is either part of the nucleus or otherwise subordinate to the nuclear accent.

4.1. Not a fully-fledged pitch accent

There are at least three arguments for not considering the final fall as a (fully-fledged) pitch accent. First, an analysis as a full pitch accent implies that the utterance has at least two pitch accents, where one would normally expect the last one to represent the focus; cf. [13]. This interpretation is highly improbable in many of the attested utterances from the Varzuga dialect. The peak pattern is attested in utterances where other than broad focus interpretations are improbable, and the broad hat pattern is frequently used in utterances with narrow focus on the first, accented element (ex. (7); (9)), where a full accent on the last element is very unlikely:

(9) (– Vторógo rodílsja.)

second.Gen.sg was-born.M.sg

“(He was born on the second (of November).”)

H* *L%

– Vtorógo rodílísja?

“He was born on the second?”

Second, in the last phonological word, pitch changes only after the stressed syllable. This implies that if the fall is described as a pitch accent, this accent would involve no change of pitch in the stressed syllable, which is typologically uncommon and not described for Standard Russian. Third, the late alignment
of the fall is not due to the presence of extra words, since the 
opposition in the dialect between early and late fall is retained when no post-nuclear words are available; cf. the late fall in
Polodinnacatog in (8) with the early fall in (10):

H* L L%

(10) Možet, popeštešu? Repu-to?
perhaps you-will-taste turnip.acc.sg-prt

“Would you like to taste it? The turnip?”

4.2. Phrase accent or secondary pitch accent

As argued in §4.1, the final, late fall is subordinate to the 
preceding H* tone, which is the accent that signals focus. The 
alignment of the fall to a stressed syllable shows that it is not 
an ordinary boundary tone; cf. [12], p. 213. The final fall can 
possibly be described as a non-prominence lending pitch 
movement – a phrase accent or a trailing tone of pitch accent, 
or as representing a secondary pitch accent, sub-
ordinate to the preceding, main accent (nucleus), similar to 
the post-nuclear secondary accents in Standard Russian (see §1).

The final fall is similar to a phrase accent in the sense of 
[4] and [5]; cf. [8], p. 138; [12], p. 212ff. Like the final fall of 
the broad hat pattern, phrase accents associate with a stressed 
syllable when there is an accentable word available, but with 
the final syllable, similar to boundary tones, when there is not. 
An analysis of the late fall in the Varzuga question contour as 
a phrase accent would fit with the phonological structure of 
question intonation in other Eastern European languages, such 
as Romanian and Standard Greek, the only difference being 
the form of the pitch accent, which is L* in these languages, 
but H* in Varzuga. Even the locus of the pitch accent is the 
same. These languages have the so-called East European 
Question Tone, consisting of an L*-marked focused element 
and a final HL tune, which is a boundary tone in some 
languages, but a phrase tone in others ([4]; see also [12], p. 
173; [13]). In this respect, the Varzuga broad hat question 
tone is closer to other Eastern European languages than 
Standard Russian, with its H*L (L%) contour (cf. [13]).

As in ToDI ([7]; [9]), phrase accents are not used in ToRI 
([15]; [16]). Yokoyama includes phrase tones in her 
phonology of Russian intonation, described in [23], but in a 
different sense, for pitch movements following directly after 
the stressed syllable of pitch accents. The contour LH H L% 
is already used for a different accent, known as H*M in ToRI.

A phrase accent interpretation of the late fall implies the 
introduction of phrase accents in all intonation phrases in the 
Varzuga dialect, which does not seem to be warranted. In a 
framework without phrase accents, the late fall could be 
regarded as a trailing tone of the nuclear pitch accent with a 
late association, instead of a phrase accent; cf. [8], p. 140f.

However, there are several arguments in favour of a 
secondary pitch accent interpretation, two of which are the 
possible occurrence of secondary pitch accents in post-nuclear 
stretches in Standard Russian, which are not aligned to a 
boundary and not obligatory, as described in §1, and the 
occurrence of delayed falls in Standard Russian as well (see 
§2.1.1), which remain to be described. Moreover, the late falls 
are perceived as prominence-lending by speakers of Standard 
Russian, even by dialectologists with knowledge of Northern 
Russian dialect prosody. However, this is not a valid argument 
if the dialect speakers themselves do not perceive them as 
prominent, which at present is an open question. No 
conclusive analysis of the phonological status of the fall can 
be made before the complete intonation structure of the 
Varzuga dialect has been described.

5. Conclusions and further research

The broad hat contour, attested in the Northern Russian dialect 
of Varzuga, can be analysed as consisting of a main, nuclear 
accent involving a high rise on the accented syllable of the 
nucleus, followed by a final tune, aligned to the last lexical 
stress. The final tune is subordinate to the nuclear high rise. 
This contour does not fit into the existing descriptions of 
(Standard) Russian intonation.

For a detailed phonological analysis of this contour the 
intonation system of the dialect has to be described as a whole. 
However, the phonology of Standard Russian intonation is not 
yet completely understood either. For instance, little attention 
has been paid to pitch patterns with delayed pitch movements 
in Standard Russian, occurring in non-neutral speech, and to 
pronunciation patterns in post-nuclear sequences. The conditions 
and semantics of secondary pitch accents in the post-nuclear 
stretch of the intonation of polar questions remain to be 
described.

Another task for future research is to find out the 
distribution of the broad hat contour in other Russian dialects. 
The coexistence in the dialect of broad hat contours besides 
peak patterns suggests a difference in pragmatic 
meaning. That it is not a simple difference between broad 
and narrow focus is shown by the fact that both patterns are 
attributed to utterances with narrow focus on the first element; 
 cf. ex. (4) and (7). A preliminary analysis of the pragmatic 
conditions suggest that the opposition is related to the 
knowledge of the speaker regarding the information under 
current concern, similar to differences found in (varieties of) 
other languages, such as German and Italian (see [6]; [11]). 
The broad hat is typically used in utterances with a strong bias 
to a positive answer and a lesser degree of questionhood, such 
as in requests for confirmation of an inference going counter 
to an earlier presupposition of the speaker. Further research 
will have to show whether this explanation can account for all 
occurrences of the contour in the dialect of Varzuga.

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7. Figures
The following fundamental frequency curves are made with Praat ([2]) and given on a logarithmic scale. Accents on the stressed vowels indicate stress. Sound files of the examples can be retrieved from http://uit.no/humfak/ti/sette/95.