INTONATION STRUCTURE AND INTONATION IN SVO AND OVS SENTENCES IN SPOKEN RUSSIAN

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ABSTRACT

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The purpose of this thesis is to examine the difference between SVO and OVS sentences in spoken Russian, which is a language with flexible word order although the basic order is SVO. Two experiments were conducted to understand the nature of intonation. Experiment 1 shows that the Subject appears as kontrast in OVS sentences, and as background in SVO sentences. The F_0 curve rises in the Object position when the Subject is kontrast in OVS sentences.

The analysis of the results of Experiment 2 shows that the initial element of the sentence plays an important role in intonation. When it is kontrasted, it always has

higher (Hz) frequency pitch accent than the final element. There is no difference between SVO and OVS sentences in this respect because the initial element has high pitch accent, whether it is the Subject or the Object. The verb has no pitch accent and it has a flat intonation regardless of the WO of the sentence (SVO, OVS).

Keywords: Russian, word order, intonation, discourse functions, information structure

TO MY FAMILY WHO SUPPORTED ME FROM FAR AWAY…

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INTRODUCTION

Language has communicative purposes. Communicating with a person, the user wants his sentences to be well formed, not only syntactically but also informationally, Speakers of all natural languages use different variants of encoding messages. They choose contextually intended options from various ways with a conscious effort for an effective communicative result. One of the most significant points for researchers about free word order (WO) is how to characterize the choice.

The Slavic literature contains a lot of discourse issues which regulate word order. Russian is a language with free word order but SVO order is the basic one. Besides, the case system is morphologically rich. For example, different grammatical relations are shown morphologically.

The Prague School of Functionalists (Firbas 1964, Sgall 1972, Hajičová 1974) developed their functional approach to the WO theory. Their studies show that sentences in Russian have two parts, one of which is the anchor and the other is the part which contains new information. However, the terminology used to refer to these two parts varies: *Theme - Rheme*, *Background – Focus*, *Ground – Focus* and *Topic – Focus* (Sgall 1972, Daneš 1974, Hajičová 1974, Krylova & Khavronina 1988). For example (1):

(1) a. Alexandr daet knigu. (SVO)
Alexandr-NOM is-giving book-ACC.
'Alexandr is giving the book'.

b. Knigu daet Alexandr. (OVS)
Book-ACC is-giving Alexandr-NOM
'Alexandr is giving the book'.

Sentences (1a) and (1b) have the same semantic and propositional content and are grammatically similar but their main difference is the word order. (1) In sentence (1a), the speaker tries to emphasize the idea that it is the book ["kniga"] and not the pencil or the magazine that Alexandr is giving, whereas in sentence (1b) the speaker demonstrates that it is Alexandr, (not Vadim or Andrey) who is giving the book. It shows which information the speaker supposes to be new to the hearer. In other words, in sentence (a) the Theme is "Alexandr" and the Rheme is "knigu". In sentence (b) the Theme is "knigu" and the Rheme is "Alexandr".

Therefore, functions of discourse, such as Theme and Rheme can be said to be one of the determinants of WO in Russian. Halliday (1985: 38) defines Theme as given information- that has been mentioned before- serving as "the point of departure" of a message, i.e. the information that been mentioned before. In other words, the Theme contains old information. The Rheme is new information that has never been mentioned before by the speaker. In this way, Theme and Rheme show how the information is distributed in a sentence. Prince (1981) refers to this division as an "informational asymmetry" between different sentence parts. Comrie (1989) explains this asymmetry with the different "pragmatic roles expressed".

Another influential characteristic of WO is that what is chosen to be an initial element will influence hearer's interpretation. According to Halliday (1985: 38), the Theme usually is the head of the sentence, and Rheme is in the end. The clause consists of the Theme as the the "head" of the clause and the Rheme as the following part of the clause.

Discourse studies in Russian are limited. It can be said that discourse has been the less studied area of linguistic research in Russian. There are many studies which base discourse on the surrounding linguistic environment. Moreover, there are many studies which concentrate on information structure and word order variations in Russian (Dyakonova 2004, Rodionova, 2001), and SVA(Subject Verb Agreement) processes (Nicol, Forster and Veres, 1997 among many others). Many of them attribute structure to its organization, inquire how language progresses from sentence level structure to discourse level structure. However, Russian literature has a gap in analyzing spoken discourse.

The written Russian discourse, on the other hand, was studied extensively by Blekher (1995). Her studies were based on an analysis of preferable WO in Russian literature. Blekher's conclusion was that language users can signal a change in discourse information flow to the hearer using the marked order of elements even at the expense of packaging segments with various informational status in the order that facilitates processing. However, the results of Blekher's studies in written discourse management can not be transferred to oral speech because the choice of WO in a spoken everyday language differs from the scholarly writing or colloquial genres in literature. Comrie (1979) clarifies this difference by arguing that in more structured and formal styles, writer can be more concentrated on getting his message across and that is why he makes more adjustments in order to assist processing for the reader.

The aim of this thesis, therefore, is to analyze spoken discourse in Russian in order to understand how grammatically similar sentences with different Subject/ Object positions have different intonation contour and why the context influences the intonation contour. It shows that OVS sentences are characterized by a significant rise in pitch accent in object position while SVO order shows a monotonous F0.

Regardless of all the other factors that may determine the word order, this thesis will focus on information allocation considerations involved in Russian word order and

deal with two WOs, namely SVO and OVS, which are found as the most preferable by Russian speakers by Kallestinova (2007).

Methodologically, two grammatically identical copula sentences with SVO and OVS word orders, which are found as the most preferable by Russian speakers by Kallestinova (2007), were chosen among ten sentences for Experiment 1. Twelve transitive sentences were used for Experiment 2. Sentences were recorded and analyzed using the Ode's ToRI symbols (2003). For intonation analysis, the PRAAT program was used. This application allows to measure pitch accents and shows the F0 contour details.

This thesis is organized as follows. Chapter II and Chapter III describes WO functions and intonation in Russian with the help of particular approaches. Chapter IV presents the empirical core of this thesis, where a detailed analysis of discourse and information structures and intonation contours are provided. Chapter V is devoted to some conclusions.

CHAPTER II

REVIEW OF LITERATURE ON RUSSIAN DISCOURSE AND INTONATION

This chapter describes WO functions in Russian and is analyzed under three major approaches, i.e., functional, pragmatic and structural ones. The functional approach plays an important role in developing Russian WO theory in the context of discourse structure analysis. The pragmatic approach explains the WO representation by knowledge sets. The structural approach shows that the topic of the sentence is determined according to syntactic representations.

Intonation in Russian is also described in this chapter. Discourse and informational structures are analyzed in context with intonation. Russian intonation contours are explained from different aspects using different authors' theories, like Bryzgunova (1980), Igarashi (2004; 2006) and Ode (2002-2006), explaining the importance of pitch accent in spoken language.

2.1. Background

2.1.1. Basic Word Order and its functions in Russian

In Russian, six WOs are grammatically correct but some of them are less used in spoken language. According to examples in the table below (Table 1), it can be seen that the constituents can be in any order.

Table 1. WO variations in Russian

a. Vadim navestil Ingu. Vadim-**Nom**. visited Inga-**Acc**. 'Vadim visited Inga.'	**SVO**
b. Vadim Ingu navestil.	**SOV**
c. Ingu navestil Boris.	**OVS**
d. Ingu Vadim navestil.	**OSV**
e. Navestil Vadim Ingu.	**VSO**
f. Navestil Ingu Vadim.	**VOS**

Kallestinova (2007) explains Russian WO choice using various experiments with different types of sentences. Her studies show that subject focus transitive sentence in Russian reveal that both OVS and VOS are assumed to be equally acceptable in Russian. OVS and VOS are expected to be different in their interpretations. Yet, no interpretational difference is observed in these two word orders. She suggests that in object focus sentences and verb focus sentences, non-emotive SVO/ VSO and SOV/ OSV are assumed to be optional and identical in their interpretation but have different derivations. Kallestinova's experiments show that OSV is almost never produced. According to this study, speakers produce only three out of the six possible permutations in transitive sentences (SVO, OVS and SOV); the other three (VSO, VOS and OSV) were not produced.

Many studies have described that the linear order of constituents in Russian does not encode grammatical information, in other words, the subject and object relationship. (Mathesius 1964; Firbas 1964, Sgall 1972, Hajičová 1974, Isačenko 1976a, 1976b, Yokoyama 1986, Krylova & Khavronina 1988, Comrie 1989, among others). Case marking influences the grammatical function of each constituent. In Russian, subjects have nominative case, objects have accusative, ablative, prepositional, dative or genitive case. Russian has six different cases and all properties of the NP's head should agree with a particular case. The case system in Russian marks the grammatical function of NPs. These NPs (subject, object and indirect object) can be ordered anywhere in the clause.

WO variations have often been characterized as the phenomena of discourse. For example, Payne (1992) explains how pragmatic and cognitive factors can determine the word order choice in languages which allow free word order. First, discourse – pragmatic reasons of order flexibility is the basis which explores the interrelation between word order and discourse structures. Second, WO choice is influenced by the cognitive status of certain information in the speaker's mind, i.e. suppositions of the speaker about the hearer's cognitive status, and the focus of attention and chunking discourse into thematic units.

(2) Kogo navestil Vadim? (Question)
Whome visited Vadim-NOM
'Whome did Vadim visit?'

Vadim navestil Ingu. (Answer)
Vadim-NOM visited Inga-ACC
'Vadim visited Inga.'

(3) Kto navestil Ingu? (Question)
Who navestil Inga-ACC
'Who visited Inga?'
Rheme

Ingu navestil Vadim (Answer)
Inga-ACC visited Vadim-NOM
'Vadim visited Inga'.
Rheme

Question (2) emhasizes the person whom Vadim visited. It means that the speaker and the hearer understand who Vadim is. This information that is shared between hearer and speaker is called Theme. The answer to this question shows that Vadim is the Theme of (2). The same sentence explains who the person whom Vadim visited was – i.e., Inga. This information for the hearer is called Rheme. It means that Inga is the focus of this sentence.

Example (3) is similar. The question asks about the person who visited Inga, and the answer shows that Inga is the Theme and Vadim is the Rheme. Therefore, Russian WO is determined by functions of discourse, such as Rheme and Theme. Such examples are common in conversational Russian. Furthermore, Theme and Rheme show prosodic projection in relationship with information structures in (2) and (3).

(4) Irina lubila Serej**u**
Irina-NOM love-PAST-F Serej**a**-ACC
Theme ***Rheme***
'Irina loved Sereja'.

(5) Sergej**u** lubila Irina
Sergej**a**-ACC love-PAST-F Irina-NOM
Theme ***Rheme***
'Irina loved Sereja'.

Examples (4) and (5) show the differences between the noun endings. The ending **–a** is nominative which is used for the subject of the sentence, and –y is the accusative form for (the objective case). As mentioned before, Russian allows six different WO of three words such as *Irina, lubila, Sereju,* but the grammatical sentence will be 'Irina loved Sereja'.

2.2. Overview of existing approaches to WO variations in Russian

WO in Russian is generally analyzed under three major approaches, i.e. as functional approach, pragmatic approach and structural approach, which all show the role of discourse functions in relationship with WO.

The most significant finding in functional approach is that the WO together with intonation, reflects discourse functions in Russian. According to Yokoyama (1986), the pragmatic approach accounts for the WO in terms of knowledge sets that the information in the sentence represents. The structural approach is about the constituents' syntactic structure in sentences within the generative grammar by

Chomsky (1981, 1993, 1995, 2000). In contrast to the functional approach focusing on information structure, the structural approach demonstrates an interdependence between the syntactic structure and the information structure.

2.2.1. Functional Approach

The functional approach was developed by School of Functionalists in Prague (Mathesius 1947, 1964, Adamec 1966, Danes 1974). The WO theory produced many significant results; one of which is that the WO, in combination with intonation, reflects discourse functions in Russian. Mathesius (1929) was the one who used the description of distributed information within a sentence. To understand the discourse structure, it was necessary to introduce the bipartite analysis. He suggested dividing the utterance parts into Theme and Rheme. Theme was defined as known information in a particular situation and rheme represented new and informative part of the sentence.

Later, the Theme – Rheme dichotomy was modified and developed by Danes (1974) and Adamec (1966). The new bipartite division has been represented by topic and comment, where topic shows the part of the sentence where the speaker gives information about something and comment is the rest of this sentence. Mathesius (1947) introduced the concept of transition between his original suggestions, Theme and Rheme. The tripartite sentence division into Theme – transition – Rheme was, then, proposed by Firbas (1964).

Later, Krylova and Khavronina (1986) stated that "with the change in word order the meaning of an utterance changes also; that means word order cannot be free." In other words, WO depends on the utterance communicative function[1] and any changes there effect WO variations:

[1] Communicative function can be explained as the function of any sentence/ sentence fragment in communication, which reflects what the speaker wants to do with the utterance; how s/he wants the hearer to respond. The communicative function of a sentence can be worked out partly from its form (though there is no one-to-one correspondence between sentence form and communicative function), and partly from intonation (in speech) or from the context of the sentence.

(6) Mihail Bulgakov – avtor romana "Master and Margarita".
Mihail Bulgakov – author of.novel "Master and Margarita"
Theme ***Rheme***
'Mihail Bulgakov is the author of the novel "Master and Margarita"'.

(7) Avtor romana "Master and Margarita" – Mihail Bulgakov.
Author of.novel "Master and Margarita" – Mihail Bulgakov
Theme ***Rheme***
'The author of the novel "Master and Margarita" is Mihail Bulgakov'.

In (6) the communicative function names the author of the particular novel and in (7) it gives supplementary information about the author. Krylova and Khavronina (1986) argue that in (8) and (9), meaning and vocabulary is the same even if the two sentences differ only in their Theme and Theme order. The inverted ordering of discourse functions such as Theme and Rheme is treated by the authors as a stylistic phenomenon.

(8) **a** Ribalka bila udachnaja.
Fishing be.PAST successful
Theme ***Rheme***
'The fishing was successful'.

b Pogoda bila prekrasnaya.
weather be.PAST wonderful
Theme ***Rheme***
'The weather was wonderful'.

(9) **a** Udachnaja bila ribalka.
Successful be.PAST fishing
Rheme ***Theme***
'Successful was the fishing'.

b Prekrasnaya bila pogoda.
wonderful be.PAST weather
Rheme ***Theme***
'Wonderful was the weather'.

Comrie (1987) mentioned that WO in Russian is controlled by two main principles: the topic of the sentence comes initially and the focus of the sentence comes last. The focus of the sentence can be explained as new information communicated by the sentence. The notions of topic and focus used by Comrie are similar to Theme and Rheme. He underscored that morphology is the basic marker of grammatical relations in Russian, rather than the WO (1989).

The idea of tripartite analysis was developed further by Vallduví (1992). He divided the sentence into the ground and the mandatory focus. The ground part consists of a link and a tail. This tripartite analysis was followed by King (1995) and Brun (2001) and has the form of topic – discourse-neutral information – focus. Vallduvi's analysis will be explained in detail in section 2.3.3.

In conclusion, the functional approach had an essential role in developing the WO theory in Russian incorporating the concept of discourse structure.

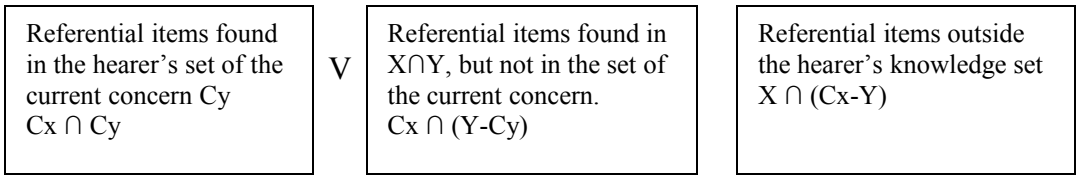
2.2.2. A pragmatic approach (Yokoyama 1986)

A pragmatic approach was developed by Yokoyama (1986). It identified the important role of WO in the utterance by dividing information into classes which consist of four knowledge sets and their intersections, given in the table below (Table 2).

Table 2. Knowledge sets and their intersections, Yokoyama (1986)

Knowledge sets	Intersections of the knowledge sets (classes of knowledge)
X – Speaker X's knowledge set Y - Addressee Y's knowledge set Cx - X's matter of current concern Cy - Y's matter of current concern	Cx ∩ Cy - the shared matter of current concern; Cx ∩ (Y-Cy) - the knowledge present in addressee Y's knowledge set but not in the set of Y's current concern; Y ∩ (Cx-Y) - the knowledge outside the addressee Y's knowledge set.

Yokoyama argues that these intersections of knowledge sets should be ordered in a particular way, as presented in Figure 1.



Fugure 1. Representation of Knowledge sets and their intersections

She explains this diagram in the following way. The linear order of knowledge sets is fixed in declarative sentences. Sentences start with the knowledge that speaker's assessment represents a particular interest for both the speaker and the hearer (the matter of current concern Cx ∩ Cy) and end with the knowledge outside of the hearer's knowledge set, i.e. new knowledge for the hearer. However, Yokoyama does not divide sentence into topic – discourse-neutral information – and focus dichotomy. She just specifies that the location of referential knowledge in Cx ∩ Cy can be adopted as a definition of topics or themes in Russian WO description. Also, she argues that topic can be described by Cx ∩ Cy. For example, referential items which are represented in X∩Y correlate with the discourse-neutral information. Furthermore, the referential items which are outside the hearer's set of knowledge may be considered as focus.

In summary, Yokoyama analyzes how factors such as knowledge sets are encoded into the WO in simple sentences in Russian. She states that any sentence which starts with the information is known to both the speaker and the hearer. Then this set is followed by the information known to both, but representing concern for the speaker only. Finally, a sentence ends in the information unknown to the hearer.

2.2.3. The structural approach

The syntactic analyses of WO in Russian are based on the main hypothesis about the relationship between syntactic structure and WO. Analyses were done by Bailyn

(1995), King (1995), Kondrashova (1996), who agree that WO is determined by focus and topic discourse functions and the syntactic structures that encode them.

King's analysis (1995) was based on the understanding that WO in Russian depends on overt movement of a constituent to a particular structural position associated with discourse functions. King argued that certain syntactic positions were associated with topic and focus in Russian and constituents move not just to get case or inflectional features, but also to receive discourse function interpretations. The sentence stress can fall on any constituent, but there is a strong tendency for the stressed item to be immediately before the verb. Similar analyses were done by Kiss (1987) and Horvath (1986) in Hungarian, by Rudin (1985) in Bulgarian.

King (1995) explained that thetic sentences had no overt topic and assumes that basic WO is VSO. This assumption was made as a result of deriving obligatory verb movement to I and fixed subject and object which do not move. According to Lambrecht (1996), a thetic sentence can be explained as the sentence where the constituent that would appear as the subject NP in a corresponding categorical allosentence takes formally marked as non-topic, resulting in a departure from the unmarked pragmatic joint in which the subject is the topic and the predicate the comment.

Discourse – dependent sentences have different representations where topic appears before the verb but after complementizers, wh-phrases in Spec CP and verbs undergo head-movement to C. That means that topics should be in a structural position lower than C, but higher than I, in which finite verbs appear. In non-emotive sentences, there is only the structural position for topic, and focus is not encoded by movement to a particular position because focus is marked intonationally by the falling tone that appears clause-finall. King proposes that focus can be represented by the feature [+F] which is on a phrase structure node over which it has scope. Thus, the falling tone separates the right edge of the constituent marked with the feature, as given in (10).

(10)

a Q: What happened to the books?

A: Neskol'ko knig [priobrela rayonnaya biblioteka] – Foc.
A few books-ACC get.PAST regional library-NOM
'Regional library has got a few books'.

b Q: Who has got the books?

A: Neskol'ko knig priobrela [rayonnaya biblioteka] – Foc.
A few books-ACC get.PAST regional library-NOM
'Regional library has got a few books '.

In (10a) the focused constituent consists of the verb and subject but in (10b) the focused constituent includes only subject which means that (10a) and (10b) have different focus scope. King explains this as in (10a) the focus feature filters to the level of I' and takes the scope over the verb and the subject is fixed and does not move, while in (10b) the postverbal subject changes position out of VP and right-adjoins it.

Later, Kondrashova (1996) proposed another level of representation with applied discourse principles, called I-structure. The main function of I-structure is to distinguish new information from old information. In this case, Focus-marking (F-marking) signals new information, and old information belongs to the topic and gets Topic-marked (T-marked). I structure has another function called "Alignment Principle", which is performed by the movement of T-marked elements to precede F-marked elements in a clause. The schematic representation of the grammar is given in the Figure 2.

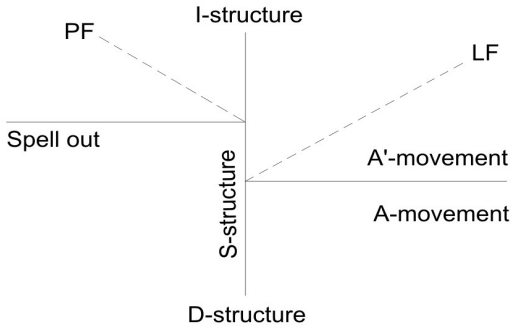


Figure 2. Levels of derivation and representation by Kondrashova (1996 : 120).

Kondrashova suggests that S-structure differs from D-structure and I-structures because S-structure was explained as a spell out domain, i.e, "a domain on the abstract derivational path from D-structure to I-structure" (1996, 120). Any particular language can be different from the other according to spell out domain. In other words, the freer the language is, the closer S-Structure is to its I-structure representation.

This diagram illustrates how patient focus (PF) level divides at the derivation point, in the derivation the spell out occurs, so that the PF rules turn to the surface structure. The analysis shows that locative focus (LF) is given as a different level of representation from I-structures which branches in the center of the derivation path, until I-structure movements get another position. This shows that WO scrambling, which is an I-structure process, will not affect the quantificational relationships which are given as a result of LF component. This is shown in example (11).

(11) a. Knigi ona prinesla vse.
Books-ACC she-NOM bring.Past all
'She brought all the books'.

b. Cofe Masha redko pjiot.
Coffee-ACC Masha-NOM seldom drink
'Masha seldom drinks coffee'.

Sentences (11a) and (11b) illustrate that accusative NPs scramble out of their QPs and are interpreted as being within the scope of their quantifiers. This explains the idea that the LF level with occurring reconstruction, splits before the surface scrambling takes place.

Another analysis similar to King (1995), arguing for a fixed structural position of the discourse function of topic, is given in Junghanns and Zybatow (1997). This work builds on the idea that overt movement in Russian is due to requirements of Information Structure. Topic is configurationally determined in Russian. All these analyses have a common feature, i.e. they combine the discourse structures such as topic and focus into syntactic representations.

2.3. Intonation

Intonation can be defined as the combination of tonal features into larger structural units and is concerned with the acoustic parameter of voice i.e. fundamental frequency F0 and its distinctive variations in the speech process (Botinis el at., 2001). F0 is measured in Hz. The perception of intonation is defined by the perceived pitch, which roughly corresponds to F0 realizations.

Intonation and prosody cannot be analyzed separately. The term intonation is confined to tonal (F0) features specifically and the term prosody involves temporal (duration) and dynamic (sound pressure level) features. Intonation is often called the melody of language. It refers to the pattern of pitch changes used in speech (Avery, 1992). It can be likened to a chain of pitches strung together that carry a message in their pattern.

Intonation can have many functions like prominence, grouping and discourse. All of them are related to different grammatical components in the linguistic level, which

expresses the meaning directly. Prominence deals with weight structuring of linguistic units such as words and syllables, grouping (segmentation) is related to coherence, and discourse has to do with structuring of speech units into prosodic units (Botinis el at., 2001). These distinctive functions of intonation at lexical level can explain the reference to the prosodic categories of tone, accent and stress. That is why languages can be classified into *tone languages* (e.g. Thai, Chinese, and Vietnamese), *(dynamic) stress languages* (e.g. Russian, Greek, Italian, and Spanish) and *(pitch) accent languages* (Swedish, Japanese). Many languages can be explained as tone languages which use pitch to signal a difference in meaning between words (Avery and Ehrlich, 1992). These pitch variations are an important part of the language, just as stress and proper word order are in any language.

Intonation, also, has two particularities: it can be ascending or descending. The rise or lowering of intonation occurs on the accented word. Rising intonation in English is very different from rising intonation in Russian. Intonation in Russian helps to distinguish the phrase meaning. Rising intonation in English, on the other hand, is a complicated phenomenon. It can express various emotions, such as non-finality, surprise, politeness, doubt, incompleteness, interest, suggestion, readiness to continue the conversation, lack of confidence and even insecurity. Standard rising intonation in English first goes down a little and then up, and doesn't go as high as the rise in Russian does.

However, it is not only rising or falling particularities that our voices have when we speak. The voice does much more: The sentence may start higher or lower; stressed syllables may be stronger or weaker, higher or lower, louder or quieter, quicker or slower; the unstressed syllables may remain at the same level as the stressed syllable before them, or go higher or lower. And the voices themselves are different, too. All these factors interact in intonation.

Many authors analyzed intonation in various languages. One of the first theories of intonation belongs to Pierrehumbert (1980). The majority of the following studies

were conducted using the Autosegmental – Metrical (AM) model of intonational phonology proposed by Pierrehumbert (1980), Liberman and Pierrehumbert (1984) and Beckman and Pierrehumbert (1986). Ivana Kruijff-Korbayova and Steedman (2003) worked on the information structures (IS) theory which concerns utterance – internal structural and semantic properties of a particular language. These approaches, which are explained below, are important in Russian intonation analysis.

2.3.1. Pierrehumbert (1980)

Intonation contours can be represented as a sequence of abstract tones consisting of pitch accents and boundary tones. According to Pierrehumbert (1980), the intonation contour is regarded as a string of two types of level tones, "Highs" and "Lows", which occur at a specific point in the utterance. These level tones indicate relative height and are not offered as absolute values, which are given by the mapping rules. In this theory, movements or configurations such as rises and falls are regarded as merely a transition from one tone to another. The rise, for example, is represented as LH. The string of tones are structurally analyzed as 1) the pitch accent, i.e. the tone(s) occurring at the stressed syllable, 2) the phrase accent, i.e. the tone that occurs just after the last pitch accent and spreads until the end of the phrase, and 3) the boundary tone, i.e. the tone occurring at the end of the phrase. Pierrehumbert (1980) proposed the finite state grammar, given in Figure 3 below.

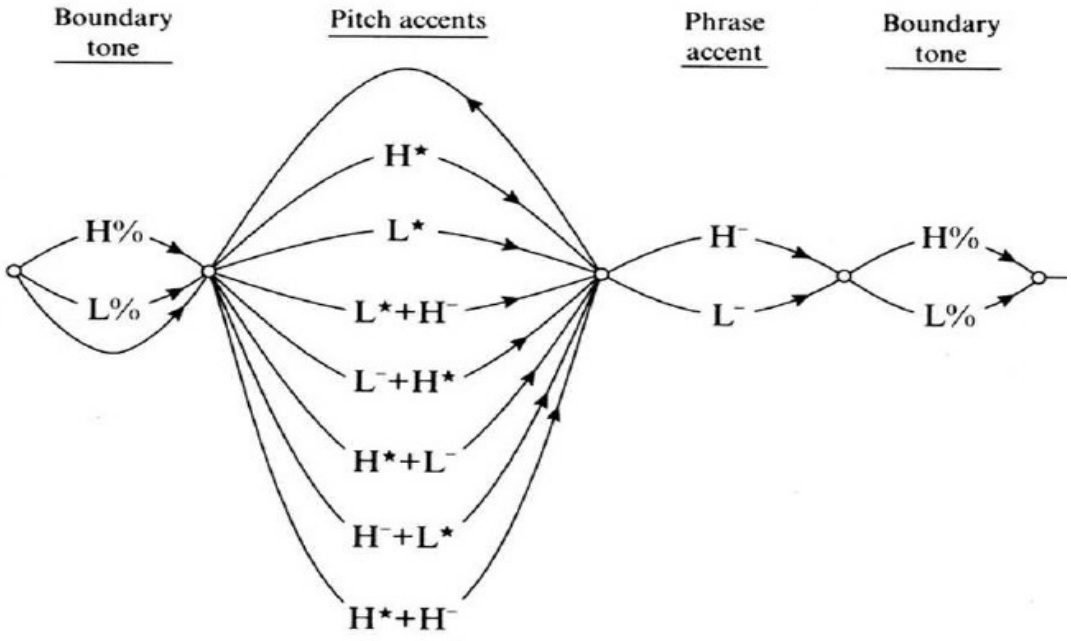


Figure 3. The finite state grammar of Pierrehumbert (1980)

In Figure 3, six pitch accents are identified. Some of them consist of a single tone (represented as H* and L*) and others are of two tones (represented as H*+L, H+L*, L+H*, L*+H). The notation of star "*" here marks the tone which is associated with the stressed syllable. The tone without the star is not associated with the syllable but leads or trails the associated tone by a given time interval. Two phrase accents are identified and represented as H, L, respectively. The types of boundary tone are also two, and they are represented as H%, L%, respectively. Phrase accents such as L- or H- may occur at an intermediate phrase boundary. There is also %H which is high initial boundary. It marks the speaker's phrase that begins relatively high in the pitch range. The default initial boundary is in the middle of the range or lower.

Pierrehumbert and Hirschberg (1990, 308) assign discourse functions to the particular tones: "Pitch accents convey information about the status of discourse referents…", which can be accounted for in terms of given – new. The boundary tones of intonation phrases indicate how the proposition expressed by the whole phrase is integrated into the discourse.

2.3.2. Halliday (1967)

In general, Halliday's view of intonation was that being a part of grammar, intonation should be analysed in the same way as other grammatical systems. He utilises the British concept of tunes, which have a "nucleus" which is the "first (salient) syllable in the tonic foot".

According to Halliday (1967 ,30), tonality is related to the number of tone groups in an utterance and each such tone group is seen as one "move" in a speech act. Tone, on the other hand, is "... a complex pattern built out of a simple opposition between certain and uncertain polarity"). In other words, it is the system of pitch contours through a tone group; primary tones contrast in the tonic segment andsecondary tones are more delicate choices in both the tonic and pretonic segments. He proposed and described five simple and two compound primary tones for English. They are falling, high rising, low rising, falling-rising, rising-falling, falling plus low rising, rising-falling plus low rising. The tone groups represent the speaker's information units and thus constitute part of the metafunction of ideation. A third point about intonation according to Halliday is Polarity, which refers to the truth of a statement ("true" or "false" in fact or in belief) or to whether something is "known" versus "unknown". He states "[i]f polarity is certain, the pitch of the tonic falls; if uncertain, it rises." From these tones and the idea of polarity, Halliday builds up a complex scheme of relationships between tone and meaning which is given in Table 3 below.

Table 3. Halliday's description of relationship between tone and meaning

falling tone	"polarity known ... the unmarked realization of a statement" (also a question with known polarity)
rising tone	"polarity unknown ... the unmarked realization of a yes-no question"
low rising	"not yet decided whether know or unknown... dependent on something else"
falling-rising	"seems certain, but turns out not to be. It is associated with reservations and conditions"
rising-falling	"It is used on strong, especially contradicting assertions ... It often carries an implication of 'you ought to know that"

Halliday proposed dividing tonality into neutral and non-neutral tonality (a procedure which he also follows with tonicity and tone), claiming that neutral tonality may occur when one tone group corresponds to one clause, and that non -neutral tonality occurs when *(a)* the tone group is more than one clause, or *(b)* the tone group is less than one clause. Tonicity locates the salient syllable in each tone group and thus identifies the focus of information in each unit.

Halliday (1970) also noted that one sentence can be pronounced with different intonation patterns reflecting different Informational structures. Information structure (IS) is construed as comprising the utterance – internal structural and semantic properties reflecting the relation of an utterance to the discourse context. For example, the sentence "Dogs must be carried" has different intonation as in (11). (11a) and (11b) have different constructions which are conveyed to hearers.

(12) a. Dogs must be CARRIED. H* LL%
If there is a dog, carry it.

b. DOGS must be carried. H* LL%
Carry a dog.

Halliday proposed the two-dimensional model of clause organization. This model consists of two parts, one of them is Theme-Rheme and is called thematic structure and another one is given-new, which is called as information structure. He explains that given is "what is presented already known to listener" and new as "what the listener is being invited to attend to as new or important" (Halliday, 1970).

2.3.3. Vallduvi (1992)

Vallduvi (1992) argues that WO variations are sensitive to the discourse context. Discourse Functions are also linked to syntactic phenomena. He presents the Information Packaging model, which describes syntactic phenomena and intonation in terms of discourse structures. Vallduvi proposed three informational units where there are two Ground elements which indicate old information, while Focus encodes new

information. There is also distinction between Ground: Link and Ground: Tail that has to do with the relative salience in discourse of old information. Any sentence obligatory has Focus and may have Link and Tail. Link directs hearer to a location in her informational structure; Tail signals a particular mode of information update; Focus encodes information to be added.

It is necessary to understand that IS is highly dependent on context. A possible function of IS is the link between the information transmitted in a discourse and a formal representation of this discourse. The discourse can be explained as the surface string of words which are uttered plus all prosodic clues, because discourse contains such information as the tone of the voice, gestures, deictic clues and the like in the case of spoken communication. Vallduví relates IS to discourse semantics and suggests that different focus-background constellations are translated into update instructions for discourse referents in a file that represents the discourse context.

Vallduvi proposed a division into topic-comment and focus-ground splitting a sentence, or its meaning into two parts. The topic-comment approach splits the phrase meaning into parts which describe what the sentence is about and shows its initial position and a comment.

According to Vallduvi, in focus-ground approaches, the sentence has a division into focus and ground; focus can be explained as the informative part of the utterance meaning. The ground anchors the sentence's meaning, in other words, what the speaker believes the listener already knows.

2.3.4. Kruijiff – Korbayaova and Steedman (2003)

According to Kruijiff – Korbayaova and Steedman(2003), discourse structure (DS) covers all aspects of the internal organizational structure of a discourse which subsumes notions such as segmentation, relationship between segments, modal subordination, anaphoric relations, discourse topic and so on..

Steedman and Kruijiff – Korbayaova argue that IS is meant to subsume different dichotomies such as topic/focus, topic/comment, theme/rheme, on the one hand and given/new, background/contrast and so on on the other hand. They mentioned that IS affects both interpretation and realization. This phenomena and interaction between them in the grammar requires a clear understanding of IS role in discourse because it is an important aspect of meaning at the interface between discourse and utterance.

Kruijiff – Korbayaova and Steedman (2003) state that information structure theories describe the phenomena at hand at a surface level, at a semantic level, or at both levels simultaneously, i.e., an expression belongs to some IS partition, in virtue of some information-status of the corresponding discourse entity. It is important to note how a sentence surface form realizes the IS of the underlying meaning of the utterance. Hence, meaning has multi-dimensional nature while words can be formed in linear order. Kruijiff – Korbayaova and Steedman (2003) proposed a two-dimensional model to explain the multidimensionality of meaning, where they use theme-rheme and background-kontrast. They illustrate this with an example in English (13):

(13)

Q: I know that this car is a PORCHE

But what is the make of your OTHER car?

A:	(My	OTHER	car)	(is	ALSO	a Porshe)	
		L+H*	LH%		H*	LL%	
	[background	*kontrast]*		*[background*	*kontrast*	*background]*	
	Theme				***Rheme***		

As it was mentioned before, Information structure is indicated by Intonation structure and the pitch contour is described with L+H* LH%, which is one of the theme tunes and this is the Theme of the phrase. Similarly, H* LL% is a Rheme tune and this is Rheme of the phrase based on Pierrehumbert notation (1980). Sentence (13) shows that the presence of one or more pitch accents identifies words. These words

contribute to distinguish particular Theme/Rheme from other Themes and Rhemes that the context allows.

Steedman (2000a) also defines a second dimension of IS, i.e., background – focus – partitioning of theme and rheme. This partitioning is common with Halliday's given-new dichotomy (Halliday, 1970). The kontrast of the Rheme includes information that is marked in a surface form while the background of the Rheme is unmarked. In English, it is shown by marking the focus with pitch accent while, background is unmarked by any pitch or boundary. Thus, Steedman divided them into focus and background. What makes Theme different from Rheme is Theme's focus is optional.

2.3.5 Ozge and Bozsahin (2009)

Turkish intonation was analyzed by Ozge and Bozsahin (2009). They found that there is a correlation between WO variations, information structure and phrasal intonation structures. Their analysis was based on the Combinatorial Categorial Grammar theory (CCG). The two dimensional dichotomy of Steedman, (2000a) was used. In this approach, information structure is delivered through feature percolation by the lexicalized syntactic types. Syntactic objects which have the information structural role are explicit in their syntactic types that make constituent structure available at any point in the derivation.

Turkish, as many other languages with free WO, was observed bringing forth itself in logical forms and syntactic types. Turkish was characterized as a verb - final language. According to Bozsahin (2002) the basic WO assumption such as verb-final OSV and SOV clauses which include postverbal arguments manage all lexical rules which are given as a contraposition which retain dominance relations of LF. Ozge and Bozsahin (2009) explain that free WO in a language can be reflected in a lexicalized grammar. They argued that WO variations bear a pragmatic function in placement of

the constituent to the right position, which helps to characterize the sentence preverbal position as hosting background information.[2]

The definition of prosodic prominence can be given as a characteristic of the relation between information structure and prosody. Ozge and Bozsahin (2009) claim that Turkish has an accent placement and phonological phrasing in the process of information structure encoding, which makes Turkish to have particular intonation features such as intonation contour, boundary tones, pitch accents, stress, intonation phrasing.

Ozge (2007) gives example where he explains different intonations of a sentence with various WOs. The sentence (14) has various WOs and each sentence has a different intonation. Each sentence is characterized by different pitch accents.

(14) Maymun elma-yi ye-di
Monkey apple-ACC eat-PAST
'The monkey ate the apple'.

Maymun elma-yi ye-di.
H* L-L%

The sentence (Maymun) (elmayı yedi) has H* L-L% contour, where H* reaches the peak on the stressed syllable *–mun* and after the peak point the curve is falling to its initial level before the word *elmayı.* In Turkish the boundary is marked as LL% dividing the utterance into two prosodic phrases: "*maymun"* and "*elmayı yedi.*

Turkish allows also right - displaced elements that are specified lexically as leftward – looking types from the right to the left and this is related to background. The reason is that these leftward – looking types cannot be available with features of information structures other than the background. Right displacement to postverbal elements applied in deaccenting the background constituents. Ozge and Bozsahin (2009) show that same sentences have different position of the stress like in (15) and (16):

[2] Kontrast is a property of accented words and this term first appeared in Steedman (2002)

(15) (MAYmun) (elma-YI ye-di.)
H*+L H- H* L-L%

(16) (mayMUN) (elma-YI ye-di.)
L+H* L- H* L-L%

Both sentences (15) and (16) have the same arguments for H- and L-. Sentence (15) has stress position that started from the default final syllable to first syllable and can be characterized as H*+L accent.

Flat intonation is specific due to postfocal deaccenting. It also implies that the constituent does not precede the verb or the Rheme. Turkish has a necessary condition for prosodic structuring which explains preceding verb elements like in sentence (17):

(17) (MAYMUN) ben Aynur'un yaninda-y-ken elmayi yemis.
H* L-L%
Monkey I Aynur-GEN near-COP-while apple-ACC eat-PAST
'The monkey ate the banana while I was with Aynur.'

Sentence (17) shows where the flat adjunct follows the rheme while it precedes the verb. In SOV languages, the type S\(S\NP) is not lexically recognizable as type raising, Turkish would be S/(S\NP). Ozge and Bozsahin (2009) associate no focal accenting with S\(S\NP) what associates with background.

According to Ozge and Bozsahin's (2009) analysis, SOV sentences have the broad accent which falls on the object and on the subject in OSV sentences. WO variations and constituents caused by it effect compositional meaning.

2.4. Works on Russian

To my knowledge, not so many authors have worked with phonological units in Russian, where the same lexical structure can get different modal and pragmatic meanings depending on which tonal pattern it is realized with. Spoken language demonstrates how different WOs and intonation play a role for signaling the Theme – Rheme dichotomy in a sentence.

Among the few researchers who studied Russian intonation are Bryzgunova (1980), Ode (1989; 1992; 2003; 2005) and Igarashi (2002; 2004; 2006). Their works include various experiments for intonation analysis. Ode (1989), proposed the model of perceptional analysis of Russian intonation. Her studies include two analyses: acoustic and functional. Russian intonation was also analyzed by Nikolaeva (1982) and Svetozarova (1982). They investigated pragmatic and semantic functions, while Kondzasov (1996a) worked with acoustic contour F0 of Russian and explained a list of tonal characteristics. In the following section, Bryzgunova, Igarashi and Ode will be reviewed in a more detailed way as their studies constitute the basis of my study.

2.4.1. Bryzgunova (1980)

Bryzgunova (1980) offers her own segmentation type and suggests seven units such as "intonation constructions (*ИС*)[3]" She proposes IC-1, IC-2, …,IC-7.

The first one is IC-1 which is characterized by a falling accent on the stressed syllable. Many Russian statements can be pronounced with IC-1. IC-2 is the falling accent too and it is hard to find a significant difference between IC-2 and IC-1. Only segmentation analysis and curve frequency will help to identify the IC-2 pitch.

[3] ИК = интонационные конструкции. This can be translated to English as IC-Intonation constructions

(18) Kakie u nih pravila?
'Which rules do they have?'

If we have to deal with interrogative sentences, it will be easy to find the falling pitch on the stressed syllable with ИС-2. In (18), the stressed word is *Kakie [which]*.

Other rising tones IC-3, IC-4, IC-6, IC-7 are significantly different because the stressed syllable influences curve frequency, that is why all these four tones are easily identified in a sentence. IC-3 is typical for interrogative sentences without an interrogative word. For example, the question can be asked like in (19):

(19) Pravila?
'Rules?'

In this case the accent will be ИС-3 because there is no interrogative word like *Kakie [which]* and falling pitch is seen.

IC-4 is typical for the question which includes "A"[4], for example (20):

(20) A u nih kakie pravila?
Which exactly rules do they have?

In this case the stressed word is *nih* [they have]. The sentence will have falling accent on the stressed word and after wards there will be monotonous increasing.

IC-6 is typical for sentences where the stressed word is monotonous after increasing.

(21) Kakie u nih pra-vi-la!
What rules they have!

[4] "A" is emphasize, A kakie u nih pravila, will be translated to English as: Which **exactly** rules do the y have?

In (21), the stressed word is *pravila* but it is monotonously extended. Every syllable of stressed word is pronounced with a following pause because of exclamation.

IC-7 is a different contour from others. It is used in spoken Russian for sentences with a negative remark *Ne-a* [No][5] For example (22)

(22) **a** Est' hoceshi? – Ne-a.
Do you want to eat? – No

b Ka-kie u nih pravila…
What rules do they have…

In this case, the sentence has a negative attitude, like "what kind of rules do they have?" The sentence has a negative denotation. Although it is hard to explain this in English without context, it can be explained like "Who are they? They are not so important people…so what kind of rules do they have". In this case, the Russian sentence is understandable without the context and intonation shows this negative attitude.

IC-5 is a phonological contour which can be explained by two other contours: rising of IC-6 and falling IC-1. This construction is typical for exclamatory sentences.

These seven intonation contours are not all the intonations which are utilized in Russian but they are the most important ones. as they help to denote a question or negative attitude or used just to show admiration. The significance of Bryzgunova's construction theory is that it forms the base of many other theories which help foreigners to learn the correct intonation of Russian.

[5] "Ne-a" is used in spoken language. It is one of form "Net" [No].

2.4.2. Igarashi (2004, 2006)

Igarashi (2004, 2006) investigated the rising pitch accent which constitutes a "neutral pattern", the intonation pattern which occurs in the neutral reading of a short declarative sentence. Making experiments, Igarashi (2006) measured the rise duration and the slope of the F0 rise corresponding to the rising pitch accent under changes in segmental duration brought about by modifications of speech rate, and under changes in pitch range brought about by modifications of loudness.

The experimental results show that in general the F0 valley and peak are consistently aligned with the onset and offset of the stressed syllable, respectively. This explains the phenomenon of "segmental anchoring" in Russian which shows that the F0 valley and peak are consistently anchored with a specific segmental point. The results also showed that the rise duration is variable and it is correlated with the segmental duration. Slope of the rise, on the other hand, could not be regarded as the invariant feature, but the results implied that variations of the slope are limited within a given range.

Igarashi (2006a) also worked with phonetic analysis in interrogative questions. His studies were based on Bryzgunova's intonation about wh – questions. Experiments helped to get the result that contour F0 in wh – questions rises to the peak, and in yes/no questions contour F0 is flat in the first two syllables and then it rises towards the peak. F0 value is significantly higher in wh – questions then in yes/no questions. Igarashi's experiments explained the difference between two patterns, i.e. wh – question and yes/no question.

2.4.3. Ode (2002; 2006)

Ode (2002; 2006) proposed ToRI (**T**ranscription **o**f **R**ussian **I**ntonation). It is a new transcription system which allows transcribing pitch accents, pitch movements and utterance boundaries marked by pitch, using unambiguous symbols. It presents not only forms but also communicative functions of pitch accents and other pitch phenomena. This system is an analogy of ToDI (**T**ranscription **o**f **D**utch **I**ntonation).

ToRI has own symbols which are based on experimentally verified classifications into types of Russian pitch accents (Ode, 1989). The reason of using a new symbolic system, Ode (2003) explains, is that a pitch accent defined with the symbol H*L in Dutch will considerably differ from Russian H*L in its realizations. The symbols for the pitch accent H*L express a high pitch target (H) in the accented syllable (*), indicated by H*, followed by a fall to the low pitch level (L), indicated by L. But the high pitch target in Russian is in general much higher than in Dutch, and the fall after the highest target reached is much steeper than in Dutch, to mention just two perceptually relevant differences for this accent between the two languages.

Ode (2007) shows that pitch accent may also consist of a configuration of accent-lending pitch movements to and/or from the pitch target reached in the accented syllable, for example H*L. In the accent HL*, H indicates that pitch is high in the pretonic[6] syllable or syllables. The non-accent-lending movements preceding and following the pitch accent are indicated with the following symbols: H for rising pitch reaching a high target, L for falling pitch reaching a low target, and M for rising or falling pitch reaching a mid pitch target boundaries can be indicated as initial pitch with %H, %L, %M, and pitch at boundaries with L% (Russian does not have tone H %). The boundary L % does not always indicate the low level of a speaker: utterances frequently start in the middle of a speaker's register. Complex initial pitch is expressed with a combination of symbols. A single symbol % without pitch target

[6] Pretonic – all primary tone contrasts are carried by the tonic, but some secondary contrasts are carried independently by an element preceding the tonic – these operate only, and always, if there is at least one strong syllable in this position. Halliday, (2005 ;p242)

indicates that there is a boundary, but it is not marked by pitch. Initial pitch and final pitch at boundaries are indicated above the text on the utterance-initial and utterance-final syllable, respectively. In the table below Ode's explanation of ToRI symbols are given (Table 4):

Table 4. Explanation of new ToRI transcribition symbols

H*, L*	pitch accent with high or low pitch target reached in the accented syllable
H, M, L	non-accent-lending pitch movements to the high, mid or low level
%H, %M, %L	initial high, mid or low pitch
L%	final low pitch boundary (final high pitch boundaries do not occur in Russian)
%	boundary not marked by pitch
^	raised peak: a small high rise, optional
>>>	sawtooth pattern with sequences of reduced rising or falling pitch accents
\/\	single harmonica pattern
\/***n***	repeated harmonica pattern

The classification of pitch accents which Ode proposed in 1989 was changed and this change was described in Ode (2003a). New experiments were provided where pitch accents from the 1989 corpus were tested and compared with pitch accents from the new recordings. The results showed that the categories proposed in 1989 did not need to be changed but new categories were to be added. In the previous system of transcription, the position in the accented syllable where the beginning or terminal frequency of a pitch movement is reached, was indicated with - (early timing) and + (late timing). However, in the new symbols, timing is not indicated. Accents H*L, H*H, L* and L*H have early timing, accent H*M has early and late timing, and accent HL* has late timing (Ode, 2007).

To conclude, in this chapter, approaches to Russian WO and discourse were summarized. In addition, various segmentation theories for understanding and transcribing intonation were summarized. Russian intonation contours were

mentioned from different aspects using different author's theories the explaining importance of pitch accent in spoken language. In this thesis, the pitch accent and intonation in Russian will be analyzed and transcribed according to Ode's segmentation model. Ode's theory will be explained in detail in the following chapter.

CHAPTER III

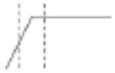
INTONATION IN RUSSIAN

This chapter includes the theoretical background in Ode's theory for transcribing Russian intonation contours. Each pitch accent is analyzed by given examples.

3.1. Intonation contours, Ode (2003)

Ode's transcription for Russian intonation will be adopted in this thesis. Ode (2003) gives a graphical representation of each contour in Russian, where vertical dashed lines indicate approximate boundaries of the pitch-accented syllable(Table 5).The contours are stylizations and do not reflect real pitch heights.

Table 5. Overview of symbols for pitch accents with stylized contours (Ode, 2007)

Symbol	Contour	Symbol	Contour
H*L		**L***	
H*H		**HL***	
H*M		**L*H**	
On utterance-final syllables, H*H and H*L are truncated			

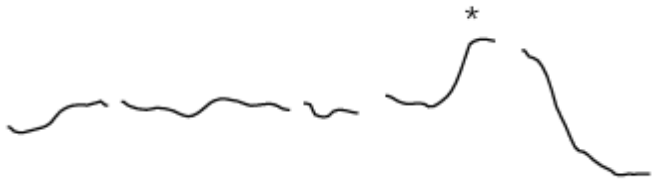
Another important point is that, the linear distance between two boundary lines does not refer to the actual timing of the accented syllable (Ode, 2007). It depends on the pitch accent type, because the given pitch target can be reached early or late in the accented syllable (timing), high or low in a speaker's register, steep or gradual (rate of change).

In the next section, the examples given by Ode (2007) will be overviewed. These examples explain each pitch accent.

3.1.1. The H*L accent

The pitch accent H*L is a very striking pitch accent to non-native listeners because of its very high pitch. It is a steep rise coming from low or mid pitch to high pitch. The high ending point is reached at the beginning of the accented syllable. At the end of the accented syllable, the pitch drops to low and continues low or slightly falling to the end of the utterance. The function of this pitch is a yes/no question (without the question word). It may also express a repeated question, a repeated wh-question and an alternative question. For example, the clause (23) has the following segmentation scheme (Ode, 2003):

(23) Ona priedet na kanikuly?
She.NOM come on holidays.ACC
'Will she come on holiday?'



%L H*L L%
Ona priedet na kani – kuly?

This curve starts with %L boundary and shows the pitch H*L on the second syllable of *kanikuly* because it has a stress on the syllable *ni*. Another example (24) presents a clause with a yes/no question and shows a different type of curve:

(24) Bylo teplo
Be.PAST warm
'Was it warm?'

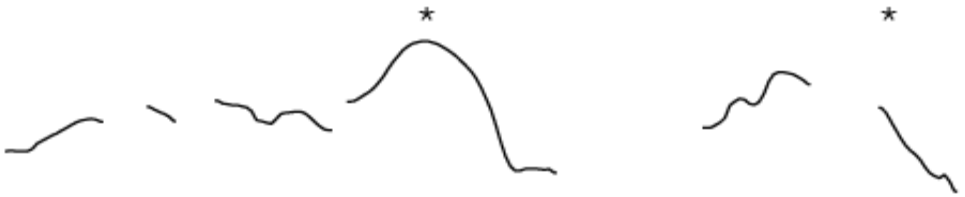
%L H*(L) (L%)
Bylo te – plo

This can be explained with the fact that the pitch accent is realized in the final syllable of the utterance. No syllables follow the highest point reached in the final accented syllable, so the low post-tonic part of the accent remains unrealized and is thus truncated.

Russian has not only H*, but it also has H*L, H*M or H*H accents. There are cases when the speaker is surprised about a particular topic and the sentence can show two pitch accents like: H*M and HL*. Examples of each pattern are given in sections that follow.

Another example for this (H*L) pitch accent is when the clause has an alternative question in the first utterance after the boundary that is followed by an utterance with pitch accent HL*, like in (25):

(25) Oni kupili zanaves ili shirmu
They buy.PAST curtain-NOM or screen-NOM
'Did they buy a curtain?' 'or a screen?'



%L H*L L% %M HL* L%
Oni kupili zanaves ili shirmu

3.1.2. The H*H accent

The H*H is the accent of incompleteness. Also, it can show a kind of continuation in closed enumeration, a positive qualification or an exclamation. H*H occurs in words in a number of different positions of the utterance. For example, consider (26):

(26) Ona priedet na Pashu
She-NOM come.FUT for Easter-ACC
'She will come for Easter'.

%L H*H %
Ona priedet na Pashu

In this example, it is shown that the clause ends with % because H% does not exist in Russian and the curve is incomplete. Example (27) expresses a continuation in a closed enumeration because this accent is the last before the boundary %:

(27) Vse pravil'no
Everything.NOM correct
'Everything correct'

%L H*H %
Vse pravil'no

3.1.3. The H*M accent

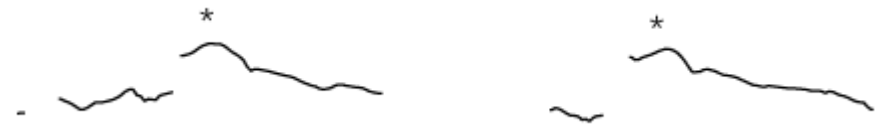
As Ode (2003) proposed, not only do H*L and H*H exist but there is also H*M pitch accent, which is a high rise coming from low or mid. It tends to be less steep and less high than the rises of H*L and H*H. The high ending is reached at the end of the accented syllable. After the accented syllable, the pitch drops to mid, after which it may drop further to the end of the utterance. Ode (2003) explains that the mid-pitched post-tonic part is often stretched out over a number of syllables. H*M can also be followed by another H*M within the same utterance, so as to create the saw-tooth pattern, or by some other pitch accents. Sentence (28) has pitch accent which expresses a continuation in a narrative.

(28) Poluchilos' horosho
Work out.PAST well
'It worked out well'

%L H*M %
Polu - chilos' horo - sho

This pitch accent is realized in the final syllable of the utterance. No syllables follow the highest point reached in the final accented syllable, so the low post-tonic part of the accent remains unrealized and is thus truncated ("cut off"). Sometimes, H*M occurs in words in a number of different positions of the utterance as in sentence (29).

(29) Soprovojdala ego, gotovila emu.
(she) accompany.PAST he-ACC cook.PAST he-DAT
'(She) accompanied him, cooked for him'.



% L H*M % %L H*M %
Soprovij - dala ego gotovila emu

Sentence (29) is divided into two parts. In both parts of this sentence H*M accent occurs. One of the main functions of this pitch accent is continuation in an open enumeration and vocatives (calling from a distance). It may also express a puzzled reaction, or a meditation.

3.1.4. The L* accent

The pitch accent L* is a steep fall from high or mid. The low ending is reached at the beginning of the accented syllable. After the accented syllable, the pitch continues low or it slowly falls further towards the end of the utterance. In Russian, L* occurs in words in a number of different positions of the utterance. One of the main functions of L* pitch is neutral finality, a completed sentence or paragraph, a confirmation, answer to a question, or an enumeration. Sentence (30) starts with initial high pitch %H. Utterance includes pitch accent L* and it shows completeness and is preceded by the H*M accent.

(30) My brali s soboi
We take-PAST with us-ACC
'We took it with us'

%H H*M L* L%
My brali s so – boi

There are also cases when the phrase has not a raised peak as in (31):

(31) Ya byl v korolevstve Iordania
I be.PAST in Kingdom.ACC Jordan
'I was in the Kingdom of Jordan'

%M H*M L* L%
Ya byl v korolev - stve Ior - dania

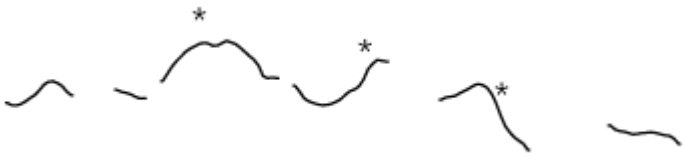
Sentence (31) starts with initial mid pitch and it is preceded by H*M accent. The utterance is monotonous in the part after the H*M, and curve falls with the L* accent.

3.1.5. The HL* accent

The pitch accent HL* is realized as a fall beginning at the onset of the accented vowel. It starts at high or mid pitch and falls to low at the end of the accented syllable. In the pretonic syllable immediately before the accented syllable a small rise may occur, which makes the fall more salient ('raised peak').

One of the main functions of this accent is completeness with emphasis. The raised peak in particular is associated with emphasis, according to Ode (2003). Sentence (32) has the pitch accent HL*, which expresses completeness with emphasis which occurs like exclamation. It is preceded by two realizations of the accent H*M.

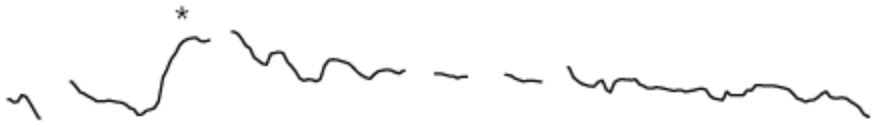
(32) Potomu chto jizn' byla horoshaya
Because life-NOM is.PAST good
'Because life was good'



%L H*M H*M H*L L%
Potomu chto jizn' byla horoshaya

Another example (33) demonstrates continuation in narrative. In this sentence, the pitch accent is followed by mid-pitched post – tonic part which is enlarging over many syllables. After the H*M accent, curve is monotonous.

(33) Esho roditeli byli kakoe-to vremya zhivi
Still (my)parents-NOM is.PAST some time alive
'My parents were still some time alive'.



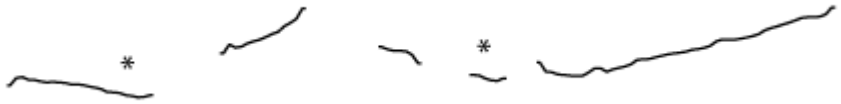
%L H*M %
Esho roditeli byli kakoe-to vremya zhivi

3.1.6. The L*H accent

The pitch accent L*H is fall-rise, realized as a fall from high or mid to not-quite-low, followed by a rise to high pitch which is sustained until the end of the utterance. In the examples, L*H occurs on words in a number of different positions of the utterance. One of the main functions of this pitch accent is polemic answer, summons, enumeration, incompleteness, or imperative question.

Sentence (34) has L*H accent and expresses a polemic answer to the question "You what, you managed to write this in one night?"

(34) Konechno a ti kak dumal
Of course you what think.PAST
'Of course, what did you think?'



%L L*H % %L L*H %
Konech – no a ty kak dumal

This sentence can be divided into two parts *Koneshno* and *A ty kak dumal*. In both parts we can see the falling- rise L*H accent on the word *konech – no* and *ty*. Example (35) shows an imperative question like "What, you really do not know?"

(35) A esli podumati?
If think-INF
'and what if you think about it?'

%H L*H %
A esli po - dumati

The sentence starts with initial high pitch and includes the L*H accent on the word *po - dumati*.

In conclusion, it is necessary to mention that the new system of transcription proposed by Ode (2003) is easily understandable. Examples which were given demonstrate different utterances with various accent positions. According to Ode (2003) pitch accents L* and HL* occurs as reduced pitch accents, but their excursion size is smaller than full pitch accents L* and HL*. H*M can be reduced too but it does not reach high targets. The accent H* usually slightly falls if it occurs after the high pitch target was reached in accented syllable. In the following chapter,this transcription theory will be used with IS model (Steedman, 2003) for Russian sentence analysis.

CHAPTER IV

INTONATION IN RUSSIAN IN LINE WITH IS: AN ANALYSIS OF SVO AND OVS WOs

This chapter describes the methodology of the thesis and provides OVS and SVO analysis. Each WO is dealt with separately. The difference between SVO and OVS sentences is explained using the two - dimensional model (Steedman, 2003), where flat intonation contour shows SVO order while OVS one has rising pitch in Theme position. This chapter consists of two independent experiments. The first one is based on copula sentence analysis with respect to IS and discourse structures. Experiment 2 has better experimental techniques and more participants were tested. The context with New – Given information was added. This experiment shows the role of interaction of discourse elements in intonation.

A discourse analysis should be made by examining not only discourse structures, but also intonation and information structures. Its aim is to analyze the full picture of natural communication. Discourse interpretation has the requirement where the constituents should move out of the positions defined by their structurally encoded grammatical functions into positions where their discourse functions are defined. King (1995) argued that similar to other languages where it is possible to have discourse configurations, Russian allows one Rheme and more then one Theme in the sentence. Grammatically identical sentences which have similar semantic content in Russian may differ by the WO. In such cases, intonation plays an important role

because it helps to indicate and understand where the critical information in a sentence is.

As mentioned before, various terminologies were used for describing discourse structures in the literature (Topic – Focus, Background – Focus, Theme – Rheme, Ground - Focus). In this thesis, two – dimensional model proposed by Steedman (2003), where there is Theme - Rheme and background -kontrast dichotomy will be used.

4.1. Work on SVO and OVS sentence analysis

In analyzing the information of these WOs, I found an interesting point after doing a segmental analysis: SVO sentences have a monotonous F0 curve while OVS sentences have a significant increase in the Theme position, i.e. where the Object is. Thus, I propose that there is a significant difference in intonation between grammatically identical sentences with different WO. I will try to describe the difference and explain this from discourse and phonological perspectives in the following section,. For this analysis I will use two Russian sentences in two different word orders OVS and SVO. These two WOs were chosen because they are the most used ones in spoken language (Kallestinova, 2007).

Experiment 1

For this thesis, various sentences with different WOs were analyzed first. Since they seemed to have similar intonation projections, only two (OVS and SVO), which were the only WOs with seemingly maximal different intonation projections were chosen. In the remaining parts of the thesis, the findings will be explained based on these two randomly chosen sentences (36) shown below:

(36) a. Za oknom dul veter (OVS)
behind window.ACC blow.PAST wind.NOM
'Behind the window the wind was blowing'.

b. Pod stolom byl myach (OVS)
Under table.ACC to be.PAST.3sg ball.NOM
'Under the table the ball was'.

4.1.1. Methodology

These sentences were analyzed in line with discourse structures and IS. The PRAAT application was used for phonological analysis. Each sentence was recorded. This helped me to measure fundamental frequency at a given point in time. The program shows F0 curve, which can also be measured.

In Figure 4 the F0 curve of one of the example sentences is given. Numbers on the left show the highest and the lowest point of F0 in Hz. Numbers on the bottom like (0; 1.625397) show the total duration of the sentence. It is measured in seconds. The most common numbers on the vertical scale, that need adjusting are the minimum and maximum F0 values used for the analysis. These can be set depending on the pitch range of the speaker. For a male, a reasonable range is 75 - 300 Hz, for a female, 100 - 600 Hz (Boersma, 1993). For this analysis, the voice of a 24 - old female was recorded.

4.1.2. Differential intonation patterns of OVS and SVO orders

Four sentences with the SVO and OVS order will be analyzed. Examples (37) and (38) provide these sentences.

(37) a. Za oknom dul veter (OVS)
behind window.ACC blow.PAST wind.NOM
'Behind the window the wind was blowing'.

b. Veter dul za oknom (SVO)
wind.NOM blow.PAST behind window.ACC
'The wind was blowing behind the window'.

(38) a. Pod stolom byl myach (OVS)
Under table.ACC to be.PAST.3sg ball.NOM
'Under the table the ball was'.

b. Myach byl pod stolom (SVO)
ball.NOM to be.PAST.3sg under table.ACC
'The ball was under the table'.

All these sentences are grammatically correct in Russian. However, the OVS is significantly different from the IS perspective. It is possible to illustrate the difference in two different dimensions. To show their intonation pattern, I will distinguish between Theme/Rheme and background/kontrast as IS dimensions:

(37a) Za ok - nom dul ve - ter
%M H*M L* L%
Background *Kontrast* *Background* *Kontrast*
[_____] *[_____]*
Theme ***Rheme***

The F_0 curve of sentence (37a) is given in Figure 4.

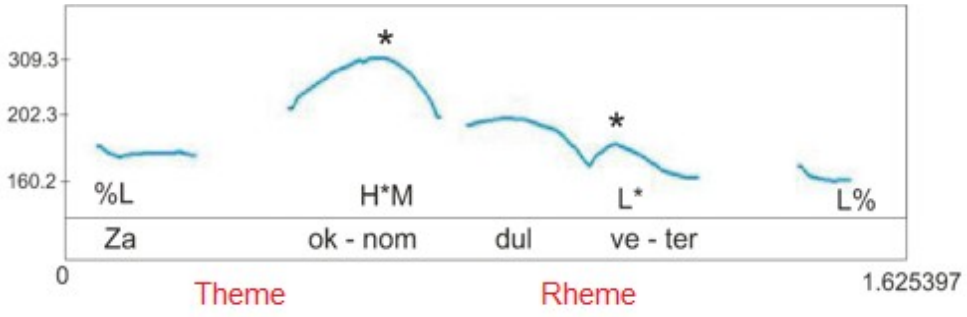


Figure 4. F_0 curve of the token "Za oknom dul veter" OVS ('Behind the window the wind was blowing')

In this OVS sentence we can see a significant curve increase in the Theme. *Za oknom* [Behind the window] has initial contour %L and is followed by H*M (309.3 Hz). This is the peak of this phrase. "-nom" [za ok – nom] is the stressed syllable, that is why there is an increase of F0 at this position. The next part is the Rheme and it reflects the object "veter" [the wind]. The pitch accent L*(189.4 Hz) shows the lowest part of the phrase and it can be explained by the hollow (tuneless) syllable - *ter* [veter] and the boundary L% marks the end of this phrase.

The OVS sentence (38a) has a significant curve increase at the Theme, similar to example (37a). In this case, *Pod stolom* [Under the table] has initial contour %M and is followed by the pitch accent H*M(281.9 Hz). This is the highest point of this phrase. *-lom* [pod sto – lom] is the stressed syllable. That is why the curve increases here. The next part is the Rheme and reflects the object *myach* [the ball]. The pitch accent L* shows the decrease of the phrase. It shows the hollow (tuneless) syllable of *myach* [the ball] and the boundary L% marks the end of this phrase.

(38a)	Pod	sto - lom	byl	myach
	%M	H*M		L* L%
	Background	*Kontrast*	*Background*	*Kontrast*
	[_____]		*[_____]*	
	Theme		***Rheme***	

The F_0 curve of sentence (38a) is given in Figure 5.

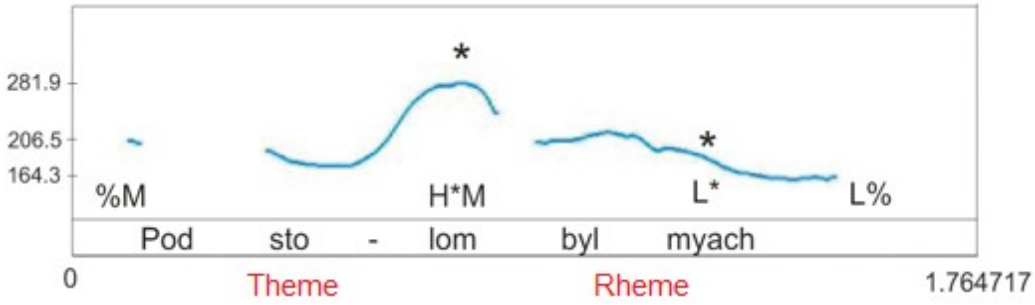


Figure 5. F_0 curve of the token "Pod stolom byl myach" OVS ['under the table the ball was']

(37b) Veter dul za oknom
%M L* L%
Background *Kontrast* *Background* *Kontrast*
[_____] [_____]
Theme ***Rheme***

The F_0 curve of sentence (37b) is given in Figure 6.

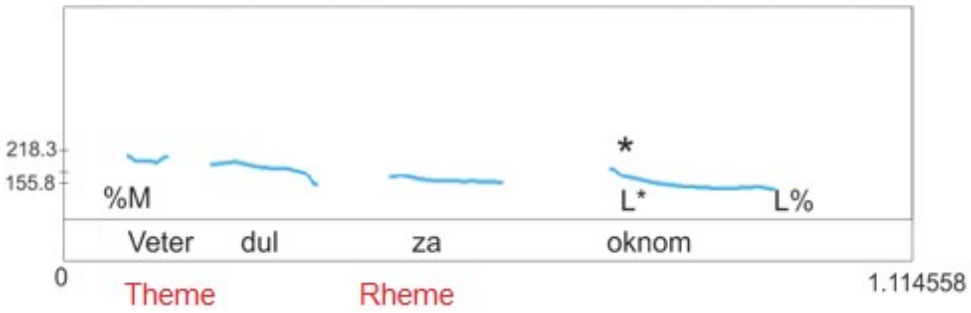


Figure 6. F_0 curve of the token "Veter dul za oknom" SVO ['The wind was blowing behind the window']

Sentence (37b) with SVO order is similar to (38b), where F0 is monotonous in comparison with the OVS sentence and there is no highest point.. It starts with the boundary %M and *myac*h [the ball] has tuneless sound. "Pod stolom" [Under the table] has pitch accent L* (173.1 Hz). It expresses completeness and ends with the final boundary L%.

(38b) Myach byl pod sto - lom
%M L* L%
Background *Kontrast* *Background* *Kontrast*
[_____] [_____]
Theme ***Rheme***

The F_0 curve of sentence (38b) is given in Figure 7.

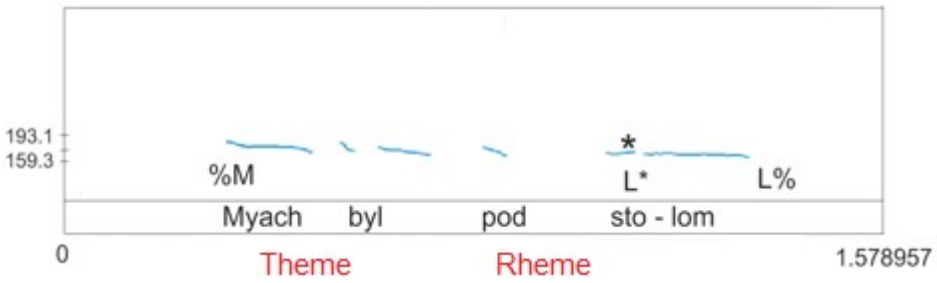


Figure 7. F_0 curve of the token "Myach byl pod stolom" SVO ['The ball was under the table']

These sentences can be understood as the answers to the following question. For example the sentence (38a) can be the answer of the sentence (39):

(39) Q: Gde byl myach?
Where the ball was?

A: Pod sto – lom byl myach
Under the table the ball was.

In such a case, the question plays an important role because in asking the question "Gde byl myach?" [Where was the ball?], the speaker makes an accent on the word "gde" [where], which follows the accent in the answer "pod sto – lom" [under the table].

The speaker's sentence without any question with OVS order as in (37a) and (38a) has rising intonation because the Theme position of the object plays an important role. In such a sentence, the Theme signifies the importance of sentence information like the place where the action happened using the description like exactly ***Za oknom*** *dul veter* [**Behind the window** the wind was blowing] and not somewhere else. The other sentence *Pod stolom byl myach* [Under the table the ball was] shows that *myach byl* [the ball was] ***pod stolom*** [**under the table**] and not in the box or on the sofa.

The discourse function of the object is the Theme and the subject is the Rheme of the phrase and has lowest pitch if it has post verbal position. The pitch accent H*M has the same nature in these sentences and provides a reply for the Theme in sentences with OVS word order.

These examples (37a,b) and (38a,b) show that the position of the subject plays a significant role. After segmentation analysis of each sentence, similar types of curves F0 were found. In other words, all the clauses which have the OSV word order have the peak intonation which reflects the Theme of this sentence. That is, the hearer understands that the raised accent demonstrates the significance of this word. SVO sentences (37b) and (38b) also have identical segmentation description. Their F0 curves are monotonous and there is no high pitch accent. In each case, the subject of the sentence is the Theme. Phrases have initial boundary %M and decrease to the lowest pitch L*. These sentences end with the boundary L%.

In conclusion, it was found that SVO is characterized with a monotonous curve, while OVS has rising accent H*M in the position of the Theme. Both sentences have falling pitch accent L*. Values of each pitch accent in SVO and OVS sentences are given in Table 6.

Table 6. Hz values of pitch accents in SVO and OVS sentences

WO	**Sentence**	**Hz**			
		%M(%L)	H*M	L*	L%
SVO	a. Veter duet za oknom		**-**	**162.8**	
	b. Myach byl pod stolom		**-**	**173.1**	
OVS	a. Za oknom dul veter		**309.3**	**189.4**	
	b.Pod stolom byl myach		**281.9**	**206.5**	

4.1.3. SVO and OVS WOs

In section 4.1.2., the difference between SVO and OVS orders in terms of IS were explained. However, the main question to be asked is why Russian has grammatically identical sentences with similar semantic content that differ by the order and intonation.

The answer is that sentences with SVO and OVS word order have different information structures. In one case, the subject has one discourse function, such as Theme, while the object is the Rheme. In the other case, the subject is the Rheme while the object is the Theme. These information structures are reflected in the high pitch accent H*M, when the object has initial position and appears as Theme. Also, the important point is that the subject in SVO sentences appears as a background and the same subject in OVS sentences appears as a kontrast. SVO is the basic order in Russian and intonation contour is monotonous. Any NP change in clause follows the respective IS change. Furthermore, in the analysis of each sentence, one interesting peculiarity is observed. In SVO and OVS orders, the predicate always has a falling tone.

The analysis has shown us the major differences between SVO and OVS orders. It is necessary to remember that there are four other word orders. Other WOs will have different curves in comparison with basic order SVO, which can be explained by different WOs with respect with IS.

In conclusion, it is necessary to underline that there are two major kinds of pitch accents in Russian, tonal rise and fall. Pitch accents have the function of signaling the Theme with rising intonation or have the function of signaling the Rheme with falling intonation in the OVS utterance. The subject in OVS appears as a kontrast and the same subject in SVO sentences is background. Copula sentences are not the only type of sentences which should be analyzed. That is why the Experiment 2 includes different type of transitive sentences. It will help to find the importance of interaction between discourse elements with respect to intonation.

Experiment 2

In this experiment, the sentences were analyzed in line with the context which consists of New – Given information. The PRAAT application was used for phonological analysis. Similar to Experiment 1, each sentence was recorded to measure fundamental frequency at a given point in time. The program shows F0 curve, which can also be measured.

Participants

Eight (8) female students with a Russian origin participated in this experiment. Students are from Ukraine, Russia, Moldova, Kazakhstan and Belarus (Table 7). Each participant was told the details of the experiment. They filled a demographic information form and signed the consent form showing their interest in participating in the experiment voluntarily. Demographic form consists of important information, such as country of residence, the spoken language in the family, the age the first time Russian was learned and the language of education in kindergarten and school. The personal data of the participants was shown below in Table 7.

Table 7. Participants personal data

N	Participants	Country	Age
1	P1	Ukraine	22
2	P2	Belarus	21
3	P3	Ukraine	26
4	P4	Kazakhstan	23
5	P5	Ukraine	22
6	P6	Ukraine	22
7	P7	Moldova	24
8	P8	Russia	20

All participants started learning Russian from 1 year old onwards and their education was in Russian. Also, all participants speak Russian in their families. This information provides the truth of the experiment's results.

SVO and OVS sentences which were given to participants had been divided into two groups: transitive sentences with a prepositional object and transitive sentences without preposition. Each participant was recorded individually so that they were not affected by the others' intonation. These sentences are shown in Tables 8, 9.

Table 8. Transitive sentences with an agent subject, a transitive verb and a patient object for elicitation

Denis udaril Sashu (SVO) Denis.NOM hit Sasha.ACC 'Denis hit Sasha'	Sashu udaril Denis (OVS) Sasha.ACC hit Denis.NOM 'Denis hit Sasha'
Denis moet lojku (SVO) Denis.NOM wash spoon.ACC 'Denis washes the spoon'	Lojku moet Denis (OVS) spoon.ACC wash Denis.NOM 'Denis washes the spoon'
Denis pishet pis'mo (SVO) Denis.NOM write letter.ACC 'Denis writes the letter'.	Pis'mo pishet Denis (OVS) letter.ACC write Denis.NOM 'Denis writes the letter'.

Table 9. Transitive sentences with an agent subject, a transitive verb, and a patient object with case for elicitation

Denis igraet na trube (SVO) Denis.NOM play trumpet.ACC 'Denis plays trumpet'	Na trube igraet Denis (OVS) trumpet.ACC play Denis.NOM 'Denis plays trumpet'
Denis risuet na stene (SVO) Denis.NOM draw on wall.ACC 'Denis is drawing on the wall'	Na stene risuet Denis (OVS) on wall.ACC draw Denis.NOM 'Denis is drawing on the wall'
Denis strelyaet v mishen' (SVO) Denis.NOM shoot at target.ACC 'Denis is shooting at the target'.	V mishen' strelyaet Denis (OVS) at target.ACC shoot Denis.NOM 'Denis is shooting at the target'.

Materials

The experiment consists of the following materials:

1. Prompt cards. Three (3) types of cards with describing the different WO elements to be used by the experimenter (Figure 8).

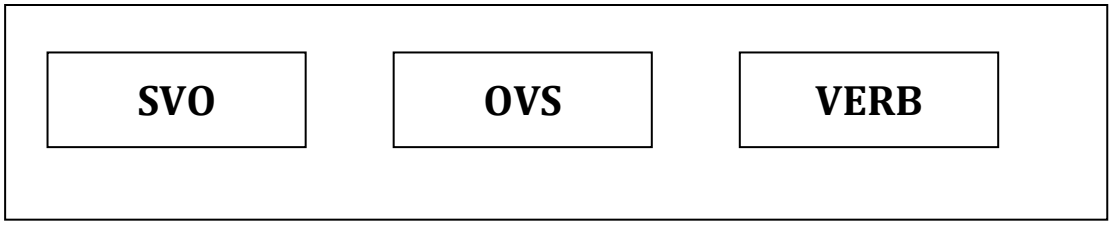


Figure 8. Prompt cards

2. Context cards where the context for twelve (12) sentences (6 SVO sentences and 6 OVS sentences) were described. Each context card has a story and question which elicits the required sentence (Figure 9).

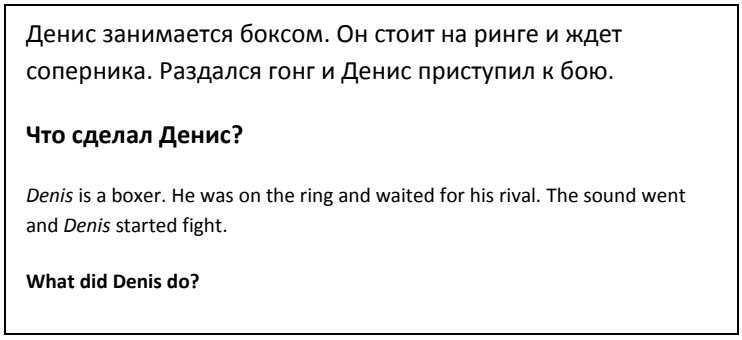


Figure 9. Context card

3. Key word cards. Each card includes the particular WO matching the Prompt card that the participant was chosen. The participant is asked to answer the question in the context card with the information on the key word card (Figure 10).

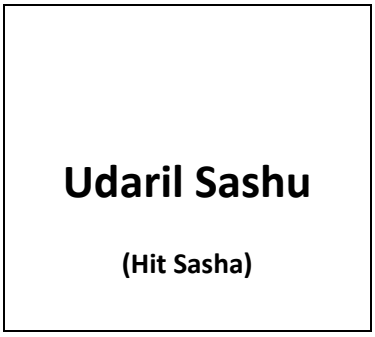


Figure 10. Key word card

The experiment consists of three individual prompts (Figure 8) and participants took part in two of them. Each prompt was given separately. The first one includes SVO sentences with two variations: S (Subject) is Given and New, the second part includes OVS sentences with the same variations: O (Object) is Given and New, and the third one includes sentences where the V (Verb) is Given and New. These three tests include 12 sentences, where 6 of them have Given information and 6 of them have New information. Experiment test details with different WOs are given in Table 10.

Table 10. Experiment test details with different word orders

Test	**WO**	**One sentence variation**	**Another sentence variation**
Test 1	SVO	S – New O – Given	S – Given O – New
Test 2	OVS	O – New S – Given	O – Given S – New
Test 3	OVS, SVO Verb	Verb - New	Verb - Given

Each test was administered to 5 participants. Participants were given 15 cards with 5 SVO order prompt cards, 5 OVS order prompt cards and 5 Verb prompt cards (Figure 8). Two prompts of the experiment were chosen by 7 participants, the 8-th participant got the remaining prompt card. All 7 chose two cards, after that choice these cards were thrown out and other participants had a choice among the remaining cards. Each

participant picked prompt cards in a random manner. To make the experimenter work easier, each set of cards had a different color matching the context cards and key word cards (Figure 8, 9). Table 11 shows the details about participants' test choices.

Table 11. Participants' test choices

N	Name of participant	Prompt 1 SVO	Prompt 2 OVS	Prompt 3 Verb
1	Tetiana T.	+	+	
2	Alena L.	+		+
3	Victoria P.	+	+	
4	Alena I.	+		+
5	Olga C.	+	+	
6	Aliona R.		+	+
7	Marina C.			+
8	Ekaterina M.		+	+
	Total:	5	5	5

Procedure

Each participant read the context card in her native language, Russian. Afterwards, the key word card was shown to the participant. The participant was expected to answer the question in the context card using the key word card shown (Figure 9). For example, when a participant received a context card with the key word card “udaril Sashu” [hit Sasha] she was asked: "Shto sdelal Denis?” [What did Denis do?]. The expected response is "Denis udaril Sashu” [Denis hit Sasha]. This response was recorded.

Each sentence was recorded three times and the second one was analyzed because the first recording might have not been so effective and the last one could have been done when the participant was tired. Before the experiment started a short trial, with the

sentence (39), was conducted with each participant so that they feel comfortable with experiment settings. The participant should have felt comfortable before the main experiment started.

(39) Misha daet knigu (SVO)
Misha.NOM give book.ACC
'Misha gives a book'.

Knigu daet Misha (OVS)
book.ACC give Misha.NOM
'Misha gives a book'.

Analysis

Each recorded sentence was analyzed separately and the following analyses were done.

a. F0 frequencies were obtained

b. Pitch accent values such as H*M, L*, etc. were annotated

c. For each recorded sentence the topic and focus information was marked.

In the following section, the results will be summarized on the basis of two of the test sentences, one of them is a sentence with a preposition and the other one does not have a preposition. The main analysis consisted of two parts: statistical and individual analyses.

4.1.4. Statistical analysis

This analysis was done on the basis of four important factors.

1. WO. SVO sentences and OVS sentences were analyzed
2. Sentence object. Transitive sentences were analyzed. Three sentences have prepositional object and three sentences do not have preposition.

3. New/Given information. Subject and Object were analyzed with respect to New/ Given information.
4. Subject/ Object position. SVO sentences have the Subject as an initial element and OVS sentences have the Object as an initial element.

Three persons were tested on all of these factors. This means 16 combinations were provided with these 3 participants according to these factors. The mean of each sentence value was taken. Persons were represented by means of (3, 3) sentences (Table 12). These sentences were tested on all these 4 factors. The statistical design used is four factorial repeated measures ANOVA. Four hypotheses, described below, were presented for this SVO and OVS analysis.

H1: In OVS sentences, higher pitch frequencies will be obtained for the measured element

H2: The transitive object and transitive prepositional object do not differ in their pitch accents.

H3: The element that expresses New information has higher pitch frequency (and belongs to Rheme) than the element that expresses Given information which belongs to Theme.

H4: The Subject and the Object do not differ in pitch in general.

An interaction between WO and initial sentence element (S in SVO and O in OVS) exists. In SVO sentences, the Subject should receive higher pitch than the Object, in OVS sentences the Object should receive higher pitch than the Subject.

4.1.4.1. Statistical Results of SVO and OVS analyses

The analysis was based on three subjects because only three participants (P1, P3, P5) worked on SVO and OVS orders. Two main effects and an interaction effect were obtained. There were not other main effects.

1. Main effect of WO

(F (1, 2) = 21, 05, p = 0.044, partial eta square = 0.91)

In SVO, the S in the initial position has significantly lower pitch (M = 260, 31 | SE = 16, 4)[7] than the O in the initial position in OVS sentences (M = 284, 36 | SE = 21, 24)

2. Main effect of New/Given information

(F (1, 2) = 56, 0, p = 0.017, partial eta square = 0.966)

The element expressing the New information has significantly higher pitch (M = 279, 87| SE = 18, 12) than the element expressing the Given information (M = 264, 80| SE = 19, 5) as shown in Figure 11.

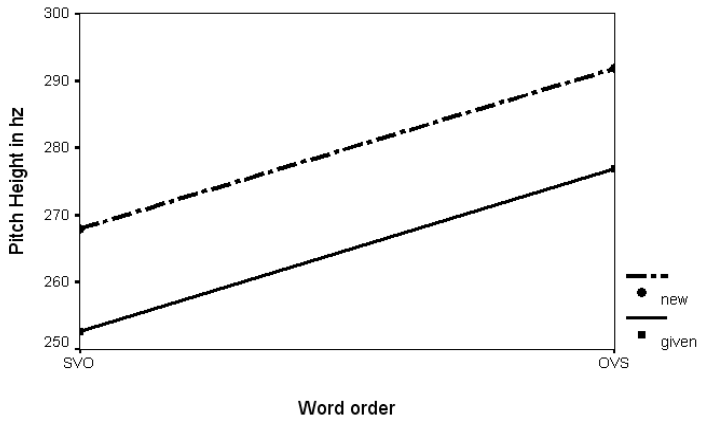


Figure 11. Height values of sentence-initial new and given elements in SVO and OVS sentences

3. Interaction between WO and Subject/Object

There was an interaction between WO and Subject/Object (F (1, 2) = 44, 05, p = 0.022, partial eta square = 0.957); in SVO sentences the Subject has significantly higher pitch than the Object (Msubj = 310, 90| SE = 28, 03 versus Mobj = 209,77 | SE = 8, 03); in OVS sentences this pattern was reversed, the Object has significantly higher pitch than the Subject (Mobj = 329, 60| SE = 18, 03 versus Msubj = 239,12 |

[7] M = Mean 1SE = Standard Error

SE = 31, 08). The initial nominal element of the sentence receives the higher pitch in comparison with the following element as shown in Figure 12.

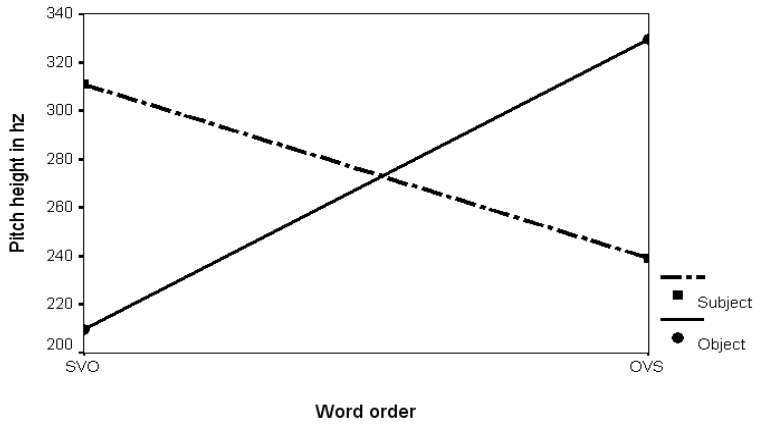


Figure 12. Pitch height of sentence initial subjects and objects in SVO and OVS sentences.

4.1.4.2. Statistical results of verb analysis

The pitch of the verb was also determined in order to test whether the verb may or may not bare the pitch accent in Russian. In SVO as well as in OVS, the pitch of the verbs that expressed either New or Given information was measured. The design was two factorial repeated measures ANOVA with kind of Object (transitive Object versus transitive prepositional Object) and New/Given information status.

The hypothesis is: The verb has a flat intonation and it is not stressed by pitch. There is no pitch accent on it.

The analysis was made based on the five subjects and in perspectives with two main effects: the New/Given information of the context and WO. Neither the two main effects nor the interaction were significant. The verb values ranged between frequency values (217, 21 ; 222, 59 Hz) as shown in Figure 13.

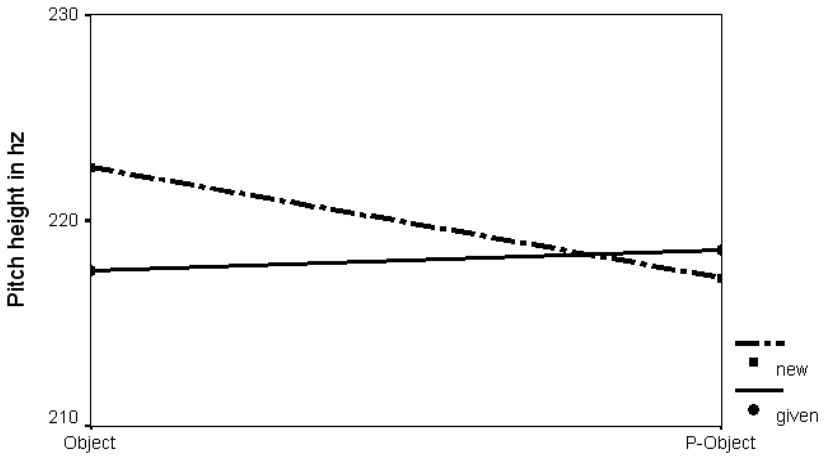


Figure 13. Pitch height of given and new verbs in sentences with transitive objects and transitive prepositional objects.

4.1.4.3. Discussion and Conclusion

In this experiment analysis, the four main hypotheses were supported and the confirmed by the statistical analysis. For the SVO and OVS analysis, the small number of participants (3) is not a problem since the effects are statistically significant. Namely, both the three way interaction between WO*New/Given*Subject/Object and three way interaction between Object type*New/Given*Subject/Object were marginally significant in the present analysis. (see the high partial eta square values as measures of effect size). With more Subjects, even, more significant effects might turn out.

The verb analysis shows that Verb has a flat intonation and there is no difference between other factors as Object type or initial element of the sentence. Hz values for the verb were presented as a mean value (Table 14). There is no interaction between the factors mentioned before and verb.

4.1.5. Individual Analysis

The individual analysis was done on basis of one participant's recording. SVO and OVS sentences were recorded by P1, and verb sentences were recorded by P3.

4.1.5.1. SVO analysis

For this analysis two SVO sentences (40) and (41) with the context (Figure 14, 15) were used.

(40) Denis moet lojku (SVO)
Denis.NOM wash spoon.ACC
'Denis washes the spoon'

(41) Denis risuet na stene (SVO)
Denis.NOM draw on wall.ACC
'Denis is drawing on the wall'

После завтрака остался пустой стаканчик от иогрута и ложка. Пустой стаканчик выбросили, и осталась ложка. **Что делает Денис?** Empty yogurt box and dirty spoon left after the breakfast. Empty dirty box was thrown out and only dirty spoon left. **What does Denis do? Denis - New**	Денис кушал иогурт. После завтрака он выкинул пустой стаканчик и подошел к крану. **Что делает Денис?** Denis ate yogurt. He throw out empty box after the breakfast and came to tap. **What does Denis do? Spoon - New**

Figure 14. Context for the sentence 'Denis moet lojku' with S – New, O- Given and S – Given, O – New

В городе проходит конкурс граффити. У каждого участника в руках баллончик с краской. Перед ним белая стена. **Что делает Денис?** There is a graffiti competition. Every participant has the bottle of color. There is white wall in from of the participant. **What does Denis do? Denis - New**	Денис участвует в конкурсе граффити. У него в руках баллончик с краской. Ему надо начать рисовать. **Что делает Денис?** Denis participates in a graffiti competition. He has the bottle of color. He should start drawing. **What does Denis do? Wall - New**

Figure 15. Context for the sentence 'Denis risuet na stene' with S – Given, O – New and S – New, O – Given

Sentence (40) has a context where *Denis* is a part of the Rheme and *lojku*[spoon] a part of the Theme. The verb moet[wash] is a part of the Rheme, because it is not mentioned in the given context.

Denis moet lojku
kontrast *background*
[_____] [_____]
Rheme ***Theme***

This sentence has a significant curve increase at the Rheme. In this case, *Denis* starts with the initial contour %M and is followed by the pitch accent H*M (330.4 Hz) with *–nis,* which is the stressed syllable. This is the highest point of the phrase. The following part is the Theme, showing the contrasted Object *lojku* [spoon]. It is the lowest part of the sentence and it is shown by the pitch L* (211.2 Hz). The sentence is marked by the final boundary L% (Figure 16).

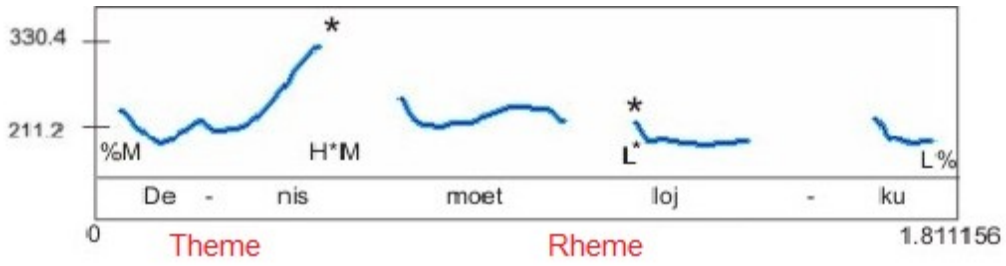


Figure 16. F_0 curve of the token "Denis moet lojku" SVO ['Denis washes the spoon'] with S – New, O – Given

The other version of this sentence has S – Given and O – New. In this case, we can see that *Denis* is a Theme and *lojku*[spoon] is a part of the Rheme. The verb moet[wash] is a part of the Rheme, because it is not mentioned in the given context.

Denis moet lojku
background *kontrast*
[_____] [_____]
Theme ***Rheme***

The phrase starts with the initial boundary %M and is followed by the highest pitch accent H*M (318.1 Hz) on the Theme Denis, where - *nis* is the stressed syllable. The following part is the Rheme, i.e. New information for the listener. This is the object *lojku* [spoon] which is the lowest part of the sentence and it is shown by the pitch L* (216.1 Hz). The phrase ends with the final boundary L% (Figure 17).

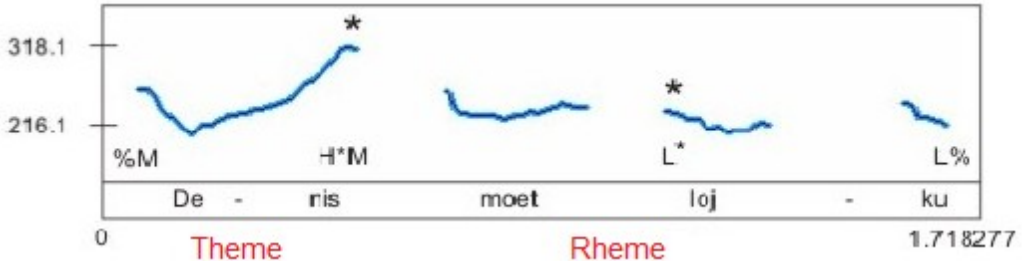


Figure 17. F_0 curve of the token "Denis moet lojku" SVO ['Denis washes the spoon'] with S – Given, O - New

Now, let us move on to the analysis of sentence (41), which has a preposition. It has a context where *Denis* is a part of the Rheme and *na stene*[on the wall] is the Theme. The verb risuet[is drawing] is a part of the Rheme because it is not mentioned in the given context.

Denis risuet na stene
kontrast *background*
[_____] [_____]
Rheme ***Theme***

Sentence (41) has a significant curve increase at the Rheme in the beginning of the phrase. In this case, *Denis* starts with an initial contour %M. It is followed by the high pitch accent H*M (306.7 Hz) where –*nis* is the stressed syllable which is the highest point of the phrase. The verb risuet[is drawing] is a part of the Rheme because it appears as new information for the speaker and it was not mentioned in the context. The next part of the sentence is the Theme and reflects the Object *na stene* [on the

wall]. It is the lowest part of the sentence shown by the pitch L* (216.4 Hz). The sentence is marked by the final boundary L% (Figure 18).

Figure 18. F_0 curve of the token "Denis risuet na stene" SVO ['Denis is drawing on the wall] with S – New, O - Given

Yet another version O – New, S – Given is similar to the sentence S – New, O – Given. The sentence has a context where *Denis* is a part of the Theme and *na stene*[on the wall] is the Rheme. The verb risuet[is drawing] is a part of the Theme because it is mentioned in the given context.

Denis risuet na stene

background *kontrast*

[_____] [_____]

Theme ***Rheme***

The phrase starts with the initial boundary %M and continues with the highest pitch accent H*M (301.2 Hz) on the Theme *Denis*, the curve increases on the stressed syllable – *nis*. The verb which is mentioned in the context belongs to Theme. The following part is the Rheme and represents new information for the hearer. This is the Object *na stene* [on the wall] which is shown by the pitch L* (207.3 Hz) as the lowest part of the sentence. The phrase ends with the final boundary L% (Figure 19).

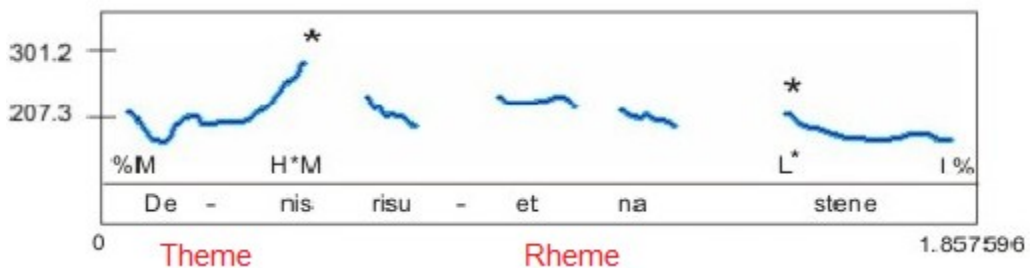


Figure 19. F_0 curve of the token "Denis risuet na stene" SVO ['Denis is drawing on the wall] with O – New, S – Given

Some similarities and differences can be observed between these two types of sentences with S – New**,** O - Given and S – Given, O - New information Sentences (40) and (41) have similar F0 curves and start with a boundary %M, followed by a high pitch accent H*M and the pitch L*, ending with the final boundary L%. Differences should be analyzed in two categories: Theme and Rheme.

Theme in SVO

The analysis of these sentences shows that the Theme has lower frequencies when it is the Object than Theme which appears as the Subject. In other words, the Theme as initial element of SVO sentence has higher frequencies (318.1; 301.2) than the Theme as a final element of the sentence with lower frequencies (211.2; 216.4).

Rheme in SVO

The Rheme which appears as initial element of the sentence has higher frequencies (330.4; 306.7) than the Rheme which is the final element of the sentence (216.1; 207.3). The Rheme which is the Subject has higher values than the Rheme which is the Object, because of initial element significance.

To conclude the SVO analysis, it can be said that the initial element (Subject) of SVO sentences plays an important role and it has high pitch accent H*M both as the Theme

or the Rheme. The verb appears as a part of the Theme when it is mentioned in the context and it appears as the part of the Rheme when it is not mentioned in the context. The Object of the sentence always has lower pitch L*.

4.1.5.2. OVS Analysis

The analysis of OVS sentences does not differ from analysis of SVO sentences. As explained before, grammatically identical sentences were used but with an OVS order. As representatives of the tested sentences, two different transitive sentences (42) and (43) will be analyzed.

(42) Lojku moet Denis (OVS)
spoon.ACC wash Denis.NOM
'Denis washes the spoon'

(43) Na stene risuet Denis (OVS)
on wall.ACC draw Denis.NOM
'Denis is drawing on the wall'

As it was mentioned before, the context plays a significant role because it allows us to see when the participant increases or decreases intonation OVS sentences were also analyzed with respect to the context with New – Given information. Firstly, the sentence where O – New and S – Given was analyzed.(Figure 20). Secondly, the sentence where O – Given and S – New was analyzed, (Figure 21):

Денис кушал иогурт. После завтрака он выкинул пустой стаканчик и подошел к крану. **Что моет Денис?** Denis ate yogurt. He throw out empty box after the breakfast and came to tap. **What does Denis wash?** ***Spoon - new***	После завтрака остался пустой стаканчик от иогрута и ложка. Пустой стаканчик выбросили, и осталась ложка. **Что моет Денис?** Empty yogurt box and dirty spoon left after the breakfast. Empty dirty box was thrown out and only dirty spoon left. **What does Denis wash?** ***Denis - new***

Figure 22. Context for the sentence 'Lojku moet Denis' with O – New, S- Given and O – Given, S - New

Денис участвует в конкурсе граффити. У него в руках баллончик с краской. Ему надо начать рисовать. **На чем рисует Денис?** Denis participates in a graffiti competition. He has the bottle of color. He should start drawing. **What does Denis draw?** ***wall - new***	В городе проходит конкурс граффити. У каждого участника в руках баллончик с краской. Перед ним белая стена. **На чем рисует Денис?** There is a graffiti competition. Every participant has the bottle of color. There is white wall in from of the participant. **What does Denis draw?** ***Denis-new***

Figure 21. Context for the sentence 'Na stene risuet Denis' with O – New, S – Given and O – Given, S - New

Sentence (42) has a context where *lojku* [spoon] is the kontrasted part of the Rheme. The verb moet[washes] is the part of the Rheme because it was not mentioned in the context and *Denis* is a part of the Theme.

Lojku moet Denis

kontrast *background*

[_____] [_____]

Rheme ***Theme***

This sentence has a curve increase at the initial element which is the Rheme. In this case, *Lojku* [spoon] starts with the initial contour %M and is followed by the pitch accent H*M (347.5 Hz) with *–loj* which is the stressed syllable. This is the highest point of this phrase. The final element of the sentence is *Denis*. It is the lowest part of the sentence and shown by the pitch L* (221.8 Hz). The sentence is marked by the final boundary L% (Figure 22).

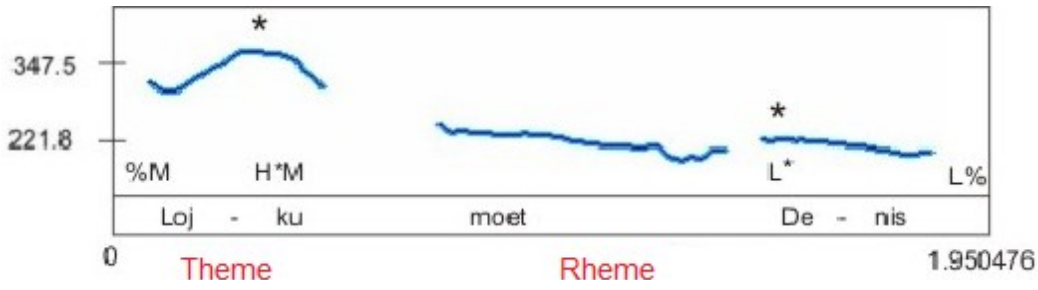


Figure 22. F_0 curve of the token "Lojku moet Denis" OVS ['Denis washes the spoon] with O – New, S - Given

The other version of sentence (42) which has O – Given, S – New is similar to the previous sentence with O – New, S – Given. The sentence has a context where *lojku* [spoon] is the part of the Theme. The verb moet[washes] is the part of the Rheme because it was not mentioned in the context and *Denis* is the Theme.

Lojku moet Denis

background *kontrast*

[_____] [_____]

Theme ***Rheme***

The phrase starts with the initial boundary %M and is followed by the pitch accent H*M (327.1 Hz) on the Theme *Lojku* [spoon], where the - *loj* is the stressed syllable. The following part is the Rheme with New information for the listener. It includes the verb moet[washes] and the Subject *Denis* which is the lowest part of the sentence and is shown by the pitch L* (223.9 Hz). The phrase ends with the final boundary L% (Figure 23).

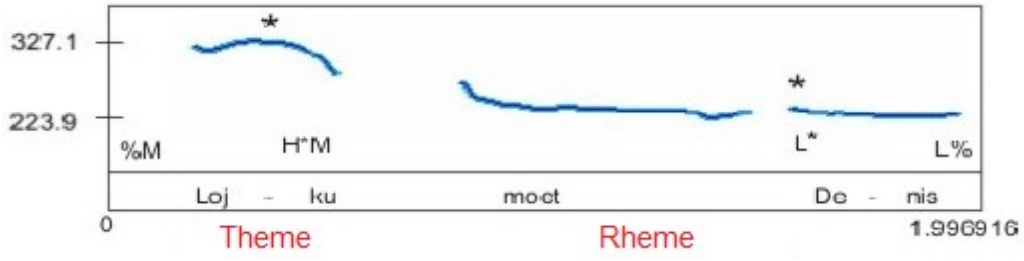


Figure 23. F_0 curve of the token "Lojku moet Denis" OVS ['Denis washes the spoon] with O –Given, S - New

Sentence (43), i.e, sentence with a preposition is similar to sentence (42) without a preposition. Using the context for the other sentences with different variations O – New, S – Given and O – Given, S – New, I came with the similar results. Sentence (43) has a context where *na stene* [on the wall] is the kontrasted part of the Rheme. The verb risuet[is drawing] is the part of the Theme because it was mentioned in the context and *Denis* is another part of the Theme.

Na stene risuet Denis

kontrast *background*

[_____] [_____]

Rheme ***Theme***

This sentence has a significant curve increase at the Rheme in the beginning of the phrase. In this case, *Na stene* [On the wall] starts with an initial contour %M and is followed by the high pitch accent H*M (374.2 Hz) with *–ne* which is the stressed syllable and the highest point of the phrase. The next part of the sentence is the Theme and consists of the verb *risuet* [is drawing] and the Subject *Denis*. The Subject is the lowest part of the sentence shown by the pitch L* (231.4 Hz). The sentence is marked by the final boundary L% (Figure 24).

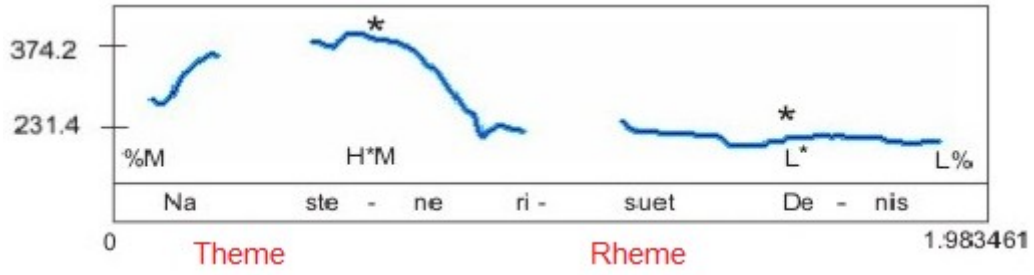


Figure 24. F_0 curve of the token "Na stene risuet Denis" OVS ['Denis is drawing on the wall'] with O –New, S - Given

The other version of sentence (43) with O – Given, S – New is similar to the previous sentence. It has a context where *na stene* [on the wall] is the part of the Theme. The verb *risuet*[is drawing] is a part of the Rheme because it was not mentioned in the context and *Denis* is another part of the Rheme.

Na stene risuet Denis

background *kontrast*

[_____] [_____]

Theme ***Rheme***

The phrase starts with an initial boundary %M and is followed by the highest pitch accent H*M (363.7 Hz) on the Theme *Na stene* [on the wall]. The curve increases on the stressed syllable - *ne*. The following part of the sentence is the Rheme. The verb *risuet* [is drawing] is the part of the Rheme ans the Subject *Denis* which is shown by the pitch L* (217.4 Hz) as the lowest part of the sentence is also the part of the Rheme. The phrase is completed with the final boundary L% (Figure 25).

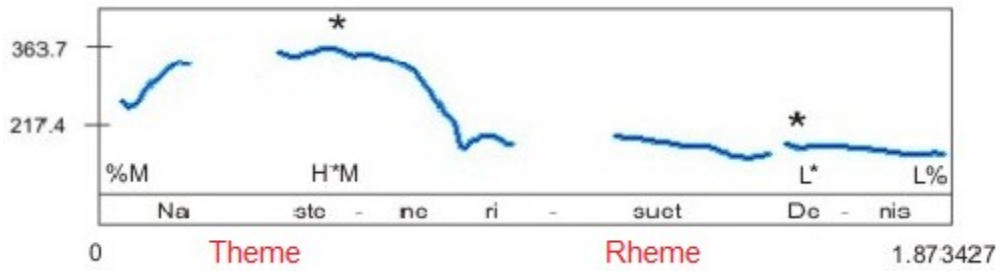


Figure 25. F_0 curve of the token "Na stene risuet Denis" OVS ['Denis is drawing on the wall'] with O –Given, S – New

Differences and similarities between these two types of sentences with O – New, S - Given and O – Given, S - New information can be found. The work on similar sentences allows us to understand the importance of the Theme and Rheme using the context. Sentences (42) and (43) have similar F0 curve. Phrases start with an initial boundary %M, followed by a high pitch accent H*M and pitch L*. These phrases end with the final boundary L%.

Theme in OVS

The analysis of these sentences shows that the Theme has lower frequencies when it is the Subject than Theme which appears as the Object. In other words, the Theme which appears as an initial element of OVS sentence has higher frequencies (327.1; 363.7) than the Theme being the Subject, appears as a final element of the sentence with lower frequencies (221.8; 231.4).

Rheme in OVS

The Rheme which appears as an initial element of the sentence has higher frequencies (347.5; 374.2) than the Rheme which is the final element of the sentence (223.9; 217.34). In other words? In addition? The Rheme which is the Object has higher values than the Rheme which is the Subject, because of initial element significance.

To conclude OVS analysis, we can say that the initial element (Object) plays an important role and has high pitch accent H*M both as the Theme or the Rheme. The verb appears as a part of the Theme when it is mentioned in the context and it appears as a part of the Rheme when it is not mentioned in the context. The Subject has lower pitch L*.

4.1.5.3. Verb Analysis

Experiment 1 showed that the verb does not influence the Theme or Rheme in Russian intonation. Experiment 2 showed that initial element of the SVO and OVS sentences is always emphasized by the highest pitch accent. Another important point is verb analysis as a WO analysis cannot be complete without it.. Similar to Subject and Object, the verb should also be analyzed with respect to New – Given information. For this reason, two sentences, (44) and (45), with different WOs were used because it is important to show that the verb does not influence pitch accents in any WO.

(44) Denis **moet** lojku (SVO)
Denis.NOM wash spoon.ACC
'Denis washes the spoon'

(45) Na stene **risuet** Denis (OVS)
on wall.ACC draw Denis.NOM
'Denis is drawing on the wall'

It is important to analyze whether the intonation contour changes when we use the context and examine Verb behavior in a sentence when it is New or Given. The first context below, for sentence (44), includes Verb with New information, where *moet* [washes] is new and another context includes Verb with Given information, i.e. what seems known for the hearer where *moet* [washes] is Given (Figure 26). Similarly, sentence (45) has a particular context with the verb with New information in one case, and with Given information in another case (Figure 27).

Денис завтракал. После завтрака остался пустой стаканчик от иогрута и ложка. Пустой стаканчик выбросили, и осталась ложка. **Что делает Денис?** Denis had breakfast. Empty dirty box was thrown out and only dirty spoon left. **What does Denis do?** ***Wash - New***	Денис завтракал. После завтрака остался пустой стаканчик от иогрута и ложка. Пустой стаканчик выбросили, и осталась помыть ложку. **Что моет Денис?** Denis had breakfast. Empty dirty box was thrown out and only dirty spoon left to wash. **What does Denis wash?** ***Wash - Given***

Figure 26. Context for 'Denis moet Lojku' with Verb – New and Verb – Given

В городе проходит конкурс граффити. У каждого участника в руках баллончик с краской. Перед ним белая стена. **Что делает Денис?** There is a graffiti competition. Every participant has the bottle of color. There is white wall in from of the participant. **What does Denis do?** ***draw-new***	Денис участвует в конкурсе граффити. У него в руках баллончик с краской. Ему надо начать рисовать. **На чем рисует Денис?** Denis participates in a graffiti competition. He has the bottle of color. He should start drawing. **What does Denis draw?** ***draws-given***

Figure 27. Context for 'Na stene risuet Denis' with Verb – New and Verb – Given

Sentence (44) consists of the Theme and the Rheme. The verb moet[washes] is the part of the Rheme. Denis is the Theme.

Lojku moet Denis

kontrast *background*

[_____] [_____]

Rheme ***Theme***

The SVO sentence has a significant curve increase at the Rheme in the beginning of the phrase. In this case, *Denis* starts with an initial contour %M and is followed by the high pitch accent H*M (294.4 Hz) with *–nis,* which is the stressed syllable and the highest point of the particular phrase. The verb *moet* [washes] has a flat intonation

because the verb does not influence intonation in Russian and it is a part of the Rheme because it is not mentioned in the context. The value of this verb is (228.3 Hz). The next part of the sentence is the Theme and it is shown by the object *lojku* [spoon]. It is the lowest part of the sentence shown by the pitch L* (215.9 Hz). The sentence is marked by the final boundary L% (Figure 28).

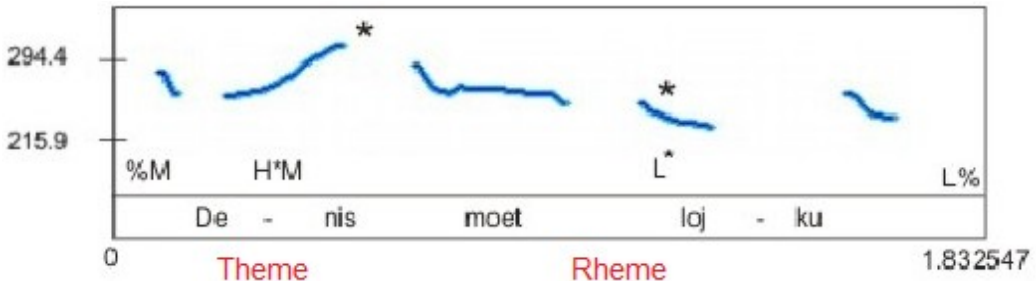


Figure 28. F_0 curve of the token "Denis moet lojku" SVO ['Denis washes the spoon'] with Verb - New

The other version of the sentence (44) with the Verb which is mentioned in the context is similar to the previous example where the Verb is new. The Theme consists of two parts the Subject *Denis* and the verb is the part of the Theme. The Object is the Rheme which carries new information for the listener.

Lojku moet Denis

kontrast *background*

[_____] [_____]

Rheme ***Theme***

This phrase starts with an initial boundary %M, and has a significant curve increase with the high pitch accent H*M (263.5 Hz) on the Theme. The stressed syllable is – *nis* and it shows the highest point of this phrase. The verb moet [washes] belongs to the Theme and has a flat intonation. The value of this verb is (217.7 Hz). The following sentence part is the Rheme and includes the Object *lojku* [spoon]. It is the lowest part of the sentence and shown by the pitch L* (216.4 Hz). The final boundary

L% marks the end of the phrase (Figure 29). As it was mentioned in Experiment 1, the verb does not influence intonation in Russian.

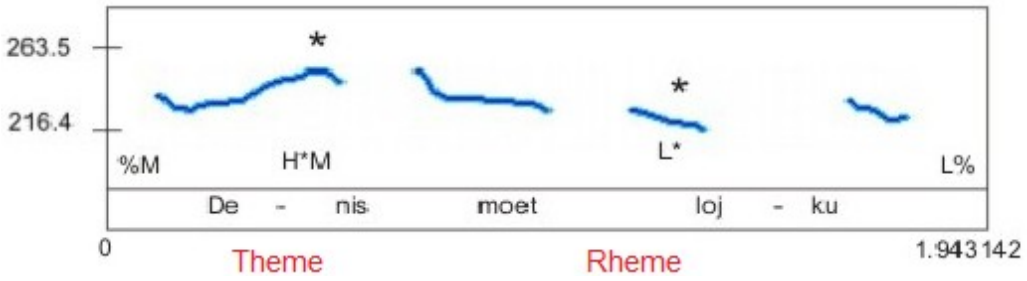


Figure 29. F_0 curve of the token "Denis moet lojku" SVO ['Denis washes the spoon'] with Verb - Given

The other sentence (45), consists of the Theme *na stene* [on the wall] and the Rheme which includes the verb *risuet*[is drawing] because it was not mentioned in the context and *Denis*.

Na stene risuet Denis

background *kontrast*

[_____] [_____]

Theme ***Rheme***

The OVS sentence (45) has a curve increase on the Theme in the beginning of the phrase. In this case, the phrase begins with a contour %M and is followed by the high pitch accent H*M (315.4 Hz) on the Object *Na stene* [on the wall]. The stressed syllable of this word is – *ne*. The next part is the Rheme where the verb *risuet* [is drawing] which has flat intonation with frequency (236.8 Hz), even it carries New information for the hearer. The next part of the Rheme is the Subject *Denis*. It is the lowest part of the sentence shown by the pitch L* (210.2 Hz). The sentence ends with the final boundary L% (Figure 30).

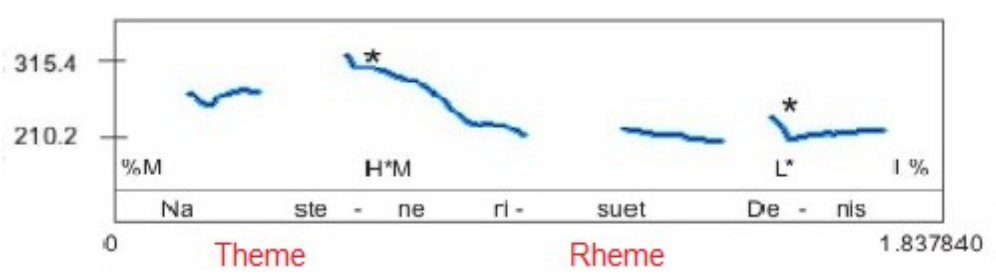


Figure 30. F_0 curve of the token "Na stene risuet Denis" OVS ['Denis is drawing on the wall'] with Verb – New

The other version of sentence (45) has the verb mentioned in the context. It has a context where *na stene* [on the wall] is the kontrasted part of the Rheme. The verb *risuet*[is drawing] is the part of the Theme and *Denis* is another part of the Rheme.

Na stene risuet Denis

kontrast *background*

[_____] [_____]

Rheme ***Theme***

Here, we can see the similarities with the previous sentence. This sentence starts with an initial boundary %M, and has a curve increasing with the high pitch accent H*M (260.3 Hz). The stressed syllable of the object is *–ne* and shows the highest point of this phrase. The following part of the sentence is the Rheme and it includes the subject *Denis*. It is the lowest part of the sentence as shown by the pitch L* (197.9 Hz). The final boundary L% marks the end of the phrase. In this case, the verb *risuet* [is drawing] has flat intonation with the frequency (234.2 Hz) and it is not emphasized (Figure 31).

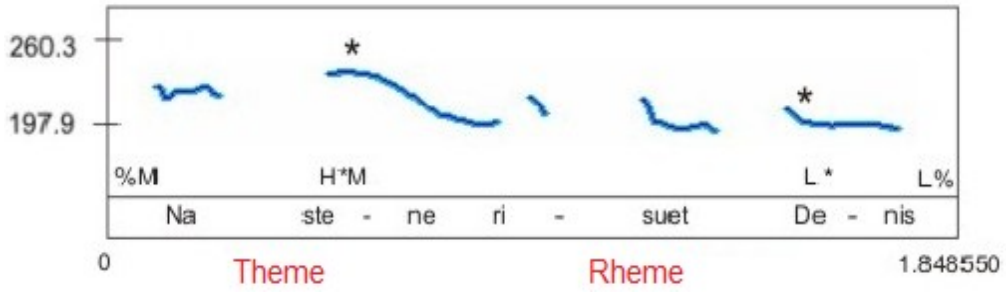


Figure 31. F_0 curve of the token "Na stene risuet Denis" OVS ['Denis is drawing on the wall'] with Verb - Given

These sentences show that the verb does not influence the intonation both as the part of the Theme or Rheme. Analysis shows that the flat intonation is typical for the Verb. That means that there is no difference between WOs or Theme – Rheme positions of subjects and objects. There is no pitch accent or emphasis on the verb. This suggests not taking the verb into consideration for Theme – Rheme intonation analysis.

4.1.5.4. SVO and OVS analysis

In section 4.1.3., the difference between SVO and OVS orders in terms of IS was explained because sentences with SVO and OVS word orders have different information structures. In one case, the Subject has one discourse function, such as Theme, while the Object is the Rheme. In the other case, the Subject is the Rheme while the Object is the Theme. The analysis was done on copula sentences using Steedman's two dimensional model (2003).

In this section, SVO and OVS orders can be compared with respect to the context where New – Given information exists. IS definitely plays a role in the sentence because it carries particular information for the hearer. This particular information is

more emphasized in some cases and in other cases it is less emphasized to help us to understand what exactly the speaker accentuates.

The analysis of SVO and OVS shows that the initial element of the sentence is always emphasized. But when the initial element is the Rheme and new for the hearer, it has a higher pitch accent than the initial element which is a part of the Theme. The final element of the sentence always has a falling pitch accent both as the Subject or the Object and it is a part of the Theme or the Rheme (Table 13). This makes us think that transitive sentences with NP – VP – NP order have a significant rising pitch on the Rheme as an initial element which is new information for the listener, being either Subject or Object.

CHAPTER V

CONCLUSION

Russian phonology has a lot of different types of intonation contours and pitch accents. Existence of different intonation contours allows speakers to express various emotions by rising or falling intonation in the language.

The pitch accents on NPs signify which word plays an important role for the hearer. Russian allows six orders but each of them will be different in context due to informational structures. An analysis of two of these WOs in Experiment 1 provided an interesting peculiarity of Russian. It was found that simple declarative copula sentences with NP – VP – NP structure have different intonation contour in the OVS and SVO orders. The predicate always has a monotonous tone and does not have rising or falling accents. The subject appears as kontrast in OVS sentences, and as background in SVO sentences. The F0 curve rises in the object position when the subject is kontrast in OVS sentences.

Copula sentences are different from transitive sentences and it is not enough to analyze only copula sentences for their role in discourse. Therefore, in Experiment 2, twelve transitive sentences, which consist of words with two syllables, were tested. In addition, it is not enough to analyze intonation only with the kontrast/ background dichotomy out of context. It is also important to analyze sentences in context when

there is new or given information because new information can influence high rising pitch.

The analysis of the results of Experiment 2 shows that the initial element of the sentence plays an important role and when it is the part of the Rheme, it always has a high (Hz) frequency pitch accent than the element which is the part of the Theme. There is no difference between SVO and OVS sentences in this respect because the Rheme has a high pitch accent, whether it is the Subject or the Object in the beginning of the sentence.

The verb has no pitch accent and it has a flat intonation regardless of the WO of the sentence (SVO, OVS). It can be seen that, pitch accents on the Subject and the Object and the (Hz) frequency of the verb is not so different between sentences where the verb is a part of the Rheme and where the Verb is the part of the Theme. The verb can not influence the pitch accents on the Theme or Rheme in a sentence. The NP – VP – NP order shows that the verb is like a bridge between accented words.

From the comparison of the results of Experiment 1 and Experiment 2, it has been found that there is no intonation contour difference between OVS sentences when they are elicited with a context and when they are elicited without a context. However, there is a difference between SVO sentences elicited out of context and in context. When a SVO sentence is elicited without a context it has a monotonous F0 contour. When the context question is used, in their answer, the speakers emphasize the necessary words depending on the context. Experiment 2 showed that context influences speaker's intonation. If the context elicits new information for the Rheme, this Rheme will always get higher values if it is the initial element of the sentence. But the final element of the sentence, whether it is a part of the Rheme or Theme, behaves differently because there is no big difference between the values for it.

These results provide an interest about the intonation contours in other WO sentences, which were not analyzed. Similar to SVO and OVS, their information structure is expected to be different. In particular, it would be expected that other four WOs will have rising and falling pitch accents in comparison with the monotonous SVO copula sentences and in sentences without the context.

This thesis is the first step towards a full analysis of WO in coherence with discourse structures and intonation in Russian. In future work, a more detailed intonation analysis of Russian sentences with other WOs should be done. It would also be interesting to conduct experiments recording male speech, to analyze their WO choice in coherence with discourse structure, context and intonation. Complex sentences that include embedded structures may also be analyzed. Finally, it would be interesting to analyze children's speech to understand any developmental patterns in IS.

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APPENDICES

APPENDIX A – TABLE OF Hz FREQUENCY VALUES FOR SVO SENTENCES

Table 12 Hz frequencies of pitch accents for every SVO sentence

Name of participant	Denis udaril Sashu		Denis moet lojku		Denis pishet pis'mo	
	S – New O – Given	S – Given **O – New**	**S – New** O – Given	S – Given **O – New**	**S – New** O – Given	S – Given **O – New**
Alena I.	**290.3** 188.3	282.5 **165.5**	**287.6** 191.1	266.6 **289.1**	**311.4** 179.9	306.8 **183.1**
Alena L.	**285.6** 104.8	273.1 **98.08**	**279.9** 199.6	249.4 **203.5**	**285.4** 195.6	274.3 **173.9**
Victoria	**268.4** 104.8	254.4 **210.5**	**294.4** 215.9	264.5 **216.4**	**298.6** 195.6	260.1 **212.1**
Olga	**324.5** 233.1	319.6 **237.6**	**349.6** 230.4	338.9 **228.5**	**372.3** 211.3	359.7 **223.1**
Tetiana	**397.1** 208.5	301.4 **199.8**	**330.4** 211.2	318.1 **216.1**	**320.1** 196.2	314.7 **210.8**
	Denis igraet na trube		Denis risut na stene		Denis strelyaet v mishen'	
	S – New O – Given	S – Given **O – New**	**S – New** O – Given	S – Given **O – New**	**S – New** O – Given	S – Given **O – New**
Alena I.	**299.6** 191.8	291.3 **188.2**	**278.7** 191.2	271.7 **204.1**	**287.9** 221.6	255.2 **182.4**
Alena L.	**283.3** 172.9	268.3 **176.1**	**279.7** 194.7	257.6 **180.3**	**268.1** 187.3	255.3 **188.9**
Victoria	**254.5** 187.6	235.2 **206.5**	**267.4** 189.6	253.2 **210.6**	**266.2** 198.5	245.7 **207.2**
Olga	**388.9** 227.7	358.7 **213.6**	**343.3** 208.8	328.3 **209.1**	**365.5** 239.5	335.2 **230.7**
Tetiana	**341.3** 198.8	322.5 **192.7**	**306.7** 216.4	301.2 **207.3**	**302.9** 217.8	287.2 **221.4**

APPENDIX B – TABLE OF Hz FREQUENCY VALUES FOR OVS SENTENCES

Table 13 Hz frequencies of pitch accents for every OVS sentence

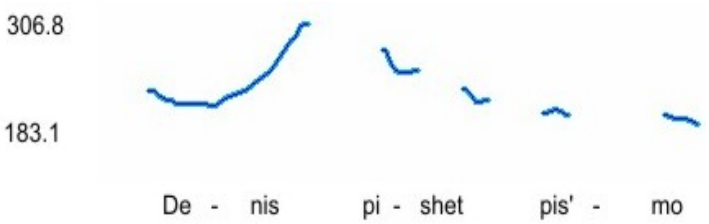
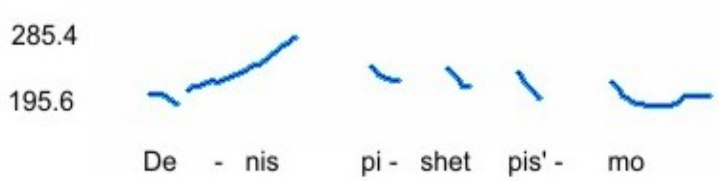
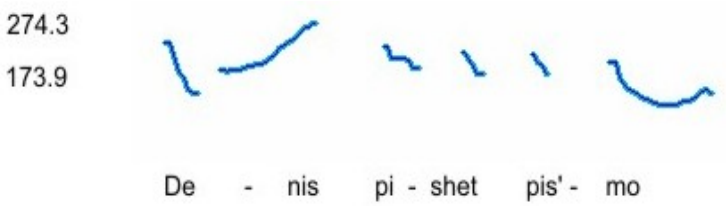
Name of participant	Sashu udaril Denis		Lojku moet Denis		Pis'mo pishet Denis	
	O – **New** S – Given	O – Given S – **New**	O – **New** S –Given	O – Given S – **New**	O – **New** S – Given	O – Given S – **New**
Victoria	**288.6** 185.1	257.7 **193.9**	**281.4** 192.3	278.2 **211.3**	**314.3** 226.5	306.8 **198.1**
Ekaterina	**406.0** 256.1	381.1 **263.2**	**471.9** 285.7	303.3 **240.2**	**480.7** 215.2	322.1 **252.8**
Tetiana	**355.7** 216.1	341.9 **215.4**	**347.5** 221.8	327.1 **223.9**	**364.5** 222.6	314.6 **212.8**
Olga	**327.4** 278.5	319.8 **291.6**	**330.4** 295.6	318.3 **308.4**	**382.7** 280.2	362.2 **336.8**
Alena	**349.5** 241.8	319.2 **220.6**	**344.6** 230.2	321.5 **249.1**	**311.4** 250.9	298.3 **241.2**
	Na trube igraet Denis		Na stene risut Denis		V mishen' strelyaet Denis	
	O – **New** S –Given	O –Given S – **New**	O – **New** S-Given	O -Given S – **New**	O – **New** S -Given	O – Given S – **New**
Victoria	**326.1** 181.6	297.9 **197.2**	**315.4** 210.2	260.3 **197.9**	**316.7** 208.7	287.2 **202.5**
Ekaterina	**456.6** 200.1	398.8 **196.6**	**355.1** 275.6	330.6 **249.9**	**392.5** 270.2	384.1 **259.8**
Tetiana	**379.5** 197.9	322.8 **198.2**	**374.2** 231.4	363.7 **217.4**	**381.2** 223.3	367.3 **215.1**
Olga	**368.1** 291.2	258.6 **304.5**	**372.5** 318.8	358.4 **317.9**	**354.6** 302.7	341.8 **280.9**
Alena	**276.3** 186.4	260.9 **195.9**	**312.8** 241.3	296.7 **220.5**	**321.8** 231.8	308.8 **229.5**

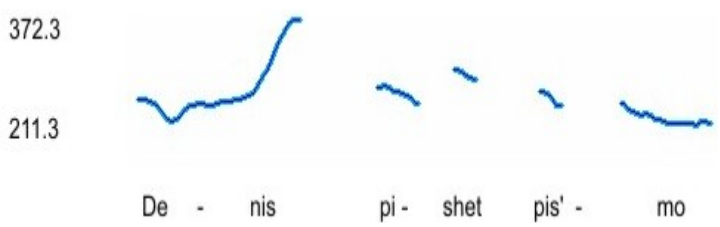
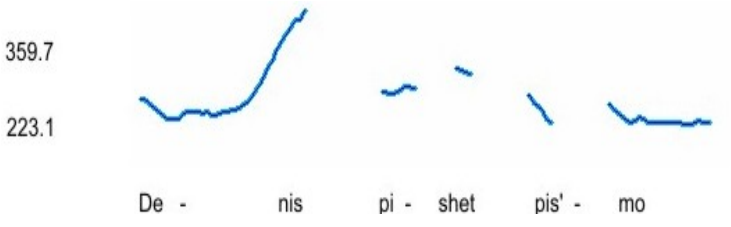
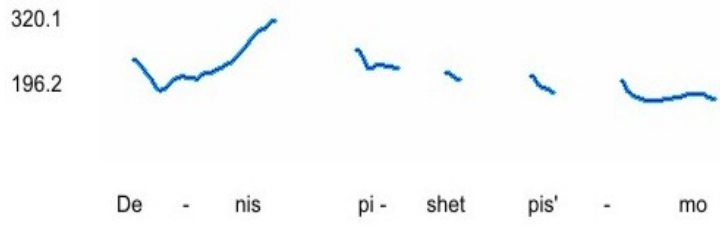
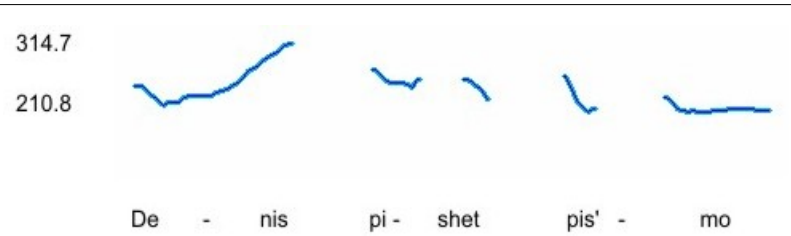
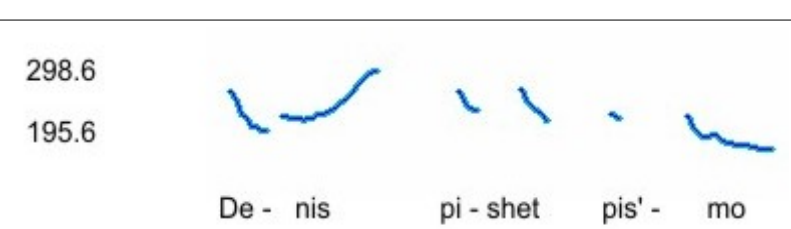
APPENDIX C – TABLE OF Hz FREQUENCY VALUES FOR THE VERB

Table 14 Hz frequencies of pitch accents for Verb

Name of participant	Sashu udaril Denis		Denis moet lojku		Denis pishet pis'mo	
	V – New	V – Given	V – New	V – Given	V – New	V – Given
Alena I.	194.6	**208.1**	**189.2**	183.5	191.1	**194.0**
Alena L.	**226.1**	225.5	**228.3**	217.7	231.2	**234.6**
Aliona	**249.8**	247.1	242.2	**243.9**	**256.1**	252.2
Ekaterina	206.3	**213.7**	210.2	**219.1**	**251.4**	248.5
Marina	211.6	**119.8**	218.9	**220.1**	231.8	**235.9**
	Denis igraet na trube		Na stene risuet Denis		V mishen' strelyaet v Denis	
	V – New	V – Given	V – New	V – Given	V – New	V – Given
Alena I.	187.6	**203.1**	190.2	**211.2**	**184.8**	183.5
Alena L.	**220.8**	215.4	**236.8**	234.2	**214.8**	209.2
Aliona	**217.4**	215.5	**247.7**	234.1	218.3	**220.1**
Ekaterina	224.9	**234.8**	232.6	**238.4**	**218.6**	212.5
Marina	231.6	**235.7**	210.7	**211.8**	**221.4**	219.3

APPENDIX D – F_0 CURVE OF THE TOKEN

S – NEW O - GIVEN	
S – GIVEN O - NEW	
S – NEW O - GIVEN	
S – GIVEN O - NEW	

S – NEW O - GIVEN	
S – GIVEN O - NEW	
S – NEW O - GIVEN	
S – GIVEN O - NEW	
S – NEW O - GIVEN	

S – GIVEN O - NEW