Aspects of word order in Russian

Elena Dmitrievna Kallestinova

University of Iowa

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ASPECTS OF WORD ORDER IN RUSSIAN

by

Elena Dmitrievna Kallestinova

An Abstract

Of a thesis submitted in partial fulfillment of the requirements for the Doctor of Philosophy degree in Linguistics in the Graduate College of The University of Iowa

July 2007

Thesis Supervisor: Associate Professor Roumyana Slabakova
ABSTRACT

The dissertation explores word order phenomena in a ‘free’ word order language, Russian. It has been proposed in the literature that in simple sentences like ‘John sees Mary’, six word orders are equally possible in Russian. The dissertation questions the equal acceptability of these word orders and shows that some of the “felicitous” word orders have a degraded status compared to others. The word order findings are based on experimental evidence from elicitation, perception and grammaticality judgment psycholinguistic studies with 237 adult native speakers of Russian. The results of the experiments demonstrate that Russian speakers have a strong preference for producing some word orders over others. For example, Russian native speakers produce transitive SVO, OVS and SOV felicitous word orders, but consistently do not produce VSO, VOS and OSV felicitous word orders, which they still recognize as acceptable, but as having a degraded grammaticality status.

On the basis of the experimental evidence and analysis of the various constituent movements within the Minimalist Program approach, a model of grammar is proposed which adds a pragmatic component responsible for word order permutations. According to this model, the syntactic component of grammar generates only SVO sentences (the basic word order) in Russian. All discourse-dependent sentences result from realignment in the post-syntactic pragmatic component. In contrast to the hierarchical structure of syntax, the pragmatic component of grammar has a linear structure and operates with Optimality Theory-type constraints determining the optimal output word order in a particular discourse structure. The underlying assumption of this model is that this pragmatic component is present in all languages. However, the language specific ranking of the constraints in this component results in word order variations. In contrast to the previous structural approaches to word order permutations in Russian, the proposed model has obvious advantages. The model accounts not only for grammaticality and
ungrammaticality, but also for the degraded grammaticality of different word order permutations in Russian. In addition, this approach accounts for the variation between ‘fixed’ word order languages like English and ‘free’ word order languages like Russian.

Abstract Approved: ____________________________________

Thesis Supervisor

Title and Department

Date
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CERTIFICATE OF APPROVAL

PH.D. THESIS

This is to certify that the Ph.D. thesis of

Elena Dmitrievna Kallestinova

has been approved by the Examining Committee for the thesis requirement for the Doctor of Philosophy degree in Linguistics at the July 2007 graduation.

Thesis Committee:  

___________________________________  

Roumyana Slabakova, Thesis Supervisor

___________________________________  

William D. Davies

___________________________________  

Elena Gavruseva

___________________________________  

Paula M. Kempchinsky

___________________________________  

Richard R. Hurtig
To my parents, my husband and my children
«Корова молоко даёт»
А нужно всё наоборот:
«Даёт корова молоко!»

... 
А я сижу в тетрадь гляжу-
За буквой букву вывожу:
«Да-ёт ко-ро-ва мо-ло-ко»!

Да! Стать учёным не легко!

“A cow milk gives”
It should have been the other way around:
“Gives a cow milk!”

... 
And I am sitting, starring at my notebook,
Drawing letter by letter:
“Gives a cow milk”.

Oh well, it’s not easy to become a scientist.

Sergei Mikhalkov
From his poem “Calligraphy”
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ABSTRACT

The dissertation explores word order phenomena in a ‘free’ word order language, Russian. It has been proposed in the literature that in simple sentences like ‘John sees Mary’, six word orders are equally possible in Russian. The dissertation questions the equal acceptability of these word orders and shows that some of the “felicitous” word orders have a degraded status compared to others. The word order findings are based on experimental evidence from elicitation, perception and grammaticality judgment psycholinguistic studies with 237 adult native speakers of Russian. The results of the experiments demonstrate that Russian speakers have a strong preference for producing some word orders over others. For example, Russian native speakers produce transitive SVO, OVS and SOV felicitous word orders, but consistently do not produce VSO, VOS and OSV felicitous word orders, which they still recognize as acceptable, but as having a degraded grammaticality status.

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<td>person marker</td>
</tr>
<tr>
<td>sg.</td>
<td>singular number</td>
</tr>
<tr>
<td>pl.</td>
<td>plural number</td>
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<td>masc.</td>
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<tr>
<td>Instr.</td>
<td>instrumental case</td>
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<tr>
<td>Foc.</td>
<td>focus</td>
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<td>Top.</td>
<td>topic</td>
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<tr>
<td>Q</td>
<td>question particle</td>
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<td>DIS</td>
<td>distributive preposition</td>
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CHAPTER 1
THE WORD ORDER IN RUSSIAN: BASIC FACTS

1.1 Introduction

It is well known that Russian has a relatively free word order. Given a simple sentence, it has been argued that the constituents can appear in any order, as in (1).

1. a. Boris navestil Ivana. SVO
    Boris-Nom. visited Ivan-Acc.
    ‘Boris visited Ivan.’

b. Boris Ivana navestil. SOV

c. Ivana navestil Boris. OVS

d. Ivana Boris navestil. OSV

e. Navestil Boris Ivana. VSO

f. Navestil Ivana Boris. VOS

A great number of studies have shown that the linear order of constituents in Russian does not encode grammatical information, i.e., subject and object relationship (Mathesius 1964; Firbas 1964, Sgall 1972, Hajičová 1974, Isačenko 1976a, 1976b, Yokoyama 1986, Krylova & Khavronina 1988, Comrie 1989, among others). The grammatical function of each constituent, e.g., which constituent is the subject and which is the object, can usually be deduced from the case marking: subjects are in the nominative case, objects are in the accusative case, goals are in dative, etc. Essentially, the appearance of a particular word order depends on the discourse. For example, the answer to the question in (2) has SVO word order with ‘neutral’ intonation, while the question in (3) can be answered with OVS word order with ‘neutral’ intonation.

2. a. Kogo navestil Boris?
    Whom visited Boris-Nom.
    ‘Whom did Boris visit?’
b. Boris navestil Ivana
   Boris-Nom. visited Ivan-Acc.
   ‘Boris visited Ivan-Foc.’

3. a. Kto navestil Ivana?
    Who navestil Ivan-Acc.
    ‘Who visited Ivan?’

b. Ivana navestil Boris
   Ivan-Acc. visited Boris-Nom.
   ‘Boris-Foc. visited Ivan.’

The question in (2a) asks about the person whom Boris visited. This presupposes that both the speaker and the hearer know Boris. The information that the speaker and the hearer share in common is called ‘old information’ or topic. Hence, Boris is the topic of (2b). At the same time, the answer in (2b) gives the name of the person whom Boris visited – Ivan. The ‘new information’ for the hearer is called focus. Thus, in (2b) Ivan is the ‘new information’ or focus of the sentence. Similarly, the question in (3a) asks about the visitor of Ivan, so in the answer in (3b) it is now Ivan who is the topic while Boris is focus. Hence, the word order is not free in Russian, but is rather determined by such discourse functions as topic and focus.

Following Yokoyama (1986), I will assume that topic is the “shared matter of common concern” for the speaker and the hearer, i.e., the old information that the speaker and the hearer have in common. Focus, on the contrary, is the new (non-presupposed) part of a sentence. The topic-focus structure of a sentence will be referred to as the discourse structure.

1.1.1 Emotive and Non-Emotive Sentences in Russian

It has long been noticed that stress and intonation have a complicated effect on the word order in Russian and are closely related to the discourse structure of a sentence. For
example, in the answer to the question in (3a) the focus can be marked not only by the word order through the sentence-final position, as in (3b), but also by intonation, as in (4).

4.  a.  Kto navestil Ivana?
   Who visited Ivan-Acc.
   ‘Who visited Ivan?’

   b.  BORIS navestil Ivana
   Boris-Nom. visited Ivan-Acc.
   ‘Boris-Foc. visited Ivan.’

In (4b) the focus is marked by sentential stress on the word ‘Boris’ and the stressed focus is fronted to the beginning of the sentence. This shows that there are two types of sentences in Russian: sentences with neutral intonation, as in (3b), and emphatic sentences, as in (4b).

The interaction between the word order and the intonation is accounted by different terminology, but all researchers recognize the two way distinction between utterances with emphatic stress and without it in Russian. The sentences without emphatic focal stress will further be referred to as non-emotive sentences (King 1995). These sentences can be described by a rising contour tone Low High (LH) concluded by a falling tone High Low (HL). The second type is sentences with emphatic focal stress, which will be referred to as emotive sentences. This is a cover term for a number of

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1 I will use capitalization to mark emphatic focal stress.

2 Kovtunova (1976) distinguishes between “stylistically neutral literary speech” and “expressively-colored speech”. Yokoyama (1986) distinguishes between Type I and Type II intonation in Russian, where Type I utterances are without emphatic focal stress and Type II utterance bear emphatic focal stress. King (1995) distinguishes between non-emotive and emotive sentences in Russian.

3 Low High (LH) intonation contour tone is used to show that the intonation rises from Low tone to High tone. Likewise, High Low (HL) intonation contour tone describes a decrease of intonation from High tone to Low tone.
intonation contours that all share a single fundamental feature – an emphatic falling HL tone on the focus constituent.

1.1.2 Bipartite vs. Tripartite Discourse Structure

The fact that word order together with intonation reflect discourse functions in Russian has been the subject of numerous books and articles on Russian. Most of the studies show that Russian sentences consist of two parts (bipartite analyses): an anchor and a part containing new information. The major traditional approaches within bipartite analyses are Topic Focus Articulation and Functional Sentence Perspective (Mathesius 1947, 1964, Firbas 1964, Adamec 1966, Sgall 1972, Daneš 1974, Hajičová 1974, Kovtunova 1976, Krylova & Khavronina 1988). According to these approaches, a Russian sentence consists of two parts: a theme and a rheme or a topic and a comment. In the default case, the first part of the sentence constitutes the information that the speaker and the hearer share in common, i.e. ‘old information’. The second part of the sentence consists of the ‘new information’ for the hearer. Different discourse functions affect the semantics and pragmatics of the sentence and restrict the environments in which a clause with a particular word order can appear.

However, the bipartite analysis to the sentence is problematic in several respects (Firbas 1964, Vallduví 1992, King 1995, Brun 2001). First, the two-way split of a sentence (into theme-rheme or topic-comment) is not enough to account for all possible information splits of the sentence. In particular, within the theme-rheme or topic-comment approach, the role of the verb, which is not always part of the focus in a sentence, is not clear. This led Firbas (1964) to propose that the verb plays a transitional role between the theme and the rheme. In addition, it has been noticed that the rheme can have a complex structure (Krylova & Khavronina 1988, Vallduví 1992). For example, there are postverbal noun phrases or prepositional phrases which cannot be described as topics, as illustrated in (5).
5. a. Kto razbil vazu?
   Who broke vase.Acc.
   ‘Who broke the vase?’

b. Vazu razbila molotkom Olja.
   ‘Olya-Foc. broke the vase with a hammer.’

The example in (5) shows that the instrumental noun phrase *molotkom* ‘hammer-Instr.’ cannot be considered as topic since it is not part of the speaker’s and the hearer’s shared knowledge. However, the instrumental phrase cannot be considered as focus either since it is not what the question in (5a) is asking about. This non-topic material was labeled discourse-neutral information.

Based on the shortcomings of the bipartite analysis, Vallduví (1992) proposed a tripartite analysis of a sentence. A sentence in his analysis consists of a mandatory focus, and the ground, while the latter is subdivided into a link and a tail. Similar to Vallduví (1992), King (1995) proposed a three-way division of a sentence into topic, discourse-neutral information and focus.

Following King (1995), I will assume that a sentence in Russian consists of topic, discourse-neutral information and focus. The discourse structure in non-emotive sentences is *topic – discourse-neutral information – focus*. In emotive sentences focus precedes the discourse-neutral information and is always marked by focal stress. In my dissertation, I will focus mostly on simple intransitive, transitive and ditransitive sentences which do not contain discourse-neutral information; however, I assume that discourse-neutral information can optionally be present in the sentences.

1.1.3 Thetic vs. Discourse-Dependent Sentences in Russian

The discourse structure of a sentence has certain requirements on the presence of topic, discourse-neutral information and focus in Russian. Each sentence must
obligatorily have an overt focus, while the presence of an overt topic or discourse-neutral information is optional. Thus, sentences may consist entirely of focus material, as in (6).

6. a. Čto proizošlo/ slučilos’?
   What happened/ occured
   ‘What happened?’

b. Olja razbila vazu.
   Olya-Nom. broke vase-Acc.
   ‘Olya broke a vase.’

The answer in (6b) lacks an overt topic and discourse-neutral information and contains only new information. Such sentences are called thetic sentences (also known as all focus, discourse-initial or presentational). On the other hand, sentences that contain topic information known to the speaker and hearer are called discourse-dependent sentences. An example of a discourse-dependent sentence is given in (7).

7. a. Kto razbil vazu?
   Who broke vase-Acc.
   ‘Who broke the vase?’

b. Vazu razbila Olja.
   vase-Acc. broke Olya-Nom.
   ‘Olya-Foc. broke the vase.’

c. OLJA razbila vazu.
   Olya-Nom. broke vase-Acc.
   ‘Olga-Foc. broke the vase.’

The non-emotive answer in (7b) and the emotive answer in (7c) have the same discourse structure. They both contain topics vazu ‘vase-Acc.’ and razbila ‘broke’ and focus Olya. Depending on the function of the focus constituent, discourse-dependent sentences can be subject focus, object focus, verb focus, etc. (7) is an example of a subject focus sentence.
1.1.4 External and Internal Topics in Russian

There are two types of topics in Russian (King 1995, Bailyn 1995). One type, called external topics, is a left-dislocated structure, which is characterized by a prosodic break. An external topic is not an argument of the verb, although it is usually coreferential with an argument. The examples are given in (8).

8. a. Vazu, ja ejo razbila.
    Vase-Acc. I-Nom. it-Acc. broke
    ‘Vase-Top., I broke it.’

    b. Musyka Glinki, ja ejo obožaju.
       music-Nom. Glinka-Gen. I-Nom. it-Acc. admire
       ‘Music by Glinka-Top., I admire it.’

    The data in (8) show that external topics are coreferential with argument pronoun ejo ‘it-Acc.’ in the sentence and may appear either in the nominative or accusative case.

    Internal topics, on the contrary, are not separated from the rest of the sentence prosodically. Essentially, internal topics are arguments of the verb, as illustrated in (9).

    Vase-Acc. I broke
    ‘I broke-Foc. the vase.’

    b. Muzyku Glinki ja obožaju.
       ‘I admire-Foc. music by Glinka.’

    The most important difference between external and internal topics is that only latter can appear after complementizers, as demonstrated in (10).

10. a. Mama znaet, čto vazu ja razbila.
    Mother-Nom. knows that vase-Acc. I-Nom. broke.
    ‘Mother knows that I broke-Top. the vase.’
b. *Mama znaet, čto vazu ja ejo razbila.

Mother-Nom. knows that vase-Acc I-Nom. it-Acc. broke.

‘Mother knows that I broke-Top. the vase.’

The data in (10) show that internal topics are acceptable in embedded clauses, while external topics are unacceptable. Based on the differences above, it was proposed that external topics are based-generated in a position adjoined to CP, while internal topics are part of the clause (King 1995, Bailyn 1995). I will not discuss external topics in my dissertation and henceforth will refer to internal topics as simply topics.

1.1.5 Types of Focus in Russian

The presence of different types of focus has been an issue of controversy in Russian and requires special attention. The focus in non-emotive sentences is called information focus (Kiss 1998) also known as new information focus (King 1995), right focus (Bailyn 1995), neutral focus (Zybatow & Mehlhorn 2000) or word order focus (Brun 2001). In spite of the different terminology, it is generally agreed that information focus introduces new information to the hearer, appears at the right periphery of the sentence and is characterized by a falling tone, as shown in (11b).4

On the other hand, in emotive sentences, the focused constituent is characterized by emphatic stress on a constituent usually fronted to sentence-initial or sentence-medial position (King 1995, Kiss 1998, Meinunger 2000). This type of focus is called identificational focus (Kiss 1998) or intonation focus (Bailyn 1995), as in (11c). Following Kiss (1998), I assume that the constituent called identificational focus

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4 King (1995) distinguishes a presentational focus as another type of focus, the purpose of which is to introduce new referents into the discourse. As with information focus, presentational focus appears clause finally. Since there is not much difference between information and presentational foci in terms of their syntactic characteristics and intonation pattern, the two will be considered as one type.
represents the value of the variable bound by an abstract operator expressing exhaustive identification.

11. a. Kto razbil vazu?
   Who broke vase-Acc.
   ‘Who broke the vase?’

b. Vazu razbila Olja.
   Vase-Acc. broke Olya-Nom.
   ‘Olya-Foc. broke the vase.’

c. OLYA razbila vazu.
   Olya-Nom. broke vase-Acc.
   ‘Olya-Foc. broke the vase.’

It is important to notice that informational focus is often confused with contrastive focus in Russian. For example, King (1995) assumes that foci always have contrastive reading in emotive sentences. However, calling all types of foci in emotive sentences contrastive is not accurate in Russian (see also Borovikoff 2001 for similar ideas). Indeed, contrastive focus is used to contrast information existing in the previous discourse where the focused material belongs to a closed set known to the hearer, as in (12).

12. a. BORIS razbil vazu?
   Boris-Nom. broke vase-Acc.
   ‘Was it Boris who broke the vase?’

b. Net, OLJA razbila vasu.
   No Olya-Nom. broke vase-Acc.
   ‘No, Olya-Foc. broke the vase.’

In emotive sentence (12b), the focus Olya is contrasted with other potential perpetrators and entails the correction of (12a). Thus, contrastive foci have the following
property: they should be specific and known to the speaker and the hearer, i.e. be related to some entity pre-established in the discourse (Enç 1991).5

However, not all emotive sentences have this property. In fact, the focus in the emotive sentence in (11c) introduces new information to the hearer, which does not select an item from a closed set of entities. I will call this type of focus as emphatic information focus. Emphatic information focus should be considered as a sub-type of identificational focus, which introduces new information to the hearer and is characterized by an emphatic stress. The types of focus in Russian are summarized in (13).

13. Types of focus in non-emotive and emotive sentences

<table>
<thead>
<tr>
<th>Focus</th>
<th>Information</th>
<th>Identificational</th>
</tr>
</thead>
<tbody>
<tr>
<td>(non-emotive sentences)</td>
<td></td>
<td>(emotive sentences)</td>
</tr>
<tr>
<td>1. Emphatic information</td>
<td></td>
<td>2. Contrastive</td>
</tr>
</tbody>
</table>

1.1.6 Summary of the Basic Word Order Facts in Russian

It has been shown that the word order in Russian is determined by the discourse structure of sentences. The only sentences where the word order is not determined by the discourse structure are thetic sentences where all information is in the scope of focus. In

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5 Zybatow & Mehlhorn (2000) introduce another type of focus, which they call the Verum-Focus. This type of focus emphasizes the truth of the predicate and also has the property of selecting an item from a closed set of entities, as shown in (i) (from Zybatow and Mehlhorn (2000: 419).

i  a. Mne bylo očen’ smešno, kogda ja uznala, čto tvoj djadja zaxotet kupit’ sebe dom v Italii. On že vsegda ele-ele svodil koncys koncami. ‘I was quite amused when I heard that your uncle was going to buy himself a house in Italy. As we know, he has hardly enough money to get by on.’

b. No eto tak. KUPIL moj djadja etot dom. ‘But it is true. My uncle DID buy this house.’

The data in (i) show that the focused verb has been mentioned in the discourse. Since, the verum-focus is very close to contrastive focus in terms of syntactic, semantic and prosodic characteristics, it will be considered as a sub-type of contrastive focus.
all other types of sentences the word order depends on the topic, discourse-neutral information and focus structure. Emotive sentences have topic – discourse-neutral information - focus structure and emotive sentences can have focus fronted to sentence-initial or sentence-medial position. Now I will turn to an overview of existing analyses of the word order in Russian.

1.2 Overview of Existing Analyses

There are three major approaches to the word order in Russian, which could be described as a functional approach, a pragmatic approach and a structural approach. The first approach, which I call functional, describes the role of discourse functions such as topic and focus in the formation of word order. The second approach to the word order in Russian, a pragmatic approach, accounts for the word order in Russian in terms of knowledge sets that the information in the sentence represents (Yokoyama 1986). Finally, the structural approach, determines the syntactic structure of constituents in sentences within the traditions of the generative grammar by Chomsky (1981, 1993, 1995, 2000, 2001). In contrast to the functional approach, which focuses on the information structure of a sentence, the structural approach shows a correlation between the syntactic structure and the information structure. Each of the three approaches will be briefly discussed in the following subsections.

1.2.1 Functional Approach

The functional approach was primarily developed by the Prague School of Functionalists (Mathesius 1947, 1964, Firbas 1964, Adamec 1966, Sgall 1972, Daneš 1974, Hajičová 1974, among many others). There are numerous contributions of this approach to the word order theory. One of its most prominent findings is that the word order together with intonation reflects discourse functions in Russian.

The starting point for describing the discourse structure was introduction of a bipartite analysis of a sentence. Mathesius, as one of the founders of the Prague
Linguistic Circle, laid the foundation for a sentence division into theme and rheme. Theme was defined as known information in a given situation and rheme represented new and informative part of a sentence. The theme-rheme dichotomy was developed and modified by a number of linguists such as Daneš (1964, 1970, 1974), Firbas (1964), Adamec (1966). Another bipartite division of a sentence is into topic and comment where topic is the part of the sentence the speaker wants to give some information about and comment is the rest.

However, the limitations related to the bipartite division (see section 1.1.3) led to new concepts in the discourse structure of a sentence. One of such concepts was transition between theme and rheme introduced by Mathesius (1947). The tripartite division of a sentence into theme-transition-rheme brought Firbas (1964) to the idea of Communicative Dynamism. He argues that new information is more important and, therefore, more dynamic, than the known information. So the communicative force gradually increases from the beginning of the sentence to its end.

The idea of tripartite analysis was further developed by Vallduví (1992) who divides the sentence into the ground and the mandatory focus where the ground part consists of a link and a tail. In the recent literature, the tripartite analysis takes the form of topic – discourse-neutral information – focus (King 1995, Babyonyshev 1996, Brun 2001, among others).

In sum, the functional approach had a significant role in developing the theory of word order in Russian introducing and developing the notions of discourse structure and tripartite division of the sentence into topic-discourse-neutral information-focus.

1.2.2 Pragmatic Approach (Yokoyama 1986)

The pragmatic approach developed by Yokoyama (1986) attempts to identify the role of word order in the structure of an utterance by dividing information into classes
relevant for discourse. These classes are composed of four knowledge sets and their intersections, given in (14).

14. a. Knowledge sets

A - Speaker A’s knowledge set
B - Addressee B’s knowledge set
Ca - A’s matter of current concern
Cb - B’s matter of current concern

b. Intersections of the knowledge sets = classes of knowledge

\[ Ca \cap Cb \] - the shared matter of current concern;

\[ Ca \cap (B-Cb) \] - the knowledge present in addressee B’s knowledge set but not in the set of B’s current concern;

\[ A \cap (Ca-B) \] - the knowledge outside the addressee B’s knowledge set.

Yokoyama claims that the intersections of the knowledge sets are ordered in a particular way. This is presented in the diagram in (15).6

15. The order of knowledge classes in declarative sentences

<table>
<thead>
<tr>
<th>Referential items found in the addressee’s set of the current concern ( C_b ) ( Ca \cap Cb )</th>
<th>Referential items found in ( A \cap B ), but not in the set of the current concern ( Ca \cap (B-Cb) )</th>
<th>Referential items outside the addressee’s knowledge set ( A \cap (Ca-B) )</th>
</tr>
</thead>
</table>

The diagram in (15) shows that the linear order of knowledge sets in declarative sentences is fixed. Sentences start with the knowledge that in speaker’s assessment represents interest for both the speaker and the addressee (the matter of current concern \( Ca \cap Cb \)) and end with the knowledge outside of the addressee’ knowledge set, i.e. new

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6. The order of constituents discussed in this section refers only to non-emotive sentences.
knowledge for the addressee. Although Yokoyama does not divide the sentence information directly into topic, discourse-neutral information and focus, she specifies that “The location of referential knowledge in $C_a \cap C_b$ could, in fact, be adopted as a formal definition of [...] Topics or Themes in traditional descriptions of Russian word order” (Yokoyama 1986: 235). Hence, Yokoyama admits that $C_a \cap C_b$ could be considered as a definition for topic. Moreover, referential items which are found in $A \cap B$, but not in the set of current concern correlate with the discourse-neutral information. Furthermore, the referential items outside the addressee’s set of knowledge may be considered as focus. Thus, the word order represented by knowledge sets can be mapped into the tripartite system of the functional approach.

In sum, one of Yokoyama’s contributions is that she examines how pragmatic factors such as knowledge sets are encoded into the word order in simple sentences in Russian. In particular, she shows that any sentence starts with the information known and of concern to both the speaker and the hearer. This set is then followed by the information known to both the speaker and the hearer, but representing concern for the speaker only. Finally, a sentence ends in the information unknown to the hearer. Hence, using two variables such as novelty of information and concern about this information, Yokoyama accounts for the variations in word order in Russian.

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7 The presented order of constituents can alter. In discourse-initial sentences the alternation is triggered by the speaker’s imposition of personal empathy and anthropological empathy. In non-discourse-initial sentences the alternation results from the speaker’s imposition of personal empathy and the history of demotions into the set of matters of shared current concern. The factors that could influence the assessed word order in a sentence are listed below:

- the speaker’s imposition of personal empathy (expression of the speaker’s relationship with the participants of the narrated event),
- the speaker’s imposition of anthropological empathy, i.e. grammatical relations (animate >> inanimate) or deep semantic roles (Agent >> DO >> Goal >> Instr)
- the history of demotions into the set of matters of shared current concern.

For more details on the alternations of the assessed word order see Yokoyama (1986, chapters 8-9).
In addition, she provides a definition of topic as an intersection of matters of the speaker’s and the addressee’s shared concern \((C_a \cap C_b)\), which is used as a formal definition of topic in many analysis, including King’s (1995) syntactic analysis of Russian word order. Compared to other definitions of topic (cf. Halliday 1967, Chafe 1976, Kiss 1993), this definition allows multiple items to be topics simultaneously. Thus, this definition works very well for Russian where multiple topics are allowed.

However, neither the functional approach nor the pragmatic approach elucidates the relationship between the word order and the syntactic structure of the sentence, i.e. how this word order is derived. For instance, they do not show the mechanism that derives SVO order in (16) and OVS order in (17).

16. a. Kogo  uvidel  Boris?
    Whom  saw   Boris-Nom.
    ‘Whom did Boris see?’

   b. Boris            uvidel  Ivana
    Boris-Nom. saw   Ivan-Acc.
    ‘Boris saw Ivan.’

17. a. Kto uvidel Ivana?
    Who saw Ivan-Acc.
    ‘Who saw Ivan?’

   b. Ivana        uvidel Boris
    Ivan-Acc. saw Boris-Nom.
    ‘Ivan was seen by Boris.’

For the data above, the functional and pragmatic approaches determine that (16b) and (17b) are similar in terms of their discourse structure: topic-focus. However, they do not account for why the subject is in the preverbal position in (16b) and how it gets to the postverbal position in (17b). At the same time, the direct object occurs in the preverbal
position in (17b) and stays in postverbal position in (16b). This issue is addressed by structural approaches to the word order in Russian, which will be discussed next.

1.2.3 Structural Approach

The question about the relationship between word order and the syntactic structure of a sentence was approached by syntactic analyses of the word order in Russian. The most complete and detailed analyses are in King (1995), Bailyn (1995), Kondrashova (1996) and Junghans and Zybatow (1997).

All these analyses agree that the word order in Russian is determined by discourse functions of topic and focus which are encoded in the syntactic structure. In terms of how topic and focus are encoded in syntax, the syntactic analysis of Russian word order could be divided into two types.

- configurationally determined S-structure slots for topics and foci (King 1995, Junghans and Zybatow 1997);

Each of the analyses will be briefly reviewed below.

1.2.3.1 King (1995)

King (1995) analyzes word order in Russian as a result of overt movement to certain structural positions associated with discourse functions. Following analyses of Bulgarian (Rudin 1985), Hungarian (Kiss 1987, Horvath 1986) and Mayan (Aissen 1992) sentence structure, King (1995) proposes that certain syntactic positions are associated with topic and focus in Russian. She argues that constituents move not just to get case or inflectional features, but also to receive discourse function interpretations.

In thetic sentences, where there is no overt topic, King assumes that the basic word order is VSO derived as a result of the obligatory verb movement to I and the subject and the object staying in situ. In discourse-dependent sentences, topics appear
before the verb, but after complementizers, wh-phrases in Spec CP and verbs that undergo head-movement to C. So internal topics must be in a structural position lower than C, but higher than I, in which finite verbs appear. In addition, it should be a position where multiple topics are allowed (Yokoyama 1986, King 1995). Hence, King claims that the topic position is a position left-adjoined to IP.

In non-emotive sentences, there is only the structural position for topic while focus is not encoded by movement to a particular position. Instead, focus is marked intonationally by the falling tone that appears clause-finally. King proposes that focus is represented by feature [+F] which appears on a phrase structure node over which it has scope. In this case, the falling tone demarcates the right edge of the constituent marked with the feature, as shown in (18) (from King 1995: 130).

18. a. What happened to the paintings?
   b. Neskol’ko kartin [priobrel mestnyj muzej]-Foc.
      A few paintings acquired local museum
      ‘The local museum acquired a few of the paintings.’
   c. Who acquired the paintings?
   d. Neskol’ko kartin priobrel [mestnyj muzej]-Foc.
      A few paintings acquired local museum
      ‘The local museum acquired a few of the paintings.’

In (18b) the focused constituent is the verb and the subject and in (18d) the focused constituent is the subject only. To account for the difference in the focus scope, King suggests that in (18b), the focus feature percolates to the level of I’ and takes the scope over the verb (under the assumption that the verb raises to IP) and the subject in situ. In (18d), she argues that the postverbal subject moves out of VP and right-adjoins it. The right-adjunction analysis of the postverbal subject in (18d) is required based on the VOS sentences, as in (19) (from King 1995: 132).

19. a. Who bought a dress?
b. Kupila plat’e Inna
   Bought dress-Acc. Inna-Nom.
   ‘Inna-Foc. bought the dress.’

The only way to obtain the VOS order in (19) is for the subject to move out of Spec VP. This suggests the right-adjunction to VP.

In emotive sentences, the sentence stress can fall on any constituent, but there is a strong tendency for the stressed item to be immediately before the verb. Based on that, King proposes that while topics are adjoined to IP, identificational focus constituents are in Spec of IP. She recognizes that foci can appear in other positions, yet she claims that the identificational (contrastive in her analysis) focus nature of Spec IP makes the movement of foci to this position optimal.

In sum, the analysis by King (1995) is built on the idea that there are fixed structural positions for topic and identificational focus in Russian, which are left-adjoined IP and Spec, IP positions respectively. The information focus does not have any structural position, but when postverbal subjects are in the scope of focus, they have to move outside the VP to a right-adjoined position. Finally, in thetic sentences, King argues for the VSO basic word order where the verb moves to I and the arguments stay in situ.

1.2.3.2 Junghanns and Zybatow (1997)

Another analysis arguing for a fixed structural position of the discourse function of topic is introduced in Junghanns and Zybatow (1997). Similar to King, they argue that certain syntactic positions are associated with particular discourse functions. For them the topic position is the adjoined position to AgrSP (above TP and below CP) where subject, object and other elements can move likewise. Furthermore, following King’s analysis, they assume a focus feature [F] which can be associated with different syntactic domains (DP, VP or CP) of information focus. Moreover, in case of postverbal subjects with
narrow information focus, Junghanns and Zybatow (1997) assume the right-adjointed position.

However, unlike King, they do not accept a verb raising analysis and argue that all syntactic features are weak in Russian. Yet, they state that there is a word order optionality in thetic sentences, as in (20)-(21) (from Junghanns and Zybatow 1997:308).

20. a. V čom delo? Čto proisxodit?
   ‘What is the matter? What is going on here?’
   b. Lajut sobaki.
   Bark-3sg. dogs-Nom.pl.
   ‘The dogs bark.’
   c. Sobaki lajut.

21. a. V čom delo? Čto proisxodit?
   ‘What’s the matter? What happened?’
   b. Umer Ivan.
   Died-Past.masc.sg. Ivan-Nom.pl.
   ‘Ivan died.’
   c. Ivan umer.

In order to account for the optionality of SV and VS word orders in Russian thetic sentences, they propose that even when there is no overt topic in Russian, temporal reference of the event can function as topic. Thus, they claim that overt movement is induced by requirements of a special abstract level of representation, the Information Structure. This is reflected in syntax by obligatory verb raising to T in thetic VS sentences.

In addition, they do not bind indentificational focus (which they call contrastive focus) to a particular syntactic position (as King does), but rather realize it by means of a syntactic feature [Fc]. Using the Copy Theory of Movement (Chomsky 1993, 34 ff), they show that the whole phrase with indentificational focus feature is copied up in the tree, as
shown in (22a), then the operator undergoes a raising operation, as in (22b), and deletion derives the linear order in (22c) (from Junghanns and Zybatow 1995:312).

22. a. on \([}\text{DP složnyj vopros}\] zadal \([}\text{DP složnyj vopros}\].

          b. on \([]\text{[složnyj]} [\text{DP t vopros}]\] zadal \([]\text{[složnyj]} [\text{DP t vopros}]\].

          c. on \([]\text{[složnyj]} [\text{DP t vopros}]\] zadal \([]\text{[složnyj]} [\text{DP t vopros}]\]. =
          = On sloznyj zadal vopros.

The examples in (22) show that identificational focus elements, similar to wh-phrase operators, undergo raising and deletion operation deriving the linear order.

In brief, Junghanns and Zybatow’s (1997) analysis builds on the idea that overt movement in Russian is due to requirements of Information Structure. Topic is configurationally determined in Russian and is left-adjointed to AgrSP. Focus (information and identificational) does not have any structural position in Russian and is represented by feature \([+F]\) which appears on a phrase structure node over which it has scope. In case of indentificational focus, the constituent bearing the feature undergoes raising. Finally, in thetic sentences the overt movement may be triggered by the Information Structure requirements where the null temporal reference can function as topic. As a result, this may cause verb movement to T.

1.2.3.3 Bailyn (1995)

Another approach to the word order problem in Russian is presented in Bailyn’s Generalized Tree Splitting hypothesis. Bailyn (1995) proposes a distinct level of functional representation (Functional Form). He claims that Russian arranges in the surface syntax certain linguistic relations that other languages represent post-syntactically where post-syntactic representation can be related to two distinct levels, Logical Form (LF) and Functional Form (FF). This is shown in (23) (from Bailyn 1995: 272).
Similar to LF, FF accounts for the distinction in surface characteristics between English and Russian. Following Kiss (1994), Bailyn assumes the two universal parameters for the surface word order in languages and adds a third parameter. The parameters are given in (24) (from Bailyn 1995: 269).

24. a. a language may or may not express grammatical relations by S-structure configurations;
   b. a language may or may not express logical relations by S-structure configurations;
   c. A language may or may not express functional relations by S-structure configurations.

Parameter (24c) shows that in some languages, such as English, topic-focus relations are expressed at LF, while in Russian they are expressed overtly.

In addition, positing the FF level accounts for the functional ambiguity in languages. This is shown in (25) (from Bailyn 1995: 270, originally from Selkirk 1984).

25. a. Mary watched Kojak.
   b. What did Mary watch?
   c. What did Mary do?
   d. What happened?

The data in (25) illustrate that depending on the context (the question), the scope of focus in (25a) can be different. This ambiguity is resolved at the FF level where the scope of focus in (25a) is determined.
Following Diesing (1992), Bailyn proposes the Generalized Tree Splitting hypothesis as a universal principle of the human linguistic equipment which occurs on the way to the Function Form level. The Tree Splitting Hypothesis operates on a number of rules. The rules are given in (26) (from Bailyn 1995: 319).

26. a. Tema (=theme) identification rule
   All material not marked [+F] is part of the Tema and receives the feature [+T]

b. Focus Raising
   All material marked [+F] is adjoined to PredP

c. Tema (=theme) Raising
   All material marked [+T] is adjoined to IP/CP.

The derived Generalized Tree Splitting is shown in (27), where α and β represent the notions of topic and focus, respectively.

27. Generalized Tree Splitting (from Bailyn 1995: 319)

\[
\begin{array}{c}
\text{IP} \\
\text{YP}_k [+T] \quad \text{IP} \\
\text{I'} \\
\text{I}
\end{array}
\quad \quad
\begin{array}{c}
\text{PredP} \\
\text{XP}_1 [+R] \\
\text{PredP}_k \\
\ldots \text{t}_i \ldots
\end{array}
\]

α clause

β clause

In non-emotive sentences, the topic constituent receives the feature [+T] and adjoins to IP/CP. In addition, the rules determine the focus material which receives the feature [+F] and adjoins to upper VP (=PredP in Bailyn’s analysis). In emotive sentences, a constituent with emphatic stress receives the feature [+SF]. The feature [SF] is a type of [+F] feature, but it differs in that it disallows percolation up the tree. The
constituent with [+SF] feature is then moved to the appropriate position at FF and the sentence receives the FF representation. Thus, using a Generalized Tree Splitting hypothesis, Bailyn (1995) accounts for Russian word order in emotive and non-emotive sentences.

In thetic sentences, Bailyn argues that the sentence structure rules derive SVO word order and then the feature [+F] is assigned to the sentence-final constituent and percolates to the top of the structure marking all constituents in the structure as [+F] constituents. Hence, only SVO is allowed in thetic sentences.

To sum up, in contrast to King (1995) and Junghanns and Zybatow (1997), Bailyn’s (1995) analysis does not tie topic and focus to any particular structural positions in a sentence. Different word orders result from the Functional Form level rules applying to the syntactic structure. Compared to other languages where these rules apply covertly, Russian requires that the FF rules apply before Spell-out. As a result, topic and focus features, [+T] and [+F] respectively, are assigned to all constituents in a sentences. The identificational focus in emotive sentences receives [+SF] feature, which is a type of [+F] feature. The constituents marked by [+T] feature adjoin to IP/CP domain while constituents bearing [+F] feature adjoin to PredP. In thetic sentences, the word order is determined by sentence structure rules and focus scope depends on [+F] feature, which may percolate from the sentences final constituent up to the top of the structure.

1.2.3.4 Kondrashova (1996)

Kondrashova (1996) proposes that there is another level of representation where discourse principles apply, called I-structure. The primary function of I-structure is to distinguish new information from old or given information. Focusing of new information is signaled by Focus-marking (F-marking), and given information belongs to the topic and gets Topic-marked (T-marked). Another function of I-structure is expressed through the Alignment Principle when T-marked elements are moved to precede F-marked
elements in a clause. The movements at I-structure are subject to the Economy principle, i.e., the derivation that has the minimum number of movements is allowed, and all others crash. The schematic representation of the grammar is given in the diagram in (28).


In contrast to D-structure and I-structure, S-structure is viewed by Kondrashova (1996) not as a level of representation which corresponds to any fixed stage of the derivation, but rather as a spell out domain, i.e., “a domain on the abstract derivational path from D-structure to I-structure” (Kondrashova 1996:120). She argues that languages differ with respect to the spell-out domain: the freer the word order in a language, the closer S-structure in this language to its I-structure representation.

In addition, Kondrashova assumes that the PF level forks off at whatever point in the derivation the spell out occurs, so that the PF rules apply to the surface structure.

LF is viewed in her analysis is a separate level of representation from I-structure which branches off in the middle of the derivation path, before I-structure movements come into play. This correctly predicts that word order scrambling, which is an I-structure process, will not affect the quantificational relationships, which are a result of LF component. This is illustrated in (29) (from Kondrashova 1996: 113-114).

29. a. Žurnaly on prinjos vse.

Magazines.Acc. he-Nom. brought all.

‘He brought all the magazines.’
b. Morkovku Maša redko est.
carrot-Acc. Masha-Nom. seldom eats
‘Masha seldom eats carrots.’

The data in (29) show that accusative NPs scramble out of their QPs, but are interpreted as being within the scope of their quantifiers. This supports the idea that the LF level, where the reconstruction occurs, splits before the surface scrambling takes place.

Based on her diagram in (28), Kondrashova (1996) attempts to account for the word order permutations in emotive and non-emotive sentences in Russian, as in (30).

30. a. Kolja PISM’O poslal Maše.
Kolya-Nom. letter-Acc. sent Masha-Dat.
‘Kolja sent Masha-Top. a letter-Foc.’

b. Kolja pis’mo poslal Maše.
Kolya-Nom. letter-Acc. sent Masha-Dat.
‘Kolja sent a letter-Top. to Masha-Foc.’

In both examples in (30), the accusative argument *pis’mo* ‘letter’ is moved from its VP internal position to a pre-verbal position. However, the two sentences differ in their discourse structure and have different prosodic pattern. In (30a), the moved object is the indentificational focus and bears an emphatic stress, while in (30b) the moved object is the topic and the sentence has a non-emotive intonation. To account for the difference in the two types of moved objects, Kondrashova introduces two types of scrambling: ‘Focus scrambling’ (F-scrambling) and ‘Neutral scrambling’ (N-scrambling). F-scrambling is the movement of F-marked elements, as in (30a), and N-scrambling is the movement of T-marked elements, as in (30b).

Kondrashova claims that N-scrambling is motivated by I-structure of the sentence where T-marked constituents scramble to comply with the alignment principle. To prove this, she provides an unscrambled version of the sentence in (30b), given in (31).
31. #Kolja poslal Maše-Foc. pis’mo-Top.
   Kolya-Nom. sent Masha-Dat. letter-Acc.
   ‘Kolja sent a letter-Foc. to Masha-Foc.’

   In (31), the F-marked indirect object Maše ‘Masha-Dat.’ precedes the T-marked
direct object pis’mo ‘letter-Acc.’, so that the structure is in violation of the alignment
principle. The movement of the accusative theme to the left would repair the I-structure
representation and, therefore, is obligatory.

   In contrast to N-scrambling, F-scrambling is used to disambiguate I-structures.
Following Selkirk (1984, 1995), Kondrashova assumes that only heads or complements
can project focus, while elements in specifier positions or adjuncts do not project focus.
This means that in a sentence with focus on the sentence-final complement, as in (32),
focus can be projected further up the structure. As a result, the interpretation can be
different depending on how high up the structure focus is allowed to project.

32. Kolja poslal Maše pis’mo.
   Kolja-Nom. sent Masha-Dat. letter-Acc.
   ‘Kolja sent Masha a letter.’

   In (32), the sentence is ambiguous in its focus scope where F-marking is allowed
up to the highest maximal projection. In order to avoid the ambiguity, F-scrambling is
allowed. The scrambled focus constituent is in an adjoined position and as such does not
allow projecting focus up the structure. This is illustrated in (33).

33. Kolja PIS’MO poslal Maše.
   Kolja-Nom. letter-Acc. sent Masha-Dat.
   ‘Kolja sent Masha a letter.’

   In (33), the accusative argument is scrambled and is no longer in the complement
position. As a result, it can only be interpreted as constituent focus and cannot project
focus to other elements in the structure, i.e., (33) cannot be an answer to the question
‘What happened?’ Hence, F-scrambling and N-scrambling are two different processes.
F-scrambling is optional and occurs with new information elements to disambiguate I-structures. N-scrambling is obligatory and occurs with given information elements to satisfy the Alignment principle.

In brief, Kondrashova’s (1996) analysis provides a grammar model which accounts for the word order permutations in emotive and non-emotive sentences in Russian. According to this model, the grammar is viewed as a derivational path from D-structure to I-structure with S-structure as a spell out domain during this path. LF and PF are considered as separate levels which branch off at a certain point in the derivation. LF branches off before I-structure movements and PF forks off at the time of the spell out. In non-emotive sentences, the word order is determined by I-structure where T-marked elements precede F-marked elements. The movement of constituents to fulfill the Alignment Principle is a case of obligatory N-scrambling. In emotive sentences, F-scrambling is used to disambiguate I-structure and to bar projecting focus up the structure. Finally, thetic sentences are predicted to have an unscrambled word order where focus is projected to the highest maximal projection.

1.2.3.5 Summarizing Notes on the Structural Approach

In the previous sections, four analyses representing the structural approach have been considered. All these analyses share one common feature, i.e., they incorporate the discourse notions of topic and focus into syntactic representation. Some of them (King 1995; Junghanns and Zybatow 1997) encode the discourse notions through a specific position for topic and focus in the syntactic structure. Others (Bailyn 1995, Kondrashova 1996) do it through a separate level of representation, such as Functional Form or I-structure. Importantly, however, they all assume that the surface word order is a result of the syntax spell-out, i.e., whatever structure is derived by syntax goes to PF interface.
1.3 Predictions and Assumptions of the Structural Analyses of Russian

The discussed analyses are based on different assumptions and make different predictions regarding word order in Russian. Although all of the analyses are based on the data elicited or tested by native speakers of Russian, the grammaticality judgments and predictions about word order in Russian vary. Let us consider this in more detail.

In order to account for word order in Russian, an analysis must account for word order in thetic and discourse-dependent sentences. This is a very important distinction since thetic sentences present all focus information and the word order in those sentences is not constrained by topic – discourse-neutral information – focus structure, as in discourse-dependent sentences. Interestingly, the analyses discussed above make different predictions regarding these sentences.

In thetic sentences, illustrated in (34)-(35) with transitive and unergative verbs respectively, there is no overt topic and the sentences contain only new information.

34. a. Čto slučilos’?
   ‘What happened?’

   b. Olja razbila vazu.
      Olya-Nom. broke vase-Acc.
      ‘Olya broke a vase.’

   c. Razbila Olja vazu.

35. a. Čto proixodit na kartinke?
   ‘What is on the picture?’

   b. Deti igrajut.
      Children-Nom. play
      ‘Children are playing.’

   c. Igrajut deti.
Hence, the sentences in (34)-(35) raise a question about how the word order is determined in those sentences. This question receives different answers depending on the analysis.

King (1995) argues that sentences composed of entirely focused material occur invariably with the subject following the verb. To account for thetic sentences, King proposes that the verb moves to IP and the subject stays in situ. This means that according to King’s analysis only VS(O), as in (34c) and (35c), are possible in thetic contexts.

Junghanns and Zybatow (1997), on the contrary, claim that Russian has two surface options for the sentences consisting of all focus information: one with the subject in preverbal position and the other with the subject in postverbal position. They claim that in case of preverbal subjects, the subject moves to Spec IP (Spec, Agr₃P in their analysis). In case of postverbal subjects, the verb moves to I (T in their analysis). Hence, they argue that both SV(O) and VS(O), as in (34b), (34c), (35b), (35c) are possible in Russian.

Moreover, Bailyn (1995) in his tree-splitting account shows that only constituents assigned [+T] (T=topic) feature move outside the VP domain and adjoin IP/CP domain. Hence, in case of thetic sentences the verb and its arguments stay in situ and, therefore, should be in SVO order. This means that Bailyn’s analysis predicts that only SV(O), as in (34b) and (35b), are possible in thetic contexts. Similar to Bailyn, Kondrashova’s (1996) analysis predicts that thetic sentences have unscrambled word order, i.e. SV(O).

Hence, as we see above, the four analyses make different predictions regarding the word order in thetic sentences. These predictions should be tested to determine which word order is used as thetic sentences with different types of predicates in Russian.

In discourse-dependent sentences, all analyses agree that the word order is determined by topic – discourse-neutral information – focus structure in non-emotive sentences and fronted focus in emotive sentences. However, there are discrepancies
between the analyses above acceptability of particular word orders within different types of discourse structure (subject focus structure, object focus structure, verb focus structure, etc.) Let us consider this on example of a subject focus transitive sentence, as in (36).

36. a. Kto razbil vazu?

   Who broke vase

   ‘Who broke the vase?’

b. Vazu razbila Olja.

   vase-Acc. broke Olya-Nom.

   ‘Olya-Foc. broke the vase.’

c. Razbila vazu Olja.

d. OLJA razbila vazu.

e. Razbila OLJA vazu.

Given that the question in (36a) asks about the subject, the answers in (36b)-(36e) represent all potential word orders where the subject Olja is focus and the verb and the direct object are topics. In non-emotive sentences, as in (36b)-(36c), the topics precede the focus, while in emotive sentences, as in (36d)-(36e), the focus is fronted.

Importantly, all analyses discussed above assume that both non-emotive OVS and VOS orders, as in (36b) and (36c), are equally acceptable in Russian. The analyses differ only in the mechanics of their derivations. For example, King (1995) and Bailyn (1995) propose that OVS is derived by the object left-adjoining IP and VOS is derived by the subject right-adjoining VP (or PredP in Bailyn). The only difference between the two analyses is that King argues that the verb moves to I while for Bailyn, the verb stays inside PredP. Junghanns and Zybatow (1997) derive OVS by left-adjoining the object to AgrSP, which is the topic position. In VOS, they claim that the object is in Spec AgrP position while the verb raises to TP above AgrP. Kondrashova (1996) accounts for the two word orders by showing that in OVS and VOS both the verb and the object scramble outside VP.
In emotive answers, as in (36d) and (36e), some variation is observed. King has a strong preference to (36d), which in her analysis is derived by the subject moving to SpecIP, a position for contrastive focus. For Bailyn (1995), Kondrashova (1996), and Junghanns and Zybatow (1997), the two emotive word orders are equally possible. In addition, most of these analyses (except for Kondrashova) predict that the choice between non-emotive and emotive sentences is optional in Russian. However, in Kondrashova’s (1996) analysis, emotive sentences with scrambled focus constituent are used to disambiguate focus and are predicted to be preferred by speakers.

In brief, the example with a subject focus transitive sentence in Russian reveals that both OVS and VOS are assumed to be equally acceptable in Russian. However, as shown above, the analyses provide different derivations for non-emotive OVS and VOS sentences. Under the assumption that a certain derivation corresponds to a particular interpretation, OVS and VOS are expected to be different in their interpretations. Yet, no interpretational difference is observed in these two word orders. Similarly, 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. This leads to the issue of the degrees of acceptability of the two word orders which I am going to test in my dissertation. In the same way, it should be tested if there is any preference of speaker to particular emotive word orders in Russian and if emotive word orders (as disambiguating) are preferred over non-emotive ones.

Finally, the analyses discussed above vary considerably in their account of the verb position in Russian. The verb movement in Russian will receive a significant attention in chapter 3 where the tense feature will be discussed. However, it is still important to mention that the views on the verb position in Russian have not been unified. For instance, King (1995) argues that the verb obligatorily moves to I in Russian. Junghanns and Zybatow (1997) claim that in discourse-dependent sentences the verb does not move since the verb feature is weak in Russian, but they suggest that in thetic
verb-initial sentences, the verb moves to T. Bailyn (1995) and Kondrashova (1996) propose that the verb stays in situ in both discourse-dependent and thetic sentences in Russian. It will be shown in chapter 3 that the adverb placement could be a very good indicator of the verb movement in Russian, as is the case in many other languages (Pollock 1989). Hence, it is also important to test experimentally the position of the adverb with respect to the verb with different word orders in Russian.

1.4 Organization

The dissertation is organized as follows. In chapter 2, I present three psycholinguistic studies. The first two studies are aimed at ascertaining the adult word order in production and perception. The third study used a grammaticality test on adverb position in a sentence to check the verb movement.

The production study on word order investigates which intransitive, transitive and ditransitive word orders monolingual adult native speaker of Russian produce in thetic and discourse-dependent contexts. Forty-seven native speakers were tested in the elicitation experiment in the Moscow and Samara area of Russia. The study reveals that Russian adult speakers have preference for particular word orders, i.e., speakers consistently produce some word orders and do not produce others.

As a follow-up study, the perception study investigates how native speakers of Russian evaluate different transitive word orders in discourse-dependent contexts. In this study, seventy-eight adult speakers of Russian were tested in the Central Area of Russian (Moscow, St. Petersburg, Yaroslavl’, Saratov, Samara) and in Iowa City, USA. This study examines how speakers evaluate the word orders which were not produced during the first study compared to the word orders with high frequency.

The third study investigates the issue of adverb position in Russian sentences. During this study, 112 native speakers Russian and 30 native speakers of English (as a control group) were tested to determine the grammaticality of adverb positions in
different word orders in Russian. The adverb position is important for understanding the structural position of constituents in a sentence, for example, the position of the verb. Thus, the findings of the three psycholinguistic studies will address the controversies created by different word order analyses of Russian and will lay the foundation for building the syntactic analysis of Russian word order. By testing a sufficient number of native speakers on production and perception, I put my subsequent discussion of Russian word order on a solid experimental basis. The experimental findings allow me to test the proposed hypotheses, as well as build an analysis accounting for the word order facts.

In chapter 3, I discuss the features required to account for word order in Russian within a later Minimalist approach, the Derivation by Phase (Chomsky 2000, 2001). In particular, I show that the accusative and nominative cases are valued through Agree between the uninterpretable φ-features of v and T, respectively, and the matching interpretable features of the goal. The analysis of the verb feature of T reveals that the verb does not move to T in Russian and the verb feature of T is valued through Agree. Furthermore, I show that the EPP is category neutral in Russian and is checked by any XP in Spec TP through the operation Move. Finally, in order to account for the rich aspectual morphology in Russian, I propose that aspectual features are checked in AspP located between vP and VP.

Then, in chapter 4, I analyze how the syntactic features discussed in chapter 3 allow generating the basic word order in intransitive, transitive and ditransitive sentences in Russian. However, in the second part of that chapter, I argue that neither a feature-driven approach nor a p-movement approach by Zubizarreta (1998) allow us to account for the discourse-dependent word order in Russian.

Finally, in chapter 5, I introduce a new analysis of word order in Russian. I argue that the narrow syntax component generates only the basic word order. This word order is input to another component of grammar, i.e., the pragmatic component, where discourse notions of topic and focus are assigned to the structure. Depending on the intentions of
the speaker, the assigned features may be encoded either directly through prosodic means such as intonation and stress or through word order. If the speaker chooses to use prosodic means for marking topic and focus features, the structure with assigned topic and focus features moves to PF directly where the prosodic rules work out the surface structure. On the other hand, if the speakers choose to use word order strategy to encode topic and focus, then OT-type constraints determine the most optimal outcome. I conclude the dissertation by showing that the model accounts for transitive and intransitive word orders as well as the adverb position data.
2.1 Objectives of the Psycholinguistic Experiments

To test the theoretical predictions and obtain the data regarding Russian word order in transitive and intransitive sentences, three psycholinguistic experiments were performed with Russian native speakers. The experiments were designed in the form of an elicitation test, a perception test and a grammaticality judgment test. The psycholinguistic experiments had the following objectives.

First, the experiments were designed to obtain the data with different word order permutations. In particular, the elicitation test provided contexts for thetic and discourse-dependent word orders and intended to obtain production data with all possible word orders. The perception experiment was designed to test how adults perceive the word orders that they used in the production and the ones that they did not use when these word orders were given in appropriate contexts. The grammaticality judgment test was aimed at determining the grammaticality evaluations of sentences with adverbs in different positions.

Second, the experiments were designed to test the theoretical predictions and assumptions discussed in chapter 1. For example, the existing analyses of the Russian word order make different predictions regarding thetic sentences. So the experiment with native speakers was designed to determine the word order in thetic sentences with different types of verbs (transitive, ditransitive, unergative and unaccusative). In discourse-dependent sentences, the existing analyses predict optionality of certain emotive and non-emotive word orders. For instance, in subject focus transitive sentences, the analyses predict non-emotive OVS and VOS and emotive word orders with sentence-initial and sentence-medial focused subjects. Hence, the experiment was to test if all these word orders have equal degree of acceptability. Finally, the existing analyses make different predictions regarding
the verb movement in Russian. Since adverb placement test is a good indicator of the position of the verb in a sentence, the grammaticality judgment test was used to determine the acceptability of adverbs in different positions.

2.2 Elicitation Experiment

2.2.1 Subjects

Forty-seven adult monolingual speakers of Russian were tested in the elicitation experiment in the Moscow and Samara area of Russia. The average age for adults was 39.9. Most of the speakers (34/47) had a university degree; the remaining 28% (13/47) had a community college degree or a high school diploma. The distribution of adults’ gender and age are given in Table 1.

Table 1. The distribution of adults’ gender and age in the elicitation experiment.

<table>
<thead>
<tr>
<th></th>
<th>Moscow Area</th>
<th></th>
<th>Samara Area</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Females</td>
<td>Males</td>
<td>Females</td>
<td>Males</td>
</tr>
<tr>
<td>19-29</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>30-39</td>
<td>11</td>
<td>5</td>
<td>3</td>
<td>2</td>
</tr>
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<td>40-49</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>50-older</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>10</td>
<td>10</td>
<td>8</td>
</tr>
</tbody>
</table>

2.2.2 Methods

Each subject was shown colored pictures scanned from children books and adapted for the test using Adobe Photoshop software on a screen of a laptop computer in the format of a Power Point presentation. Before the test, a sample presentation consisting of 3 pictures (not included in the test) was shown to each subject. Each subject was instructed to
answer the questions with one complete sentence; however, the subjects were not explicitly
told that the experiment targeted at word order. After the sample presentation, the subjects
could voluntarily begin the experiment. There were two versions of the experiment (A and
B) which differed only in the order of the pictures. The responses were digitally recorded
and transcribed.

2.2.2.1 Types of Target Sentences in the Elicitation Experiment

The pictures and the questions were designed to control the argument structure, the
discourse structure and the scope of the responses. Each of the controlled variables is
discussed below.

First, the pictures were designed to elicit four types of sentences, given in (1).

1. The argument structure in target sentences:
   Type 1. Simple transitive sentences.
   Type 2. Simple ditransitive sentences.
   Type 3. Intransitive unergative sentences.
   Type 4. Intransitive unaccusative sentences.

   The pictures were pre-tested with native speakers of Russian to make sure that the
   required argument structures can be elicited through the images on the pictures.

   Second, the questions that accompany the pictures were supposed to elicit sentences
   with different discourse structure. The target responses were thetic (all focus) sentences and
discourse-dependent sentences with topic - discourse-neutral information - focus structure.

   In order to elicit thetic sentences the subjects were asked a question “What
   happens/happened in the picture?” In order to elicit discourse-dependent sentences, the
   subjects were asked a question about the subject, about the verb or about the object (direct
   or indirect), as in Table 2.
Table 2. Types of questions and expected WOs in discourse-dependent target sentences.

<table>
<thead>
<tr>
<th>Target sentences</th>
<th>Question types</th>
<th>Sample question</th>
<th>Expected WOs in response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intransitive</td>
<td>Questions to the S</td>
<td>Who is sleeping?</td>
<td>VS</td>
</tr>
<tr>
<td></td>
<td>Questions to the V</td>
<td>What is the boy doing?</td>
<td>SV</td>
</tr>
<tr>
<td>Transitive</td>
<td>Questions to the S</td>
<td>Who is biting cabbage?</td>
<td>OVS or VOS</td>
</tr>
<tr>
<td></td>
<td>Questions to the O</td>
<td>What is the rabbit biting?</td>
<td>SVO or VSO</td>
</tr>
<tr>
<td></td>
<td>Questions to the V</td>
<td>What is the rabbit doing with cabbage?</td>
<td>SOV or OSV</td>
</tr>
<tr>
<td>Ditransitive</td>
<td>Questions to the S</td>
<td>Who is handing a jar to the donkey?</td>
<td>IO V DO S or IO DO V S; DO IO V S or DO V IO S; V IO DO S or V DO IO S</td>
</tr>
<tr>
<td></td>
<td>Questions to the DO</td>
<td>What is handing the goat to the donkey?</td>
<td>S V IO DO or S IO V DO; IO S V DO or IO V S DO; V S IO DO or V IO S DO</td>
</tr>
<tr>
<td></td>
<td>Questions to the IO</td>
<td>Whom is the goat handing a jar?</td>
<td>S V DO IO or S DO V IO; DO S V IO or DO V S IO; V DO S IO or V S DO IO</td>
</tr>
</tbody>
</table>

Finally, the questions were designed to control the scope of focus: the direct object or the verb with its complement. The questions in (2)-(3) illustrate how the different scopes of focus can be elicited.

2. a. Čto gryzjot zajac?
   What bites rabbit
   ‘That is the rabbit biting?’

   b. Zajac gryzjot [kapustu]- Foc.
   Rabbit-Nom. bites-Pres.sg. cabbage-Acc.
   ‘The rabbit is biting [cabbage]- Foc.’

3. a. Čto delajet zajac?
   What does rabbit
   ‘That is the rabbit doing?’
b. Zajac   [gryzjot kapustu]-Foc.
Rabbit-Nom. bites-Pres.sg. cabbage-Acc.
‘The rabbit is [biting cabbage]-Foc.’

In (2b), the focus has scope over the NP kapustu ‘cabbage-Acc.’, and in (3b) the scope of the focus is over the verb and its direct object - gryzjot kapustu ‘is biting cabbage’.

Thus, the controlled variables are aimed at eliciting different word orders in transitive and intransitive sentences with different discourse-dependent structures and focus scope. The number of target sentences for each type is given in Table 3.

Table 3. Types and number of target non-emotive sentences.

<table>
<thead>
<tr>
<th>Types of target sentences</th>
<th>Thetic sentences</th>
<th>Discourse-dependent sentences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1. Transitive</td>
<td>6</td>
<td>6 with V and O as the focus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 with S as the focus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 with O as the focus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 with V as the focus</td>
</tr>
<tr>
<td>Type 2. Ditransitive</td>
<td>7</td>
<td>6 with S as the focus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 with DO as the focus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 with IO as the focus</td>
</tr>
<tr>
<td>Type 3. Unergative</td>
<td>6</td>
<td>6 with S as the focus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 with V as the focus</td>
</tr>
<tr>
<td>Type 4. Unaccusative</td>
<td>6</td>
<td>6 with S as the focus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 with V as the focus</td>
</tr>
</tbody>
</table>

The subjects were expected to produce 91 sentences. The question samples and the expected answers for each type of the pictures are provided in Appendix A.
It is important to notice that the questions control the word order of the responses only to some degree. For example, the question “Who is biting cabbage?” to the picture with a rabbit biting cabbage may be responded with an OVS word order, as in (4a), or with a VOS word order, as in (4b).

4. Kto gryzjot kapustu?
   Who bites-3sg. cabbage-Acc.
   ‘Who is biting cabbage?’
   a. Kapustu gryzjot zajac. - Non-emotive OVS
      Cabbage-Acc. bites-3sg. rabbit-Nom.
      ‘A rabbit is biting cabbage.’
   b. Gryzjot kapustu zajac. - Non-emotive VOS

   In addition, the variation of responses could also be related to the emotiveness of responses. If a speaker uses a non-emotive sentence as an answer to the question in (4), then the topic – discourse-neutral information - focus structure is expected. However, if a speaker uses an emotive sentence in the answer, then a fronted focus with sentential stress can appear. This is shown in (5).

5. Kto gryzjot kapustu?
   Who bites-3sg. cabbage-Acc.
   ‘Who is biting cabbage?’
   a. ZAJAC gryzjot kapustu. - Emotive SVO
      Rabbit-Nom. bites-3sg. cabbage-Acc.
      ‘A rabbit-Foc. is biting cabbage.’
   b. ZAJAC kapustu gryzjot - Emotive SOV
   c. Kapustu ZAJAC gryzjot - Emotive OSV
   d. Gryzjot ZAJAC kapustu - Emotive VSO

   The data in (5) show that the word order may vary in emotive sentences. In (5a) and (5b), focus appears in sentence-initial position where the emotive responses have an SVO
and SOV word orders, respectively. In (5c) and (5d), the focus appears in sentence-medial position and the possible word orders are OSV or VSO, respectively. In order to capture the distinction between non-emotive responses in (4) and emotive responses in (5), the intonation and stress in the responses were analyzed.

2.2.2.2 Analysis Procedures

The speakers’ answers were transcribed by the experimenter and coded for emotiveness and the word order. In order to distinguish emotive and non-emotive sentences, the sentences were analyzed for intonation and stress. The emotiveness of the responses was analyzed in the transcripts by the syntagmatic stress and the intonation contour of the response. If a response had a rising contour tone Low High (LH) concluded by a falling tone High Low (HL) on a sentence-final constituent, then the response was analyzed as non-emotive (Borovikoff 2001). In emotive sentences, the intonation contour had a sharply falling contour on a sentence-initial or sentence-medial element. Moreover, as shown by Borovikoff (2001), all lexical material following a stressed item is pronounced with the low tone. Thus, during the transcription process, the sentence-initial or sentence-medial stressed constituents were marked as focus and their position in the sentence was registered. However, not all sentences with dislocated stressed constituents were analyzed as emotive. To evaluate the degrees of sentence emotiveness, the focal stress in sentences was scaled from 0 to 3. The value “3” was assigned to sentences with strong dislocated focal stress and low tone of the material following the focus. The value “0” was assigned to sentences with no dislocated focal stress and intonation contour of a non-emotive sentence.

In order to guarantee high accuracy of the coding procedure, the coding process was performed in three steps. During the first step, the data were transcribed and coded for the word order without emotiveness being marked. During the next step, the transcripts were checked for accuracy and coded for emotiveness on a scale from 0 to 3. Finally, during the
third step, the emotiveness coding was checked for accuracy. The three-step procedure significantly increased the reliability of the coding process.

After the responses were coded for emotiveness and the word order, only complete answers were included in counts. To be considered a complete answer, an intransitive sentence was supposed to have a subject and a verb; a transitive sentence was expected to have a subject, a verb and an object. In ditransitive sentences, a subject, a verb, a direct and an indirect object were required. The intransitive sentences with a cognate object and transitive sentences with an implicit object were excluded from counts.

Moreover, some speakers occasionally answered questions using infinitivals (e.g., *Muravej xochet pit’* ‘The ant wants to drink’, or *Devochka dajot mishke kushat*’ ‘A girl is giving the bear to eat’). Since it is difficult to predict whether infinitivals behave the same way as NP objects in word order permutations, the answers with infinitivals were excluded from counts.

In addition, negative sentences involve the projection of NegP and result in cliticization of the negative particle to the verb in Russian (Bailyn 1995, Babyonishev et al. 2001, among others). To avoid a potential difference of word order permutation in negative and positive sentences, the former were excluded from counts as well (*On nikak morkov’ ne vytaschit*. ‘He cannot pull out the carrot’).

Furthermore, if a subject produced several full sentences meeting the criteria, all those sentences were included in counts. If a subject produced a complete transitive sentence for a ditransitive picture, the sentence was included in counts as a full transitive sentence. The same was done for other types of sentences within the same discourse structure.

Finally, after the answers were grouped into transitive, ditransitive and intransitive classes, all intransitive sentences were classified as either unaccusative or unergative based on two semantic and four syntactic diagnostics, given in Table 4.
Table 4. Unaccusative vs. unergative diagnostics used in the experiment

<table>
<thead>
<tr>
<th>Diagnostics</th>
<th>Unaccusative</th>
<th>Unergative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Agentivity of the argument</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>2. Causative alternation</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>3. Genitive-of-negation</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>4. First conjunct agreement</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>5. Distributive po-phrases</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>6. Prefixing with na-‘V a lot’ and pere/po-‘V all’</td>
<td>yes</td>
<td>no</td>
</tr>
</tbody>
</table>

The examples of sentences with the unaccusative diagnostics are given in (6-11).

6. Agentivity of the argument (Levin and Rappaport Hovav 1994)

Unergative verbs take agentive arguments while unaccusative verbs take non-agentive arguments.

   a. Yabloko upalo. Non-agentive unaccusative
      Apple-Nom.sg. fell-Past-neut.sg.
      ‘An apple fell.’

   b. Jožik pojot. Agentive unergative
      Hedgehog-Nom.sg. sings
      ‘A hedgehog is singing.’

7. Causative alternation (Levin and Rappaport Hovav 1994)

Unaccusative verbs participate in the causative alternation while unergative verbs do not.

   a. Mal’chik lopnul sharik. – Sharik lopnul.
      Boy-Nom.sg. burst bubble-Acc.sg. Bubble-Nom.sg. burst-out
      ‘A boy burst a bubble.’ ‘A bubble burst out.’

      ‘Father laughed a boy.’ ‘A boy laughed.’
8. Genitive of negation (Pesetsky, 1982; Neidle 1988, among many others)
Only unaccusative, but not unergative verbs allow the genitive of negation.
   a. Ni odnogo gostja ne priexalo.
      not single guest-Gen.sg. Neg. arrived
      ‘Not a single guest arrived.’
   b. *Ni odnogo parikmaxera ne rabotalo v subbotu.
      No single barber-Gen.sg. Neg worked in Saturday
      ‘Not a single barber worked on Saturday.’

9. First conjunct agreement (Babyonyshev 1996)
Unaccusative verbs when followed by a two conjoined nominative subjects allow
agreement with the first conjunct only, while unergative verbs disallow the first conjunct
agreement and require plural agreement.
   a. Na stole stojala chashka i stakan.
      ‘A cup and a glass stood on the table.’
   b. *V zale pel mal’chik i devochka.
      In hall sang-Past.masc.sg. boy-masc.sg. and girl-fem.sg.
      ‘A boy and a girl sang in the hall.’
   c. V zale peli mal’chik i devochka.
      In hall sang-Past.masc.pl. boy and girl
      ‘A boy and a girl sang in the hall.’

10. Po-phrases (Pesetsky, 1982; among many others)
Distributive po-phrases are restricted to unaccusative verbs, but are disallowed with
unergative verbs.
   a. S kazhdogo dereva upalo po yabloku.
      From each tree fell po apple-Dat.sg.
      ‘An (different) apple fell from every tree.’
b. *V kazhdoj komnate prygaet po mal’chiku.
   In every room jumps po boy-Dat.sg.
   ‘A (different) boy is jumping in every room.’

11. Prefixing with na- ‘V a lot’ and pere/po-‘V all’ (Borik 1995, Schoorlemmer 1995)
Unaccusative verbs prefixed with na- or pere/po- can appear with quantified subjects
(mnogo ‘many’, vse ‘all’); however, unergative verbs cannot appear in this construction.
   a. Mnogo travy naroslo v partke.
      Much grass grew in park
      ‘A lot of grass has grown in the park.’
   b. *Mnogo detej naigralo v parke.
      Many children played in park
      ‘Many children have played in the park.’

   Based on the unaccusative diagnostics above, those predicates that revealed
   consistent unaccusative or unergative behavior (passed 4 tests or more) were included in
   counts; those verbs that were questionable (passed three tests only) were discarded from
   counts. The list of unaccusative and unergative verbs used in the experiment is provided in
   Appendix B. The results are presented below.

2.2.3 Elicitation Experiment Results

In total, 1119 complete thetic sentences and 3155 complete discourse-dependent
sentences were analyzed during the elicitation experiment with adults. First, the results
regarding the word order in intransitive sentences will be discussed. These results will be
followed by the results in transitive and ditransitive sentences.

2.2.3.1 Russian Word Order in Intransitive Sentences

   All together, 671 unaccusative sentences and 1039 unergative sentences were
   included in counts. The summary of the elicited types of sentences is given in Table 5.
The analysis of thetic sentences reveals that unaccusative verbs allow optionality in the word order where both preverbal subjects SV(PP) and postverbal subjects (VS, PP VS, VS PP) are allowed. Unergative verbs, on the contrary, show a strong tendency to be used with SV(PP) word orders. The asymmetry between unaccusative and unergative word orders is illustrated in Table 6.

Table 6 shows that in contrast to unergative thetic sentences where the word orders with the subject in pre-verbal position are used in 92.2% of the cases, unaccusative thetic
sentences have only 63.5% of SV (PP) sentences and 36.5% of sentences with postverbal subjects.

To determine whether the word orders in unaccusative and unergative sentences were significantly different, a paired two-tailed t-test analysis was performed. In order to do the statistical analysis, all word orders with preverbal subjects (SV, S PP V, SV PP, PP SV) were considered as an SV group; all word orders with postverbal subjects (VS, V PP S, PP VS, VS PP) were considered as a VS group. Each subject had several responses for unaccusative condition and several responses for unergative condition. To analyze the responses, the fraction of VS was calculated for unaccusative responses and also for unergative responses for each subject. Thus, each subject’s responses were coded as a fraction for unaccusative and a fraction for unergative thetic condition. For example, if a subject produced 3 sentences with SV word orders and 3 sentences with VS word orders for unaccusative thetic condition, the fraction was assigned the value 0.5. The maximal value was 1.0 when all word orders were VS and the minimal fraction was 0 when all word orders were SV.

The results of a paired two-tailed t-test revealed that adults have a highly significant difference between unaccusative and unergative verbs (t(46) = 7.823, p<0.0001). These results suggest that adult speakers distinguish between unaccusative and unergative verbs by using SV and VS group sentences with unaccusative verbs and using mostly SV sentences with unergative verbs.

In contrast to thetic sentences where speakers produce SV and VS group sentences, in discourse-dependent sentences speakers produce SV, VS and emotive sentences. This is shown in Table 7.

Table 7 demonstrates that in subject focus sentences non-emotive SV orders are almost not used and VS orders are used in both unaccusative and unergative non-emotive sentences. In verb focus sentences, mostly SV orders are used. This distribution provides support that the discourse structure determines the word order.
Table 7. Word order in discourse-dependent intransitive sentences: unaccusatives vs. unergatives.

<table>
<thead>
<tr>
<th>Subject focus</th>
<th>Verb focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>WO</td>
<td></td>
</tr>
<tr>
<td>Unaccusative</td>
<td>Unergative</td>
</tr>
<tr>
<td>Unaccusative</td>
<td>Unergative</td>
</tr>
<tr>
<td>SV</td>
<td>7</td>
</tr>
<tr>
<td>S PP V</td>
<td>0</td>
</tr>
<tr>
<td>SV PP</td>
<td>0</td>
</tr>
<tr>
<td>PP SV</td>
<td>0</td>
</tr>
<tr>
<td>Subtotal</td>
<td>7 (3.2%)</td>
</tr>
<tr>
<td>VS</td>
<td>121</td>
</tr>
<tr>
<td>V PP S</td>
<td>0</td>
</tr>
<tr>
<td>PP VS</td>
<td>9</td>
</tr>
<tr>
<td>VS PP</td>
<td>3</td>
</tr>
<tr>
<td>Subtotal</td>
<td>133 (61.6%)</td>
</tr>
<tr>
<td>Emotive</td>
<td>76 (35.2%)</td>
</tr>
<tr>
<td>Total</td>
<td>216</td>
</tr>
</tbody>
</table>

The distribution of the used word orders in subject focus and verb focus discourse-dependent sentences is illustrated in Figure 1.

Figure 1. The distribution of word orders in unaccusative and unergative subject focus and verb focus sentences.
Figure 1 shows that in subject focus sentences, speakers produce mostly VS non-emotive sentences and SV emotive sentences. Interestingly, speakers produce VS non-emotive orders more frequently (61.6%) with unaccusative verb than with unergative verbs (44.9%).¹ The situation changes in verb focus sentences where predominantly non-emotive SV order is used with both unaccusative and unergative verbs (97.0 and 97.8%, respectively). Moreover, the data show that the speakers do not prefer to use emotive sentences which have verb-initial word order with focal stress on the verb.

To recap the results, the word order in intransitive sentences is primarily constrained by the discourse structure. In thetic (all focus) sentences the choice of the word order correlates with the unaccusative vs. unergative classification of the verb. In unaccusative thetic sentences, both SV and VS orders are used. However, in unergative thetic sentences, overwhelmingly SV order is used. In discourse-dependent subject focus sentences, speakers produce both non-emotive VS and emotive SV sentences. In discourse-dependent verb focus sentences, the SV order is predominant with both classes of verbs.

2.2.3.2 Russian Word Order in Transitive and Ditransitive Sentences

All together, 1426 complete transitive and 1138 complete ditransitive sentences were included in counts. The summary of the elicited types of sentences is in Table 8.

Table 8. The summary of elicited transitive and ditransitive sentences.

<table>
<thead>
<tr>
<th>Type of argument structure</th>
<th>Thetic structure</th>
<th>Discourse-dependent structure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Subject focus</td>
<td>Verb focus</td>
</tr>
<tr>
<td>Transitive</td>
<td>276</td>
<td>299</td>
</tr>
<tr>
<td>Ditransitive</td>
<td>280</td>
<td>154</td>
</tr>
</tbody>
</table>

¹ This difference is statistically significant ($t(46) = 5.797, p < 0.0001$) suggesting that speakers distinguish between the two classes of verbs in discourse-dependent sentences.
The results reveal that the dominant word order is SVO in thetic transitive sentences, and SV IO DO and SV DO IO in thetic ditransitive sentences. The distribution of the word orders in speakers’ responses is given in Table 9.

Table 9. Word order in speakers’ transitive and ditransitive thetic sentences.

<table>
<thead>
<tr>
<th>Transitive</th>
<th>N</th>
<th>Ditransitive</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>SVO</td>
<td>273 (98.9%)</td>
<td>SV IO DO</td>
<td>137 (48.9%)</td>
</tr>
<tr>
<td>SOV</td>
<td>1 (0.4%)</td>
<td>SV DO IO</td>
<td>130 (46.4%)</td>
</tr>
<tr>
<td>VSO</td>
<td>2 (0.7%)</td>
<td>S IO V DO</td>
<td>11 (3.9%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>VS DO IO</td>
<td>2 (0.7%)</td>
</tr>
<tr>
<td>Total</td>
<td>276</td>
<td>Total</td>
<td>280</td>
</tr>
</tbody>
</table>

Table 9 shows that out of the 6 possible transitive word order permutations, speakers produce SVO word order sentences in 98.9% of the cases. In ditransitive sentences, speakers produce SV IO DO or SV DO IO word orders in 95% of the cases, selecting these two word orders out of the 24 permutations. Interestingly, the two basic ditransitive word orders are used with equal frequency (SV IO DO – 48.9% vs. SV DO IO–46%) showing no preference between the two available structures.

In discourse-dependent sentences, the word order is primarily constrained by the discourse structure of the sentences. The subject focus sentences predominantly consist of either non-emotive subject final word orders or emotive sentences with focal stress on the subject. The verb focus sentences consist of non-emotive verb final word orders or emotive sentences with the focal stress on the verb. The object (DO or IO) focus sentences mostly consist of non-emotive object final word orders.

Interestingly, within each group of discourse structure, the data show a strong bias of speakers to particular word orders. The data is shown in Table 10.
Table 10 shows that speakers consistently use only one of the two subject final word orders in non-emotive sentences. Thus, in case of subject focus sentences out of the two expected non-emotive word orders (OVS and VOS), OVS is the one preferred. In case of verb focus sentences out of the two options, SOV and OSV, SOV is the one which is produced. Finally, in case of object focus and VO focus sentences, SVO is the one strongly preferred. These results suggest that native speakers produce three (SVO, OVS and SOV) out of the six possible word orders in Russian. It is important to notice here that the three not preferred word orders include the two verb-initial ones (VOS and VSO).

Moreover, Table 10 reveals a slight tendency of speakers to use non-emotive SVO order even in those contexts where SVO is not expected. Thus, they use non-emotive SVO order in 2.3% of subject focus sentences and in 8.4% of the verb focus sentences. This finding suggests that native speakers have a strong preference to the basic SVO order.

Finally, the results show that when the target non-emotive word order is non-SVO, speakers produce emotive and non-emotive sentences with equal frequency. However, they produce only non-emotive SVO sentences when the target word order is SVO. This means that emotiveness plays role only when SVO word order is infelicitous, as exhibited in Figure 2.

Table 10. Numbers of word orders elicited for each type of transitive discourse structure.

<table>
<thead>
<tr>
<th></th>
<th>SVO</th>
<th>VSO</th>
<th>OVS</th>
<th>VOS</th>
<th>SOV</th>
<th>OSV</th>
<th>Emotive</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject focus</td>
<td>7</td>
<td>0</td>
<td>143</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>148</td>
<td>299</td>
</tr>
<tr>
<td>Verb focus</td>
<td>25</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>121</td>
<td>2</td>
<td>151</td>
<td>299</td>
</tr>
<tr>
<td>Object focus</td>
<td>273</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>282</td>
</tr>
<tr>
<td>VO focus sentences</td>
<td>262</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>7</td>
<td>270</td>
</tr>
</tbody>
</table>

Note: the grey shading shows the expected felicitous non-emotive word orders in each type of discourse structure.
Figure 2. The distribution of word orders produced in transitive discourse-dependent sentences.

Figure 2 illustrates that speakers produce 47.8% of non-emotive OVS sentences and 49.5% emotive sentences in subject focus answers; also, they produce 40.5% of SOV and 50.5% of emotive sentences in verb focus answers. However, the speakers produce 96.8% and 97.0% of SVO sentences and only 3.2% and 2.6% of emotive sentences in object focus and VO focus sentences, respectively.

Importantly, the analysis of emotive subject focus and verb focus sentences reveals that they are mostly used with an emotive SVO word order. In emotive subject focus sentences, SVO is used in 100% of the cases where the focal stress is on the subject. In emotive verb focus sentences, the SVO is used in 96% of the cases (145/151) where the focal stress is on the verb. This proves that subjects express strong bias to the basic SVO word order.

A similar pattern is shown in ditransitive sentences (Table 11) where out of the six expected non-emotive word orders in subject focus sentences speakers produce IO V DO S...
(20.2%), IO DO VS (16.9%), DO IO VS (8.3%) and DO V IO S (3.0%). The verb initial non-emotive V IO DO S and V DO IO S are hardly produced by native speakers. In direct object and indirect object focus sentences there is a very strong tendency to produce the basic ditransitive word orders SV IO DO (71.2%) and SV DO IO (79.9%), respectively.

The second used word orders in ditransitive DO-focus and IO-focus sentences are subject initial S IO V DO (16.9%) and S DO V IO (5.4%), respectively. The verb initial word orders are not produced by the speakers.

Table 11. Numbers of word orders elicited for each type of transitive discourse structure.

<table>
<thead>
<tr>
<th></th>
<th>Subject Focus</th>
<th>DO Focus</th>
<th>IO Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>SV IO DO</td>
<td>1 (0.3%)</td>
<td>198 (71.2%)</td>
<td>0</td>
</tr>
<tr>
<td>SV DO IO</td>
<td>0</td>
<td>0</td>
<td>222 (79.9%)</td>
</tr>
<tr>
<td>S IO V DO</td>
<td>0</td>
<td>47 (16.9%)</td>
<td>0</td>
</tr>
<tr>
<td>S DO V IO</td>
<td>0</td>
<td>0</td>
<td>15 (5.4%)</td>
</tr>
<tr>
<td>IO SV DO</td>
<td>0</td>
<td>3 (1.1%)</td>
<td>0</td>
</tr>
<tr>
<td>IO VS DO</td>
<td>0</td>
<td>3 (1.1%)</td>
<td>0</td>
</tr>
<tr>
<td>IO DO VS</td>
<td>51 (16.9%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>IO V DO S</td>
<td>61 (20.2%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>DO SV IO</td>
<td>0</td>
<td>0</td>
<td>5 (1.8%)</td>
</tr>
<tr>
<td>DO VS IO</td>
<td>0</td>
<td>0</td>
<td>1 (0.4%)</td>
</tr>
<tr>
<td>DO IO VS</td>
<td>25 (8.3%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>DO V IO S</td>
<td>9 (3.0%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>VS DO IO</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>VS IO DO</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>V IO S DO</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>V DO S IO</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>V IO DO S</td>
<td>1 (0.3%)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>V DO IO S</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Emotive</td>
<td>154 (51.0%)</td>
<td>27 (9.7%)</td>
<td>35 (12.6%)</td>
</tr>
<tr>
<td>Total</td>
<td>302</td>
<td>278</td>
<td>278</td>
</tr>
</tbody>
</table>

Note: the grey shading shows the expected non-emotive word orders in each type of discourse structure.
In addition, ditransitive sentences show that in those cases when the expected non-emotive word orders are non-basic, the speakers use emotive and non-emotive sentences with equal frequency. However, if the expected word orders include the basic ones, then the frequency of emotive sentences decreases. This is shown in Figure 3.

Figure 3. The distribution of non-emotive and emotive word orders in ditransitive discourse-dependent sentences.

Figure 3 shows that in subject focus sentences where the felicitous word orders are non-basic, emotive sentences are used in 51.0% of the sentences. However, in DO and IO focus sentences where the felicitous non-emotive word orders include the basic ones (SV IO DO and SV DO IO), emotive sentences occur with significantly lower frequency (9.7% and 12.6% respectively). Importantly, 98.0% (151/154) of all emotive word orders in subject focus ditransitive sentences have the basic emotive word order (SV IO DO – 146/151 or SV DO IO – 5/151).
To summarize the results, the word order is primarily determined by the discourse structure in Russian. However, within each type of discourse structure, speakers have strong biases to particular word orders.

a. The speakers gave a very strong priority to the basic SVO/ SV IO DO/ SV DO IO word order.
   - Speakers almost exclusively use basic word orders in thetic sentences;
   - In discourse-dependent sentences, where the felicitous non-emotive word orders are non-basic such as subject focus or verb focus sentences, speakers actively use emotive sentences with basic SVO/ SV IO DO/ SV DO IO.
   - In discourse-dependent sentences, they occasionally use non-emotive SVO even when the word order is not discourse felicitous.

b. Speakers have a strong preference for word orders starting with the subject (SOV/ S DO V IO/ S IO V DO), but do not prefer starting a sentence with an object unless the subject is in the focus (OSV/ DO SV IO/ DO VS IO/ DO V IO S/ IO SV DO/ IO VS DO).

c. Speakers do not produce verb-initial transitive and ditransitive sentences.

2.2.4 Discussion

The elicitation experiment strongly supports the prediction that the word order is determined by the discourse structure in intransitive and transitive sentences. In discourse-dependent sentences, the word order is constrained by the discourse structure with *topic-discourse-neutral information - focus* in non-emotive sentences and fronted focus in emotive sentences. This suggests that the determining factor in computing word order permutations in Russian is the discourse structure. This means that a constituent appears in a particular position in a sentence based on what discourse function it receives. For instance, in subject focus sentences, OVS is the non-emotive word order and in verb focus sentences, the SOV is the non-emotive word order.
The second crucial finding is related to the fact that when the discourse structure is not determining the word order, as in thetic sentences, the word order is computed by syntactic structure rules and conditions. These rules and conditions include the syntactic configuration of the verb, i.e., the structure of vP, the EPP and the conditions on movement such as the Minimal Link Condition (MLC) (Chomsky 1995, 2000, 2001), etc. Therefore, in thetic sentences consisting of only new information, speakers produce the basic word orders (SV/ SVO/ SV IO DO/ SV DO IO) with the subject in the sentence-initial position. In intransitive thetic sentences the word order is also determined by the unaccusative vs. unergative classification of the verb, which is related to difference in the syntactic configuration of the two classes of verbs (deficient vP in unaccusative verbs vs. non-deficient vP in unergative verbs).

The third finding is related to the strong bias of speakers to particular felicitous word orders. For example, out of the two possible OVS and VOS word orders with the same subject focus discourse structure, OVS is strongly preferred. As a result, the speakers produce only three out of the six possible permutation in transitive sentences (SVO, OVS and SOV); the other three (VSO, VOS and OSV) are not produced. The same is true for ditransitive sentences where out of the 18 tested felicitous word orders only 7 appear with high frequency. The other 11 either do not appear in the data (verb initial word orders) or appear with frequency 3% or less. However, it is not clear from the experiment what the reason of the biased production is.

On the one hand, the lack of those word orders might be attributed to the speakers’ preference for some word orders over the others. Thus, when asked a question, as in (12), several alternative answers (12a-f) are expected.

12. Kto gryzjot kapustu?

Who bites-3sg. cabbage-Acc.

‘Who is biting cabbage?’
a. Kapustu gryzjot zajac. - Non-emotive OVS
   Cabbage-Acc. bites-3sg. rabbit-Nom.
   ‘A rabbit is biting cabbage.’

b. Gryzjot kapustu zajac. - Non-emotive VOS

c. ZAJAC gryzjot kapustu. - Emotive SVO

d. ZAJAC kapustu gryzjot - Emotive SOV

e. Kapustu ZAJAC gryzjot - Emotive OSV

f. Gryzjot ZAJAC kapustu - Emotive VSO

Out of the numerous alternatives, the speakers prefer (12a) and (12c). On the one hand, this biased production might signify that for some reason these two word orders are easier to compute. In this case, the speakers still consider other options grammatical and felicitous in the language. On the other hand, the speakers’ choice of particular word orders might be attributed to the unacceptability of all other word orders. In this case, they should not accept other word orders as felicitous.

To evaluate the appropriateness of the word orders which were not produced by speakers, the perception experiment was designed and carried out. Thus, the objective of the perception experiment was to determine if speakers evaluate other word orders as acceptable. The details of the experiment are discussed below.

2.3 Perception Experiment

2.3.1 Subjects

Seventy-eight adult speakers of Russian were tested in the perception experiment in the Central Area of Russia (Moscow, St. Petersburg, Yaroslavl’, Saratov, Samara) and in Iowa City, USA. The average age for subjects was 40;8. The distribution of subjects’ gender, age and residence are given in Table 12.
Table 12. The distribution of adults’ gender and age in the perception experiment.

<table>
<thead>
<tr>
<th></th>
<th>Central Russia (monolinguals)</th>
<th>Iowa City (bilinguals)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Females</td>
<td>Males</td>
</tr>
<tr>
<td>20-29</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>30-39</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td>40-49</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>50-59</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>60-older</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>20</td>
</tr>
</tbody>
</table>

The group of monolinguals included native speakers of Russian not exposed to English or other foreign languages on regular basis. The group of bilinguals included native speakers of Russian who by the time of the experiment had lived in the USA for more than two years and have been actively using English at home, at work or as students.

2.3.2 Methods

The perception experiment examined the acceptability of word order permutations in transitive sentences. The experiment included pictures (similar to those used in the elicitation test) scanned from children books and adapted for the test using Adobe Photoshop software on a screen of a laptop computer in the format of a Power Point presentation. Each of the pictures was accompanied by a question and an answer to this question. The pictures and the questions were designed to provide appropriate context for the sentences. The test contained three types of questions, as in (13).

13. The discourse structure in target sentences

Type 1. Questions about the subject \(x\) 3.

Type 2. Questions about the object \(x\) 3.

Type 3. Questions about the verb \(x\) 3.
Each question type was tested with three pictures, allowing three repeated measures for the same type of discourse structure. Moreover, each question was accompanied by one answer with a non-emotive intonation contour where the sentential stress was on the final word of the sentence. Sample pictures with questions and answers are given in Appendix C. Both questions and answers were recorded digitally in a file attached to the picture. This way all participants heard the questions and the answers with the same intonation. The questions and the answers were pre-tested to make sure that they sounded naturally.

In order to test six possible word orders, each question was repeated 6 times in the test; each time the word order of the answer was different. The design of the stimuli is shown in Table 13.

Table 13. The design of the perception experiment stimuli.

<table>
<thead>
<tr>
<th>Subject questions (3 pictures)</th>
<th>Answer 1</th>
<th>SVO</th>
<th>Answer 1</th>
<th>SVO</th>
<th>Answer 1</th>
<th>SVO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Answer 2</td>
<td>VSO</td>
<td></td>
<td>Answer 2</td>
<td>OVS</td>
<td>Answer 2</td>
<td>VSO</td>
</tr>
<tr>
<td>Answer 3</td>
<td>SOV</td>
<td></td>
<td>Answer 3</td>
<td>SOV</td>
<td>Answer 3</td>
<td>SOV</td>
</tr>
<tr>
<td>Answer 4</td>
<td>OSV</td>
<td></td>
<td>Answer 4</td>
<td>OSV</td>
<td>Answer 4</td>
<td>OSV</td>
</tr>
<tr>
<td>Answer 5</td>
<td>OVS</td>
<td></td>
<td>Answer 5</td>
<td>VSO</td>
<td>Answer 5</td>
<td>OVS</td>
</tr>
<tr>
<td>Answer 6</td>
<td>VOS</td>
<td></td>
<td>Answer 6</td>
<td>VOS</td>
<td>Answer 6</td>
<td>VOS</td>
</tr>
<tr>
<td>Verb questions (3 pictures)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Object questions (3 pictures)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 13 shows that the testing items included three types of questions, where each question appeared in the test six times (each time followed by an answer with a different word order). Moreover, each question type was represented by three pictures. Hence, 54 stimuli sentences were used in total. Examples of stimuli are given in (14).

14. a.  Kto  gryzjot  kapustu?  Question about the subject
        Who  bites  cabbage
        ‘Who is biting cabbage?’
b. Kapustu gryzjot zajac. Stimulus with non-emotive OVS
cabbage-Acc. bites-3sg. rabbit-Nom.
‘A rabbit-Foc. is biting cabbage.’
c. Kto gryzjot kapustu? Question about the subject
Who bites cabbage
‘Who is biting cabbage?’
d. Kapustu zajac gryzjot Stimulus with non-emotive OSV
cabbage-Acc. rabbit-Nom bites-3sg.
‘A rabbit is biting cabbage.’

The examples show that non-emotive (14b) is expected to be accepted as felicitous by native speakers; however, non-emotive (14d) is expected to be rejected by native speakers since the focus of the sentence zajac ‘rabbit-Nom.’ is not in the sentence-final position. I will refer to the answers that are expected to be accepted as expected felicitous and the answers that are expected to be rejected as expected infelicitous.

In addition, 18 fillers were added (12 felicitous and 6 infelicitous). Fillers consisted of pictures accompanied by a question not related to the three types of sentences. They included the questions to the VO in transitive sentences or to adjuncts in intransitive sentences. All answers to the filler pictures were made non-emotive, but felicitous or infelicitous similar to stimuli. Examples of fillers are given in (15).

15. a. Chto delaeet devochka?
What does girl
‘What is the girl doing?’
b. Devochka podmetaet pol. Felicitous filler
Girl-Nom. sweeps-3sg. floor-Acc.
‘The is eating-Foc porridge.’
c. Chto delaet devochka?
   What does girl
   ‘What is the girl doing?’

d. Kashu devochka kushaet. Infelicitous filler
   Porridge-Acc. girl-Nom eats-3sg.
   ‘The girl is eating-Foc porridge.’

The subjects were supposed to rate the naturalness of the response to the questions on a 5-point scale by saying their score (from 1, which is the least acceptable, to 5, which is completely acceptable). The scale is provided in (16).

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>unacceptable answer</td>
<td>acceptable answer</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The stimuli sentences and fillers were carefully shuffled and presented to a speaker in the form of a Power Point presentation. Before the test, a sample presentation consisting of 3 pictures (not included in the test) was shown to each subject. During this presentation each subject was instructed how to score the answers. After the sample presentation, the subject could voluntarily begin the experiment. There were two versions of the experiment (A and B) which differed only in the order of the pictures. The responses were digitally recorded and transcribed. The results are discussed below.

2.3.3 Perception Experiment Results

The results revealed that the speakers evaluated the filler sentences with very high accuracy. When evaluating fillers, the speakers were expected to assign score 5 to 12 felicitous fillers and score 1 to 6 infelicitous ones. For each correctly assigned value, the speakers received 5 points. One point was subtracted for each wrong point on the scale. This means that if a speaker assigned 4 to a felicitous answer, the speaker received 4 points for that answer; if the speaker assigned 4 for an infelicitous answer, the speaker received 2 points. If the speakers answered as expected, they were given 90 points (=100%). The
average accuracy for all speakers was 95.6%; the average accuracy of the Central Russia
speakers was 95.4%; the accuracy of the Iowa City Russian speakers was 96.1%.

2.3.3.1 Group Results

The data were analyzed using a non-parametric ANOVA (Kruskal-Wallis test) and
Dunn's Multiple Comparison post-test. The statistical analysis of the speakers revealed that
speakers distinguish between expected felicitous and expected infelicitous word orders in
each type of the discourse structures, as shown in Figure 4.

Figure 4.  Perception of word orders in three types of discourse structure.

Figure 4 shows that the expected infelicitous word orders score very low (below 2)
and are not significantly different from each other (p > 0.05), while the expected felicitous
word orders score higher than 3 and are usually significantly different from the infelicitous
word orders (p < 0.001) with exception of the basic SVO. The details are provided below.
In object focus sentences, the speakers have a very strong preference to SVO order, which is significantly different \((p < 0.001)\) from all expected infelicitous word order (OVS, VOS, SOV, OSV) and the expected felicitous VSO. However, they recognize the significant difference \((p < 0.001)\) between the expected felicitous VSO and all expected infelicitous word orders.

In subject focus sentences, the speakers select OVS as the most felicitous and have a highly significant difference \((p < 0.001)\) between OVS and the expected infelicitous SVO, VSO, SOV and OSV. The speakers also recognize VOS as a possible word order by scoring it significantly higher \((p < 0.001)\) than the expected infelicitous VSO, SOV, OSV and significantly higher \((p < 0.05)\) than the basic SVO. However, the speakers demonstrate less preference for this word order as VOS is significantly different from OVS \((p < 0.01)\). Surprisingly, the speakers provide a special status for the expected infelicitous SVO in subject focus sentences: even though SVO is significantly different from the two felicitous word orders, the basic word order is also different \((p < 0.001)\) from other expected infelicitous word orders.

A similar pattern is found in verb focus sentences. Here the most accepted word order is SOV, which is significantly different \((p < 0.001)\) from the expected infelicitous OVS, VOS and VSO, and also different \((p < 0.01)\) from SVO. The speakers also recognize the expected felicitous OSV and the expected infelicitous basic SVO as possible word orders by assigning similar scores to them \((p > 0.05)\). Even though the speakers distinguish these two word orders from the felicitous SOV \((p < 0.01)\), they highly differentiate \((p < 0.001)\) between these two and the expected infelicitous OVS, VOS and VSO.

In brief, the group results of the perception experiment support the expectations about acceptability of different word orders. In particular, the results show that object focus sentences are felicitous with SVO and VSO orders, subject focus sentences are felicitous with OVS and VOS orders, and verb focus sentences are felicitous with SOV and OSV orders. Importantly, however, the acceptability status of the two felicitous sentences in each
discourse structure is not the same. The felicitous SVO, OVS and SOV orders were evaluated as significantly better than the felicitous VSO, VOS and OSV. Finally, the basic SVO was evaluated as felicitous in verb focus sentences and almost as felicitous in subject focus sentences even though it was expected to be infelicitous in those contexts.

2.3.3.2 Independent Variables

Since the overall results frequently obscure the real picture, the data were analyzed to determine if any of the independent variables interfere. For that the independent variables of age, gender, education and exposure to other languages were considered.

First, the data were classified by the speakers’ age. The dependency between the speakers’ age and the perception of word order was tested using the correlation test. Each of the six word orders in subject focus, verb focus and object focus sentences were analyzed. Out of the 18 correlations, only one was statistically significant ($r = 0.2610; p < 0.05$). A correlation was found between the age of speakers and their perception of the infelicitous SVO word order in verb focus sentences, as shown in Figure 5 (each dot represents the mean score of one speaker in SVO verb focus sentences).

Figure 5. The correlation between age and perception of SVO in verb focus sentences.
Figure 5 shows that older speakers tend to accept more the infelicitous SVO in verb focus sentences. An example of the infeliciouts SVO is given in (17).

17. a. Chto delaeet zajac s kapustoj?
   What does rabbit with cabbage
   ‘What is the rabbit doing with cabbage?’
   b. Zajac gryzjot kapustu.
   Rabbit-Nom. bites-3sg. cabbage-Acc.
   ‘The rabbit is eating cabbage.’

   The data in (17) show that when the sentence is pronounced with the non-emotive intonation, where the stress is on the object, the sentence is infelicitous. To make the same word order felicitous, the speakers have to stress the verb gryzjot ‘bites-3sg.’ and read the sentence with an emotive intonation. Since the SVO stimuli were controlled for stress, a possible explanation for the correlation is that older speakers in general are less sensitive to intonation contour of a sentence when the two intonation contours are very close. The analysis of all other word orders did not reveal any correlations between the age and the word order perception.

   Second, the subjects were classified into two groups by their gender. The two groups (50 females and 28 males) were analyzed by a non-parametric ANOVA (Kruskal-Wallis test) and Dunn's Multiple Comparison post-test. In this analysis the female and male data were compared for each word order in each of the three types of discourse structure (subject focus, verb focus and object focus sentences). Totally, 18 comparisons (6 word orders for 3 types) were made where none of them was statistically significant (p > 0.05). Thus, the results showed that there is no significant difference between the two gender groups.

   Third, the education factor was taken into account. The analysis of the subjects’ educational background revealed that 74.4% of speakers (58/78) had a university degree. Only 20 speakers had a high school or a technical college degree. Based on the educational
The data in the two groups were compared using a non-parametric ANOVA (Kruskal-Wallis test) and Dunn's Multiple Comparison post-test. Similar to the gender comparison, the data for each word order in each of the three types of discourse structure were compared. The analysis showed that the only significant difference (p < 0.05) was in the infelicitous SVO word order of the subject focus sentences, as in (18).

18. a. Kto gryzjot kapustu?
Who bites cabbage
‘Who is biting cabbage?’

b. Zając gryzjot kapustu.
rabbit-Nom. bites-3sg. cabbage-Acc.
‘A rabbit is biting cabbage.’

The data in (18) illustrate that when the sentence is pronounced with a non-emotive intonation, the word order is infelicitous. To make the word order felicitous, the focal stress should be placed on the subject zajac ‘rabbit-Nom.’ Otherwise, the non-emotive word order should be changed into OVS or VOS. However, the statistical analysis reveals that the two groups are statistically different in their perception of the infelicitous SVO in subject focus sentences, as demonstrated in Figure 6.

In contrast to the group with university education where the infelicitous SVO is statistically different from the felicitous OVS and VOS, the group with a high school/community college degree scored the infelicitous SVO very high, so that it is not different from the felicitous VOS. In the remaining 17 out of 18 comparisons no significant difference between the two groups was found (p > 0.05).
Finally, the data were analyzed based on the variable of speakers’ exposure to English. The data were classified into two groups based on the speakers’ ability to speak foreign languages and their degree of exposure to foreign languages. The first group included the monolingual speakers of Russian permanently living in the Central Russia area; the second group consisted of native Russian speakers living in Iowa City who have been exposed to English on regular basis (at home, at work or during their studies) for at least two years. The average number of years of exposure was 6.7 years. The data in the two groups were compared using a non-parametric ANOVA (Kruskal-Wallis test) and Dunn's Multiple Comparison post-test. The analysis of 18 comparisons showed that there is no significant difference (p > 0.05) between the two groups. This means that exposure to English does not have any affect on the word order perception.

In sum, the analysis of the independent variables such as age, gender, education and exposure to a foreign language have manifested no significant effect on the speakers’ perception of felicitous and infelicitous word orders. The only significant difference was
found in the perception of the infelicitous SVO in subject focus and verb focus sentences. This difference showed that the perception of the infelicitous SVO word order in subject focus sentences is related to the educational background, while the perception if the infelicitous SVO in verb focus sentences correlates with age.

2.3.3.3 Individual Results

In order to understand if the general pattern obtains at the level of individual subject analysis, the individual results were analyzed. The subjects were grouped on the basis of their scores of the felicitous word order in each type of the discourse structure. SVO and VSO in object focus sentences were considered as one pair; OVS and VOS in subject focus sentences were considered as the second pair, and SOV and OSV in verb focus sentences were considered as the third pair. The classification is given in (19).

19. a. Speakers who consider the pairs of felicitous word orders as equally acceptable (SVO=VSO; OVS=VOS; SOV=OSV);

b. Speakers who consider the word orders in two pair as equally acceptable and in one as not.

c. Speakers who consider the word orders in one pair as equally acceptable and in two as not.

d. Speakers who do not consider the two felicitous sentences in each pair as equally acceptable (SVO≠VSO; OVS≠VOS; SOV≠OSV);

e. Speakers who consider OVS, VOS, VSO, SOV, OSV as infelicitous or borderline felicitous.

The results of the classification (Table 14) demonstrate that the acceptability of the felicitous word orders OVS, SVO and SOV does not significantly change and has very high scores in the first four types of speakers (a-d). These results pattern with the group results showing that the acceptability of SVO, OVS and SOV is very high in Russian.
Table 14. Mean values for the felicitous word orders in five groups of subjects.

<table>
<thead>
<tr>
<th>Group type</th>
<th>N of speakers</th>
<th>OVS</th>
<th>VOS</th>
<th>SVO</th>
<th>VSO</th>
<th>SOV</th>
<th>OSV</th>
</tr>
</thead>
<tbody>
<tr>
<td>a OVS=VOS; SVO=VSO; SOV=OSV</td>
<td>n=4</td>
<td>4.8</td>
<td>4.8</td>
<td>5.0</td>
<td>4.8</td>
<td>4.7</td>
<td>4.4</td>
</tr>
<tr>
<td>b One of the 3 pairs is not equal</td>
<td>n=12</td>
<td>4.9</td>
<td>4.1</td>
<td>5.0</td>
<td>4.5</td>
<td>4.5</td>
<td>3.9</td>
</tr>
<tr>
<td>c Two of the 3 pairs are not equal</td>
<td>n=27</td>
<td>4.5</td>
<td>3.8</td>
<td>5.0</td>
<td>3.4</td>
<td>4.6</td>
<td>3.3</td>
</tr>
<tr>
<td>d OVS≠VOS; SVO≠VOS; SOV≠OSV</td>
<td>n=28</td>
<td>4.3</td>
<td>2.7</td>
<td>5.0</td>
<td>2.6</td>
<td>4.0</td>
<td>2.7</td>
</tr>
<tr>
<td>e OVS, VOS, VSO, SOV, OSV are borderline felicitous</td>
<td>n=7</td>
<td>3.0</td>
<td>2.5</td>
<td>5.0</td>
<td>2.3</td>
<td>3.0</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Furthermore, Table 14 shows that the acceptability of VSO, VOS and OSV, drops from type (a) to type (e). This drop correlates with the grouping of speakers: those who consider the two felicitous word orders equal (group a), score them high, while those who consider them as different (group d) or consider the felicitous word orders as unacceptable (group e) score them low. Importantly, Table 14 shows that 85.9% (63/78) of speakers consider at least one of the three pairs as not equal. Only 5.1% (4/78) of speakers consider felicitous pairs of sentences as equally acceptable and only 9.0% as equally unacceptable. This strongly supports the general pattern of the data where speakers distinguish between the two felicitous word orders in each type of discourse structure and assign a degraded acceptability to felicitous VSO, VOS and OSV word orders.

To summarize, the individual results strongly confirm the group results by showing that speakers score the felicitous OVS, SVO and SOV very high when they are used in appropriate contexts. The acceptability of the felicitous VOS, VSO and OSV is degraded compared to the acceptability of OVS, SVO and SOV, respectively.
2.3.4 Discussion

The group and individual results of the perception experiment have high significance in determining the status of different non-emotive word orders in Russian.

First, the results of the perception experiment correlate with the results of the elicitation experiment. The perception experiment shows that speakers consider object focus SVO, subject focus OVS and verb focus SOV as the most acceptable. In fact, these word orders were the only non-emotive word orders that were produced by speakers in the elicitation experiment.

The second finding of the perception experiment is that the majority of speakers recognize two word orders in each discourse structure as acceptable. In object focus sentences the felicitous SVO and VSO are highly different from the infelicitous OVS, VOS, SOV and OSV. In subject focus sentences, both OVS and VOS are significantly more acceptable than the infelicitous VSO, SOV and OSV. Finally, in verb focus sentences, the felicitous SOV and OSV are statistically distinct from the infelicitous OVS, VOS and VSO. This means that the word orders VSO, VOS and OSV, which were not produced by speakers, are distinguished from the infelicitous word orders.

Third, the perception experiment shows that in each type of discourse structure, the two felicitous word orders are statistically significant from each other. While the produced felicitous word orders SVO, OVS and SOV are perceived as highly acceptable, the perception of the non-produced felicitous VSO, VOS and OSV is significantly degraded. This is a very important finding since it shows that the grammar model should be able to generate both the produced and non-produced word orders. However, the non-produced word orders VSO, VOS and OSV should violate some constraints in their derivation compared to the produced SVO, OVS and SOV.

In addition, the perception experiment confirmed the finding from the elicitation experiment about the special status of the basic SVO. The experiment showed that the speakers exhibit a strong bias to this word order. In the case of object focus sentences,
where the SVO is one of the two felicitous word orders, the speakers unanimously assigned SVO the highest score. In those cases when the SVO is expected to be infelicitous, as in subject focus and verb focus sentences, some subjects still distinguished SVO from other infelicitous sentences.

However, it is important to notice here that the infelicitous SVO should be distinguished from felicitous word orders. First, the statistical analysis showed that in subject focus sentences SVO scores significantly lower than the felicitous OVS and VOS. In verb focus sentences SVO is significantly less preferred than SOV. This means that the status of infelicitous SVO is different from the status of the felicitous word orders. Second, the felicitous and non-felicitous word orders other than the infelicitous SVO have revealed no correlation with such variables as age, gender, education and exposure to foreign languages. However, SVO in subject focus sentences correlates with education and SVO in verb focus sentences correlates with age. Third, if SVO is accompanied by focal stress on the subject in subject focus sentences, as in (20b), or if SVO is accompanied by the focus stress on the verb in verb-focus sentences, as in (20d), then SVO becomes felicitous.

20. a. Kto gryzjot kapustu?
   Who bites-3sg. cabbage-Acc.
   ‘Who is biting cabbage?’

b. ZAJAC gryzjot kapustu.
rabbit-Nom. bites-3sg. cabbage-Acc
   ‘A rabbit-FOC is biting cabbage.’

c. Chto delaet zajac s kapustoj?
   What does rabbit with cabbage-Acc.
   ‘What is the rabbit doing with cabbage?’

d. Zajac GRYZJOT kapustu.
   Rabbit-Nom. bites-3sg. cabbage-Acc.
   ‘The rabbit is biting-FOC cabbage.’
The examples in (20) illustrate that SVO may be felicitous in these two types of contexts if accompanied by appropriate intonation. Hence, it might be the case that some speakers are less sensitive to prosodic features of sentences than others. However, it is important to highlight that speakers revealed decreased sensitivity to intonation and stress only with the basic SVO word order. This suggests that SVO has a special status in the Russian grammar and speakers are biased in favor of the basic word order.

In sum, the results of the perception experiment together with the results of the elicitation experiment provide a representative picture about word order in simple sentences in Russian and solve some controversies outlined in chapter 1.

2.4 The Grammaticality Judgment Experiment on Adverb Placement

Another important issue is the structural position of the verb in Russian. Since the adverb placement test is a good indicator of the verb position, a grammaticality judgment test was performed to determine the acceptability of adverbs in different positions. The purpose of the experiment was to test the grammaticality of adverbs located in immediately pre- and postverbal positions.2 If Russian patterns with English, then the preverbal position should be the only possible position in sentences and the postverbal position should be ungrammatical. Thus, the experiment was aimed at determining the grammaticality of adverb positions in different word orders in Russian.

2.4.1 Subjects

The experiment was performed with native speakers of Russian and native speakers of English. 112 native speakers of Russian (40 males and 72 females ranging from 19;0 to 78;4 years old) were tested in the Central Area of Russia (Moscow area, St. Petersburg

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2 Henceforth, I will refer to the immediately preverbal and immediately postverbal positions as simply preverbal and postverbal positions.
area, Pyatigorsk area) and in Iowa City, USA. In addition, 30 native speakers of English (12 males and 18 females ranging from 19;0 to 46;0) were used as a control group and were tested in Iowa City, USA.\(^3\)

2.4.2 Methods and Procedures

The experiment was designed as a written grammaticality judgment test and consisted of a Russian and an English version. In both versions the stimuli were presented in the format of brief situations followed by a question. The question was followed by three answers containing an adverb. The answers differed only in the position of an adverb (immediately preverbal, immediately postverbal or sentence-final). An example of a stimulus is given in (21).

21. Через 20 минут начнётся урок, а Оля ещё не готова. Почему у Оли так много времени ушло на сборы?

   a. Оля медленно ела завтрак. 1 2 3 4 5
   b. Оля ела медленно завтрак. 1 2 3 4 5
   c. Оля ела завтрак медленно. 1 2 3 4 5

   The class starts in 20 minutes, but Olga is not ready yet. Why did it take Olga so long to get ready?

   a. Olga slowly ate breakfast. 1 2 3 4 5
   b. Olga ate slowly breakfast. 1 2 3 4 5
   c. Olga ate breakfast slowly. 1 2 3 4 5

   Each answer was accompanied by a grammaticality scale from 1 to 5. The subjects were instructed to mark their intuition about the grammaticality of each sentence by circling a value from the scale where 1 was ungrammatical and 5 was fully grammatical.

\(^3\) I would like to thank Roumyana Slabakova, Julia Skaleva and Vladimir Kulikov for designing and carrying out the control test with native speakers of English.
2.4.2.1 Russian Version of the Grammaticality Judgment Test

In the Russian version, the stimuli were designed to control for the word order, the
type of an adverb and the aspect of the verb.

The adverb position was tested in the three most common and most felicitous word
orders in Russian: SVO, OVS and SOV. These word orders are the only non-emotive word
orders produced by speakers; moreover, they are regarded as the most felicitous in the
perception tests. Another reason for using three word orders was to test Bailyn’s (2003,
2004) account of the Generalized Inversion constructions (discussed in chapter 3). His
account predicts that SVO sentences, where the verb does not move to T, should allow
adverbs in preverbal position and disallow them in postverbal position, while in OVS
sentences, where the verb moves to T, the most natural position of an adverb should be
postverbal. Examples of stimuli with SVO, OVS and SOV orders are given in (22)-(24),
respectively.

22. - В прошлом году у нас гостила Света. Она хороший кулинар.
   - Какое блюдо Света готовила чаще всего?
     a. Света готовила часто борщ.  1  2  3  4  5
     b. Света часто готовила борщ.  1  2  3  4  5
     v. Света готовила борщ часто.  1  2  3  4  5

   - Sveta was staying with us last year. She cooks very well.”
   - What dish did she cook most often?
     a. She often cooked beetroot soup.  1  2  3  4  5
     b. She cooked often beetroot soup.  1  2  3  4  5
     c. She cooked beetroot soup often.  1  2  3  4  5

23. Когда я утром проходила мимо Вашего дома, за домом кто-то косил траву.
    Причем делал это очень старательно и аккуратно. Кто это у вас за домом так
    аккуратно косил траву?
When I was passing by your house in the morning, somebody was mowing the lawn in the backyard. Moreover, that person was doing it very thoroughly and meticulously. Who in your household was mowing the lawn so carefully?

a. The lawn was carefully mowing Dima.  
b. The lawn was mowing carefully Dima.  
c. The lawn was mowing Dima carefully.

Today I saw Volodja doing something with a bicycle outside. Volodja was quickly turning and unscrewing something. What was Volodja doing with the bicycle?

a. Volodja was quickly dissembling the bicycle.  
b. Volodja was dissembling quickly the bicycle.  
c. Volodja was dissembling the bicycle quickly.

Furthermore, the test included two types of adverbs - manner and frequency adverbs. The rationale for this is as follows. It has been noticed that adverbs appear in a certain hierarchy in languages. In English, as well as in Russian, epistemic adverbs (probably, evidently) precede the frequency adverbs (often, always, rarely), which in turn, precede the manner adverbs (slowly, quickly, carefully). This is illustrated in (25).

25. a. John often quickly looks through the newspapers in the morning.
   
b. *John quickly often looks through the newspapers in the morning.
This hierarchy was accounted for based on the multiple functional head approach by Cinque (1999). In particular, Cinque (1999) argues that adverbs are arranged hierarchically in the syntactic structure as specifiers of functional projections. During the derivation, the verb moves to the head of those projections depending on the particular language and the particular verbal form involved. The evidence from L2 acquisition (Ionin and Wexler 2001) shows that speakers of Russian learning English produce more optional verb raising past manner adverbs than past frequency adverbs, thus, suggesting that L2 learners might be sensitive to this hierarchy. Importantly, Ionin and Wexler’s (2001) experimental evidence showed no significant difference between raising past frequency vs. epistemic adverbs. One of the possible reasons for that is the parenthetical usage of epistemic adverbs (Cinque 1999), which obscures the adverb functional head hierarchy. To avoid the ambiguity with epistemic adverbs, but to test the hierarchy, manner and frequency adverbs, listed in (26), were included in the experiment. If verb movement is sensitive to the adverb hierarchy, then Russian speakers might be more willing to accept postverbal manner adverbs than postverbal frequency adverbs.


Finally, both perfective and imperfective verbs were included in the experiment to test if the verb movement is sensitive to the aspectual distinction. Each verb in Russian (whether an infinitival or finite) is inherently specified for perfective or imperfective aspect. This means that each verb selected from the numeration has aspectual features which need to be checked for the derivation to converge. Therefore, it is important to check if aspectual features correlate with verb features in the derivation (Borik 2002).

In brief, the experiment was aimed at checking the grammaticality of preverbal and postverbal adverbs in the three most common transitive word orders. The experiment
included perfective and imperfective verbs and tested the position of manner and frequency adverbs. The overall design of the test is shown in Table 15, where the numbers represent the number of situations per condition.

Table 15. The design of the grammaticality judgment experiment with adverbs.

<table>
<thead>
<tr>
<th>WO</th>
<th>Aspect</th>
<th>Manner Adv</th>
<th>Frequency Adv</th>
</tr>
</thead>
<tbody>
<tr>
<td>SVO</td>
<td>Perf.</td>
<td>4</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Imp.</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>OVS</td>
<td>Perf.</td>
<td>3</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Imp.</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>SOV</td>
<td>Perf.</td>
<td>3</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Imp.</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 15 illustrates that there is an asymmetry between perfective and imperfective verbs used with frequency adverbs, shown in (27).

27. a. Olja často gotovila sup.

Olya often Imp./cook-Past-fem.sg. soup

‘Olya often cooked soup.’

b. *Olja často sgotovila sup.

Olya often Perf.-cook-Past-fem.sg. soup

‘Olya often cooked soup.’

The data in (27) show that perfective verbs are not allowed with frequency adverbs in Russian. The ungrammaticality of (27b) is related to a violation of the Punctuality Constraint, given in (28).

28. The Punctuality Constraint (Giorgi & Pianesi 1997)

A closed event cannot be simultaneous with the utterance event/time.
The interpretation of a sentence with a frequency adverb describes a habitual event, which repeats in time with certain frequency and has no endpoint. At the same time, perfective verbs denote completed/closed events. Therefore, there is a conflict between a completed/closed event of a verb and a habitual interpretation of the sentence with a frequency adverb. This conflict results in ungrammaticality of sentences with perfective verbs used with frequency adverbs. These ungrammatical sentences were not included in the stimuli, but were used as fillers to test the accuracy of speakers’ responses. The test items included 27 stimuli and 6 filler situations which were randomly presented to subjects.

The filler situations were presented in the same format as the stimuli situations, but were followed by three answers with a PP or by ungrammatical sentences with frequency adverbs and perfective verbs. An example of a filler situation is given in (29).

29. А твой брат читал журнал «За рулём»?
   a. Да, он читал его в прошлом году.   1 2 3 4 5
   b. Да, он часто прочитал его.   1 2 3 4 5
   v. Да, он читал в прошлом году его.   1 2 3 4 5

   ‘Has your brother read the magazine “Behind the wheel”? ’
   a. Yes, he read (imp.) it last year.   1 2 3 4 5
   b. Yes, he often read (perf) it.’   1 2 3 4 5
   c. Yes, he read (imp.) last year it.   1 2 3 4 5

   The filler situations were designed to evaluate the accuracy of speakers’ answers. 9 sentences from the six filler situations were included in accuracy evaluation (6 grammatical and 3 ungrammatical). For example, the answer (a) in (29) was included as a grammatical filler and (b) as an ungrammatical filler.4 Based on the accuracy evaluation, speakers

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4 The accuracy of performing the test was calculated by evaluating answers to six grammatical and three ungrammatical fillers. For each correctly assigned value, the speakers received 5 points. One point was subtracted for each wrong point on the scale. This means that if a speaker assigned 4 to a grammatical filler, the speakers received 4 points for that answer. For all correct answers the speakers were given 45 points (=100%).
whose accuracy was less than 74% were excluded from final counts. As a result, out of 112 native Russian participants, 19 speakers were excluded. The average accuracy of the remaining 93 subjects was 93%.

2.4.2.2 Focus Scope

The scope of focus was included in the SVO stimuli sentences as an additional condition. To control the scope of focus, four situations with SVO sentences had the stimuli with wide focus scope, i.e. focus scope over VO, and three situations with SVO sentences had narrow scope, i.e., focus scope of O only. Examples of stimuli with wide and narrow focus scope are shown in (30)-(31), respectively.

30. Сын пришёл домой с огромной дыркой на правой коленке новых брюк. Что же сделала мама с брюками?
   a. Мама пришила аккуратно заплатку. 1 2 3 4 5
   b. Мама пришила заплатку аккуратно. 1 2 3 4 5
   v. Мама аккуратно пришила заплатку. 1 2 3 4 5

The son came home with a huge hole on the right knee of his new pants. What did mother do with the pants?

a. Mother sewed carefully a patch. 1 2 3 4 5
b. Mother sewed a patch carefully. 1 2 3 4 5
c. Mother carefully sewed a patch. 1 2 3 4 5

31. Миша говорил, что эту бутылку ему подарили на прошлой неделе. А сейчас она почти пустая. Что же было в бутылке, что Миша её так быстро выпил?
   a. Миша выпил виски быстро. 1 2 3 4 5
   b. Миша быстро выпил виски. 1 2 3 4 5
   v. Миша выпил быстро виски. 1 2 3 4 5

5 The cut off point for accuracy was based on the Standard Deviation test. Since Std. Deviation was equal to 13, the cut point was assigned the value equal 74% (100%-2 Std. Dev.).
Misha said that this bottle was given to him last week. And now it is almost empty. What was in the bottle so that Misha has drunk it so quickly?

a. Misha drank whiskey quickly.  1 2 3 4 5
b. Misha quickly drank whiskey.  1 2 3 4 5
c. Misha drank quickly whiskey.  1 2 3 4 5

The wide and narrow focus scope in SVO sentences was designed to check if the adverb position is related to the difference in the focus scope. The prediction is that if there is a correlation between the position of an adverb and the scope, then speakers should accept sentences with postverbal adverbs with narrow focus scope more than with wide focus scope. In other words the scores of postverbal adverbs with narrow focus scope are expected to be higher than the scores of postverbal adverbs with wide focus scope.

2.4.2.3 English Version of the Grammaticality Judgement Test

In the English version of the test, the stimuli were designed to control only for the type of adverbs (manner or frequency). Each subject was presented with 10 written situations with a question at the end of each situation; the questions were followed by three answers with adverbs. Seven situations had answers with manner adverbs and three situations – with frequency adverbs. A sample situation from the English version of the test is in (32).

32. I see that your son goes to the dentist a lot, and has a ton of fillings. And this is even before all his permanent teeth are out. How did he get to this sorry state?

a. He rarely cleans his teeth.  1 2 3 4 5
b. He cleans his teeth rarely.  1 2 3 4 5
c. He cleans rarely his teeth.  1 2 3 4 5

Since English does not allow word order permutations such as OVS or SOV, the answers had only SVO order and differed only in the position of an adverb. In each situation there was one answer with an adverb in the preverbal position, one answer with an
adverb in the postverbal position, and one answer with the sentence-final adverb. Each answer was accompanied by a grammaticality scale from 1 to 5. The subjects were instructed to mark their intuition about the grammaticality by circling a value from the scale where 1 was ungrammatical and 5 was fully grammatical. The results are presented below.

2.4.3 The Russian Group Results

The overall results of the Russian version of the test are presented in Table 16. The table shows average scores on sentences with adverbs in different positions in transitive sentences in Russian (the maximal score is 5.0).

Table 16. Grammaticality of adverbs in various sentence positions in Russian.

<table>
<thead>
<tr>
<th></th>
<th>Manner adverbs</th>
<th>Frequency adverbs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SVO</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perf.</td>
<td>4.7</td>
<td>3.1</td>
</tr>
<tr>
<td>Imp.</td>
<td>4.8</td>
<td>2.6</td>
</tr>
<tr>
<td><strong>OVS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perf.</td>
<td>4.7</td>
<td>3.6</td>
</tr>
<tr>
<td>Imp.</td>
<td>4.6</td>
<td>3.4</td>
</tr>
<tr>
<td><strong>SOV</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perf.</td>
<td>3.2</td>
<td>4.0</td>
</tr>
<tr>
<td>Imp.</td>
<td>2.9</td>
<td>3.7</td>
</tr>
</tbody>
</table>

Table 16 demonstrates that different positions of adverbs in a sentence give rise to different grammaticality scores. SVO and OVS pattern together in terms of the adverb scores in different sentence positions, while SOV reveals a slightly different pattern. In order to compare the scores of each adverbial position in a sentence, the raw data of 93 Russian speakers were analyzed using a non-parametric ANOVA (Kruskal-Wallis test) and Dunn's Multiple Comparison post-test for each of the word orders separately.
The ANOVA analysis (Kruskal-Wallis test) and Dunn's Multiple Comparison post-test of SVO and OVS answers revealed that there was no significant difference between perfective and imperfective verbs when the adverb was either in preverbal or postverbal positions ($p > 0.05$). Furthermore, there was no significant difference between manner and frequency adverbs in those positions ($p > 0.05$). However, there was a highly significant difference between a preverbal and a postverbal position of an adverb for each type of sentence ($p < 0.001$). This is illustrated in Figure 7.

Figure 7. The value of preverbal and postverbal adverbs in SVO and OVS sentences.

Figure 7 shows that the preverbal position of adverbs in SVO and OVS sentences receives very high acceptability scores, which do not depend on the perfectivity of the verb or type of an adverb. The postverbal position of an adverb is significantly different from the preverbal position for both perfective and imperfective verbs and for both types of adverbs. However, the postverbal score does not depend either on the perfectivity of the verb or the type of adverb. In addition, the average scores in the postverbal position in SVO sentences is 2.9 and in OVS sentences is 3.6. Given that the scores determine the
grammaticality of the adverbial position, where 1 is ungrammatical and 5 is grammatical, the speakers evaluate the postverbal position in SVO and OVS sentences as neither grammatical, nor ungrammatical.

The answers with SOV order have a different distribution of scores. This is primarily related to the fact that there are two preverbal positions available in this word order: one is after the subject and the other is immediately before the verb. The postverbal position coincides with the sentence-final position. Therefore, compared to SVO and OVS orders where there is one preverbal and one postverbal position, in SOV there are two preverbal positions and one postverbal position.

The ANOVA analysis (Kruskal-Wallis test) and Dunn's Multiple Comparison post-test of the SOV answers showed that there was a significant difference between adverb positions after the subject, after the object and after the verb (p < 0.05). However, there was no significant difference between perfective and imperfective verbs in two preverbal and one postverbal positions (p > 0.05). Furthermore, there was no significant difference between manner and frequency adverbs in those positions (p > 0.05). The distribution of mean scores in three adverb positions is presented in Figure 8.

![Figure 8. The value of adverbs in SOV sentences.](image-url)
Figure 8 illustrates that the position after the object and right before the verb receives the highest scores among the speakers. These scores are significantly higher than the scores of adverbs in the position between the two arguments. The postverbal position receives the lowest scores averaging at 2.1. In addition, similar to SVO and OVS, the scores do not depend on the perfectivity of the verb or type of an adverb.

To summarize the group results, the grammaticality test with native Russian speakers showed that the preverbal position is significantly preferred over the postverbal position in Russian in SVO, OVS and SOV sentences. In SOV sentences, the position immediately before the verb is better than the position between the two arguments. However, the group results show that the mean value of the postverbal position is not low enough to assign ungrammatical status to it. Moreover, the perfectivity of the verb and the type of adverb do not affect the adverb position scores.

2.4.4 The Russian Individual Results

The group results are strongly supported by individual results. The individual results reveal that SVO and OVS are very similar in their distribution of scores, as shown in Figure 9 where each dot represents a score of a speaker. Figure 9 illustrates that there is little variation in the data in the preverbal position of an adverb in SVO and OVS sentences in Russian. The predominant number of speakers assigns very high grammaticality scores to the adverbs in the preverbal position. On the contrary, the postverbal position shows a considerable variation among the speakers. However, the majority of speakers still assign scores higher than 2.5. Thus, the speakers assign scores equal or higher than 2.5 to postverbal adverbs in 63% of SVO sentences (174/278); and in 82% of OVS sentences (228/279). Furthermore, the individual results support the finding that the grammaticality of the adverbial position does not correlate with the perfectivity of the verb or the type of adverb. Indeed, the answers with imperfective verbs do not differ from the answers with
perfective verbs, and the individual results with manner adverbs do not differ from the individual results with frequency adverbs.

Figure 9. The distribution of individual scores in SVO and OVS sentences.

In SOV sentences the distribution of scores differs from SVO or OVS sentences, as shown in Figure 10. Here the speakers reveal higher variation in their evaluations. However, it is still noticeable that the position right before the verb (columns 4-6) receives higher scores than the position between the two arguments (columns 1-3). It is also seen that the postverbal position is not evaluated as high as the preverbal positions. Moreover,
similar to SVO and OVS sentences, the distribution of scores depends neither on the perfectivity of the verb, nor on the type of an adverb.

Figure 10. The distribution of individual scores in SOV sentences.

In brief, the individual results provide strong support to the group results. Specifically, they confirm that the preverbal position receives very high grammaticality score, while postverbal position is degraded.

2.4.5 Focus Scope Results

In order to check if the position of adverbs is related to the focus scope, the data with wide and narrow scope in SVO sentences with preverbal and postverbal adverbs were analyzed. The results are illustrated in Figure 11. The ANOVA analysis (Kruskal-Wallis test) and Dunn's Multiple Comparison post-test reveal that there is a significant difference between preverbal and postverbal adverbs in SVO sentences with both wide scope and narrow scope (p < 0.001). However, there is no significant difference in acceptability scores between sentences with wide and narrow focus scope in the preverbal position (p > 0.05). Similarly, there is no significant difference between sentences with wide and narrow scope in the postverbal position (p > 0.05).
Figure 11. The acceptability of preverbal and postverbal adverbs with wide and narrow focus scope in SVO sentences.

Figure 11 illustrates that regardless of the adverb scope speakers have a strong preference to sentences with pre-verbal adverbs and assign degraded status to sentences with postverbal adverbs. Therefore, the results show that there is no correlation between an adverb position and the focus scope. However, it is still not clear what this degraded status signifies.

2.4.6 The Russian vs. English Group Results

In order to understand whether degraded status should be evaluated as ungrammatical similar to English, the Russian group results were compared to the results of the English control group results. Since in English the word order does not allow permutations such as OVS and SOV, and the verb is not marked for perfective/imperfective aspect, the English SVO stimuli controlled only for the type of adverbs (manner vs. frequency). The overall results of the English version of the test are presented in Table 17. The table shows the average scores of sentences with adverbs in preverbal, postverbal and sentence-final position in transitive sentences in English (max score is 5).
Table 17. Grammaticality of adverbs in various sentence positions in English.

<table>
<thead>
<tr>
<th></th>
<th>Manner adverbs</th>
<th>Frequency adverbs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SAdvVO</td>
<td>SVAdvO</td>
</tr>
<tr>
<td></td>
<td>4.4</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Given that the scores determine the grammaticality of the adverbial position, where 1 is ungrammatical and 5 is grammatical, Table 17 demonstrates that native speakers of English evaluate the preverbal position as grammatical and immediately postverbal position as ungrammatical.

The English test results compared to the SVO Russian results are illustrated in Figure 12.

A one-way non-parametric ANOVA (Kruskal-Wallis test) and Dunn's Multiple Comparison post-test show that there is no statistical difference between Russian and English in grammaticality scores of preverbal manner adverbs (p > 0.05), or preverbal frequency adverbs (p > 0.05). However, the ANOVA analysis reveals that there is a highly
significant difference between Russian and English in both postverbal manner adverbs (p < 0.01) and postverbal frequency adverbs (p < 0.001). These results demonstrate that preverbal adverbs are equally grammatical in both languages. However, the two languages differ in the grammaticality of postverbal adverbs. While in English postverbal adverbs are ungrammatical, in Russian they have a degraded status. This is a very important finding since it shows that Russian differs from English in adverb placement.

2.4.7 Discussion of the Adverb Placement Test Results

The adverb placement test results have very high significance for understanding of the word orders in Russian. First, the Russian individual and group results of the grammaticality judgment test show that SVO, OVS and SOV sentences demonstrate the same pattern. In the three word orders the preverbal position is evaluated significantly better than the postverbal position. Moreover, in SOV sentences, the position immediately before the verb is better than the pre-verbal position between the two arguments.

Second, the results revealed that there is no significant difference between perfective and imperfective verbs in the preverbal and postverbal positions in the three word orders in Russian. This means that there is no correlation between the perfectivity of the verb and the adverb position in Russian. Similarly, the results demonstrated no significant difference between the manner and frequency adverbs in the data in the three word orders in Russian. This signifies that there is no correlation between the adverb position and the type of the adverb.

Third, the results demonstrated that the acceptability of preverbal and postverbal adverbs does not depend on the focus scope. There is no significant difference between SVO sentences with wide focus scope and narrow focus scope. Regardless of the focus scope, the speakers significantly prefer the sentence with preverbal adverbs and assign a degraded status to sentence with postverbal adverbs.
Finally, the results revealed that Russian is similar to English in that the preverbal position is evaluated as the most natural and grammatical for adverbs in these two languages. However, the two languages differ in the status of the postverbal adverbs. In English, the postverbal adverbs receive very low scores (1.3-1.4 out of 5) and could be evaluated as ungrammatical. In Russian, on the contrary, most of the speakers assign the score higher than 2.5 to postverbal adverbs, which averages around 2.9 for SVO and 3.6 for OVS. This means that the status of postverbal adverbs in Russian is degraded, but not ungrammatical.

2.5 Summary

In this chapter I reported on the experimental study investigating the production and perception of word orders by Russian speaking adults. In brief, it was found that word order is primarily determined by the discourse structure of a sentence. In those cases where the discourse structure does not determine the word order, i.e. thetic sentences, the speakers use the basic word order. In discourse-dependent sentences speakers produce either non-emotive or emotive word orders. Speakers demonstrate a very strong bias for the basic SV/ SVO/ SV IO DO/ SV DO IO. In sentences where one of the expected felicitous non-emotive word orders is the basic word order, speakers produce mostly this word order. In other types of discourse structures where the expected felicitous non-emotive word orders do not include the basic word order (subject focus or verb focus sentences), the speakers produce the emotive SV/ SVO/ SV IO DO/ SV DO IO with the same frequency as non-emotive word orders.

In addition to the basic word order, speakers have a strong preference for some word orders: OVS, SOV in transitive sentences and S IO V DO, S DO V IO, IO DO VS, IO V DO S, DO IO VS in ditransitive sentences. However, they hardly produce other alternatives, especially verb initial ones. The perception of the transitive word orders VOS,
VSO, OSV in natural contexts suggests that the speakers recognize them as acceptable and distinguish from expected infelicitous word orders in those contexts.

Finally, the grammaticality judgment test with the most common word orders in Russian revealed that the most natural position of adverbs in Russian is immediately before the verb. In this respect, Russian patterns with English where preverbal position receives the highest scores. However, the test also showed that Russian differs from English in the status of immediately postverbal adverbs where in English they are ungrammatical and in Russian they have a degraded rather than ungrammatical status.

The results of the three psycholinguistic experiments allow me to turn to the discussion of the syntactic properties of Russian, which will be heavily based on the experimental findings.
CHAPTER 3
FEATURE SPECIFICATIONS IN RUSSIAN

3.1 Introduction
In chapter 2 the experimental study investigating the production and perception of word order permutations by Russian speaking adults revealed the major properties of word order permutations in simple intransitive, transitive and ditransitive sentences.

First, the experiment proved that the word order is primarily determined by the discourse structure of a sentence. In discourse-dependent sentences, the word order is constrained by the discourse structure with \( \textit{topic-discourse-neutral information-focus} \) in non-emotive sentences and fronted focus in emotive sentences. This means that a constituent appears in a particular position in a sentence based on what discourse function it has. For instance, in subject focus sentences, the subject occurs in the postverbal position and in object focus sentences, the object is in the postverbal position. The role of topic and focus in determining surface word order leads to numerous feature-driven approaches where \( [+\text{Focus}] \) and \( [+\text{Topic}] \) features are incorporated into the inventory of syntactic features. In chapter 4, I will argue that a feature-driven approach is not an optimal solution in generating word order permutations for conceptual and language specific reasons in Russian.

Second, the experiment has shown that when the discourse structure does not determine the word order, as in thetic sentences, the word order is basic. Assuming a later Minimalist approach, the Derivation by Phase (Chomsky 2000, 2001), I will propose that the basic word order is computed by the narrow syntax component as a result of the syntactic configuration of the \( vP \), feature checking requirements, conditions on movement (e.g., the Minimal Link Condition, the Equidistance, etc.) and conditions on representation (e.g., binding theory, case theory, \( \theta \)-theory, etc.).
Third, the experiment has demonstrated that Russian speakers have a strong preference for SVO, OVS and SOV orders and against VSO, VOS and OSV orders, which they recognize as felicitous, but with a degraded acceptability status. On the one hand, both produced and non-produced word orders are acceptable and felicitous sentences, which do not cause any violations in the syntactic derivation. On the other hand, the degraded acceptability status of VSO, VOS and OSV shows that the derivation of these word orders is less preferable than the derivation of SVO, OVS and SOV. In chapter 4, I will show that a discourse feature driven analysis is not able to fully account for the acceptability gradation within felicitous word orders. This issue will be further discussed in chapter 5, where the degraded status of the felicitous word orders will receive a better account within the Optimality Theory approach.

The syntactic analysis of word order in Russian will be presented as follows. In this chapter, I will provide a brief overview of the syntactic framework of my analysis and discuss the syntactic features required to derive word order in Russian. Then in chapter 4, I will discuss the derivation of basic word orders in Russian and discuss the problems related to deriving discourse-dependent word orders in narrow syntax. Finally, in chapter 5, I will introduce a new analysis which allows accounting for discourse-dependent word order in Russian.

3.2 Minimalist Program Approach: Derivation by Phase

The driving force for postulating a theory of grammar is to explain the human faculty of language. Starting from the collapse of the Government and Binding Theory (Chomsky 1981), where four levels of representation were postulated (D-structure, S-structure, Logical Form (LF)-structure and Phonetic Form (PF) structure), the earlier Minimalist Program (Chomsky 1993, 1995) has been built on the assumption that grammar consists of two interface levels, i.e., articulatory-perceptual (which is taken to be PF) and conceptual-intentional (which is taken to be LF). The parts of the
computational system that are relevant to both are the overt syntax. The standard model of the earlier Minimalist framework is given in (1).

1. Grammar model (Chomsky 1993)

According to this model, the lexicon specifies the items that enter into the computational system with their idiosyncratic properties (Chomsky 1995: 169). The computational system, in its turn, uses these elements to generate derivations and allows constructing two interface representations (PF and LF). The PF representation is limited to deriving an appropriate phonological and, ultimately, phonetic form and, in this sense, is separated from the syntactic (or syntactico-semantic) information. The syntactic component of grammar (pre-Spell-Out and after-Spell-Out) generates a hierarchical Bare Phrase Structure based on the sequences of operations of the computational system, Select/Merge and Attract/Move.

In contrast to the earlier Minimalist Program approach, the Derivation by Phase approach eliminates the existence of LF and PF as separate levels of representation. Instead, building on the ideas of Epstein (1999) and Uriagereka (1999), Chomsky (2000, 2001) proposes a model with no levels of representation, but “multiple Spell-Outs”. This means that LF and PF are now considered as components of grammar rather than separate interface levels.

In the earlier Minimalist Program (1993, 1995), feature checking is implemented by either an overt movement, i.e., movement of the lexical item before Spell-Out, or a
covert movement, movement of a lexical item after Spell-Out. The overt or covert movement is determined by the nature of a particular feature, strong or weak, respectively. The movement is strictly constrained by Last Resort, Minimal Link Condition, Equidistance, and Procrastinate, listed in (2).

2. Constraints on Movement (Chomsky 1995: 294-312)

- *The Last Resort* (Greed) condition postulates that movement is driven only by feature checking;
- *The Minimal Link Condition* (MLC) makes sure that the head attracts the closest element can enter into a checking relation condition with the head.
- *Equidistance* demonstrates that two elements in the same minimal domain have the equal possibility to be attracted by the same head to check their features.
- *Procrastinate* means that covert movement is more economical than overt movement.

The constraints on movement together with a set of features on projection heads and lexical items are the driving forces for deriving the optimal, most economical derivation.

Contrary to the earlier Minimalist Program, The Derivation by Phase approach (Chomsky 2001) is based on the principle that the syntactic component of grammar does not make a distinction between overt and covert representations, but rather consists of a single narrow-syntactic cycle. The output of the narrow-syntactic cycle inputs the interface components, which are phonological form (PF) and semantic form (LF) components, as represented in (3).¹

¹ Chomsky (2000, 2001) assumes multiple Spell-Out with cyclic transfer only to the PF component. The transfer to the LF component does not take place till the final phase of the narrow syntax component. Matushansky (2005) argues that there are multiple Spell-Outs to LF; however, PF and LF Spell-Outs cannot be simultaneous. Csirmaz (2005) proposes that cyclic Spell Out transfers the syntactic object to both PF and LF interfaces. In my analysis, I argue that Spell Outs transfer the syntactic object to a pragmatic component; however, for now I assume a multiple transfer approach to PF/LF, although nothing important hinges on this assumption.
According to this model, the lexical items are selected from a numeration \( \{N_1, N_2, \ldots, N_n\} \) and inputted into the narrow syntax component. The narrow syntax component is strictly cyclic where each cycle results in the Spell-Out. The output of the Spell-Out is transferred to PF and LF components, which are not independent cycles, but proceed in parallel with the syntax component.

The derivation is built by the operation Merge, which takes two syntactic objects and forms a new object. A major innovation in the Derivation by Phase is that feature checking need not involve movement. All heads bear uninterpretable features, which enter the derivation unvalued and constitute the so called probe. The values of the uninterpretable features are determined when the probe seeks a matching goal. Then the uninterpretable features of the probe enter into agreement relations with interpretable inflectional features of the goal via the operation Agree. For example, “the uninterpretable \( \varphi \)-features of T Agree with the interpretable \( \varphi \)-features of a nominal … yielding the surface effect of noun-verb agreement” (Chomsky 2001:3).

Importantly, goal as well as probe must be active for Agree to apply. To be active means to have an unvalued feature. This is explained through an example with the structural case of a noun. Chomsky (2001:6) shows that a noun is active only when it has structural case. However, structural case is not a feature of the probes (T, v), because, as shown in numerous studies, it never drives syntactic movement (George and Kornfilt 1981, Bobaljik and Thráinsson 1998, Harves 2002). Thus, active case feature is assigned a value under agreement feature of the probe. As soon as the case value is determined,
the NP headed by this noun is “frozen in place” and removed by Spell-Out from the narrow syntax.

Before the properties of Spell-Out are discussed, it is important to mention that not all feature checking takes place in situ. Some feature checking requires XP-movement through the operation Move, which is a composite operation of Agree and Copy (of the material of the goal to a local domain of the probe). The operation Move applies only in those cases in which the probe has an EPP requirement. The EPP requirement in the Derivation by Phase approach refers to the requirement on specifier positions and movement to those positions of some functional categories. Chomsky (2001:12) argues that a distinction should be made between strong phases, and weak phases. The strong phases are targets for movement caused by the EPP requirement on overt specifiers. This does not mean that only strong phases have the EPP requirement. Thus, the head of TP, even though it is not considered as strong or weak phasal category, may have the EPP property. What is important is that weak phases are not targets for movement and do not carry the EPP feature. The classification of maximal projections into strong and weak phases is given in (4) (from Harves 2002:12).

4. Strong phases: finite CP, transitive vP, unergative vP
   Weak phases: non-finite CP, unaccusative/ passive vP

The crucial idea behind the classification in (4) is that in contrast to weak phases, strong phases are both ꜱ-complete and non-defective. Based on the fact that ꜱ-completeness is a necessary requirement for a phase to be strong, it has been claimed that the EPP feature should be considered a sub-feature, i.e., dependent on the agreement feature of a head (Pesetsky and Torrego 2001). However, Lavine and Freidin (2002) provide empirical evidence showing that the EPP requirement of T(ense) is independent from both agreement and case features of T. Based on a class of accusative-case-assigning unaccusatives in Russian and Ukranian, as in (5), they argue that in Slavic the
EPP requirement of T is divorced from the issue of $\varphi$-completeness and any particular structural case.

5. Soldier ranilo pulej.  
   Soldier-Acc. wounded-Past-neut.sg. bullet-Instr.  
   ‘A soldier was wounded by a bullet.’

The unaccusative sentence in (5) illustrates that the verb surfaces with default agreement morphology and the preverbal argument bears accusative case. Thus, Lavine and Freidin (2002) show that the EPP movement occurs in the absence of $\varphi$-features in Slavic languages. Following Lavine and Freidin (2002), I will assume that the EPP requirement of TP is independent from agreement features in Russian.

In addition to being potential targets for movement, strong phases have a significant role in cyclic Spell-Outs. In contrast to the Minimalist Program (Chomsky 1993, 1995) where Spell-Out occurs at a single point in the syntactic derivation, the Derivation by Phase approach (Chomsky 2000, 2001) assumes that Spell-Out occurs cyclically, at the strong phase level. Chomsky (2001:12) states:

“…features deleted within the cyclic computation remain until the strong phase level, at which point the whole phase is “handed over” to the phonological component. The deleted features then disappear from the narrow syntax, allowing convergence at LF, but they may have phonetic effects.”

Hence, Spell-Out applies shortly after the uninterpretable features have been assigned values. After that the strong phase derivation transfers to PF. This can be illustrated on example in (6).


In (6), the uninterpretable $\varphi$-feature of $v$ Agrees with the interpretable Case feature of the direct object and values accusative case in situ. As soon as accusative case is valued, the direct object is no longer active for the derivation and may be Spelled-Out at the first strong phase, which is $vP$. However, the nominative case and the tense features of T have not been valued yet. This means that the subject and the head of $vP$ cannot be
Spelled-Out and transferred together with the vP to PF and LF components. To allow the subject and the verb stay untouched for the Spell-Out, Chomsky proposes the Phase-Impenetrability Condition, given in (7).

7. The Phase Impenetrability Condition (PIC) (Chomsky 2001:13)

The domain of H is not accessible to operations outside HP; only H and its edge are accessible to such operations.

The PIC means that the head H and the Spec HP are visible for the next phase operations, while the rest of the phase is Spelled-Out and transferred to the phonological component. Moreover, because of the availability of the EPP, a strong phase HP allows extraction to its outer edge, so the operations of the PF component can apply to the domain of HP at once, not waiting for the next phase. For example, if there is a constituent within a strong phase vP, i.e., a direct object, which is to undergo a wh-movement to CP, it is required to raise to the outer Spec vP before Spell-Out. In this case it becomes visible for the next strong phase operations and the vP phase is no longer accessible for the narrow syntax component.

In brief, this section outlined the main principles of grammar within the Derivation by Phase framework. Let us now consider the feature inventory required to derive appropriate word order derivations in Russian. This is what we turn to in the next section.

3.3 Feature Inventory of Russian

According to the Minimalist Program framework, the feature inventory is one of the criteria which accounts for the parametric variations in word orders among languages. Among the features that are important for the word order are the agreement features (ϕ-features), the verb feature, the EPP and aspectual features. These are the features that allow deriving the basic word order in Russian and, consequently, they require special attention.
3.3.1 Agreement Features in Russian

Russian exhibits morphological marking of the subject-verb agreement where the agreement features (ϕ-features) in Russian include person, number and gender. The present tense verb agrees with the subject in person and number and the past tense verb agrees in the number and gender. This is illustrated in (8).

8. a. Boris čitaet gazety.

   Boris-Nom.sg. reads-3sg. newspapers-Acc.pl.

   ‘Boris is reading/reads newspapers.’

b. Boris čital gazety.

   Boris-Nom.sg. read-Past.masc.sg. newspapers-Acc.pl.

   ‘Boris was reading/read newspapers.’

Moreover, checking of ϕ-features must be executed by the same argument that checks the nominative case feature since the nominative argument always induces agreement with the verb in Russian regardless of the position of the argument in a sentence. This is shown in (9).


   Boris-Dat. likes-3pl. race cars-Nom.pl.

   ‘Boris likes race cars.’

b. S dereva upalo yabloko.

   From tree fell-Past-neut.sg. apple-Nom.neutr.sg.

   ‘A apple fell from a tree.’

The example with the locative inversion construction in (9) shows that the verb always agrees with the nominative argument.

Finally, if there is no nominative argument in the sentence, then the verb bears the default third person singular agreement in the present or neuter singular agreement in the past, as in (10).
10. a. Lodki polivaet doždjami.

Boats-Acc.pl. shower-3sg. rains-Instr.pl.

‘The boats are showered by rains.’

b. Lodki polivalo doždjami.

Boats-Acc.pl. showered-Past-neut.sg. rains-Instr.pl.

‘The boats were showered by rains.’

In (10), the verb agrees neither with the accusative argument nor with the instrumental, but has a default morphological marking.

Following the Derivation by Phase approach, I assume that the head of vP carries uninterpretable object agreement φ-features, which are checked via Agree with the interpretable active feature of the direct object. As a result, accusative case feature is assigned a value under agreement feature of the probe.

When TP merges the structure with the uninterpretable φ-features on T, the φ-features of T agree with the active interpretable φ-features of a local DP. Based on the Minimal Link Condition, the closest DP to check the φ-features of TP is the subject. As a result of the feature checking process, the subject is valued nominative case yielding the surface effect of noun-verb agreement.

There are cases, however, when v or T are φ-incomplete (i.e. defective). This means that they cannot value accusative or nominative case, respectively. Examples of these cases are unaccusative sentences, as in (9) and (10). I will return to unaccusative sentences in chapter 4. Now, I just want to mention that in case of v defective sentences, as in (9), the accusative case cannot be valued to the direct object and, as a result, the direct object is valued its case by the higher φ-complete T. In unaccusative sentences with no nominative argument, as in (10), T is φ-incomplete (i.e. defective). Accusative case on the direct internal argument is valued via Agree with φ-complete v and the oblique lexical case on the indirect internal argument is assigned by lexical V when the two merge.
3.3.2 The Verb Feature

It has generally been agreed that the verb feature on $v$ requires overt short movement of the verb to the head of $vP$ (see Bailyn 1995 for arguments). However, the verb feature on $T$ has been an issue of a long-standing debate in Russian. This feature is associated with the suffix marking tense. In Russian the tense is marked only in the past, similar to English, while non-past is marked by person and number morphology. The temporal reference of a verb marked by person and number morphology depends on the aspectual morphology of the verb, imperfective or perfective. Imperfective verbs marked by person and number morphology have the present tense temporal reference, while perfective verbs with the same morphology have future temporal reference. The future temporal reference of imperfective verbs is manifested through a periphrastic construction consisting of the auxiliary byt’ ‘be’ and an imperfective infinitive of the verb. The morphological marking of imperfective and perfective verbs in Russian and their temporal reference are illustrated in (11) and (12).

11. a. Boris pisa-l knigu. Past
     Boris Imp./write-Past.masc.sg. book
     ‘Boris was writing/wrote a book.’

     b. Boris pish-et knigu. Present
     Boris Imp./write-3sg. book
     ‘Boris is writing/ writes a book.’

     c. Boris budet pisa-t’ knigu. Future (Periphrastic)
     Boris will Imp./write-Inf. book
     ‘Boris will be writing/ will write a book.’

12. a. Boris na-pisa-l knigu. Past
     Boris Perf.-write-Past.masc.sg. book
     ‘Boris wrote/ has written a book.’
b. Boris na-pish-et knigu. Future
   Boris Perf.-write-3sg. book
   ‘Boris will write a book.’

c. *Boris budet na-pisa-t’ knigu. Future (Periphrastic)
   Boris will Perf.-write-Inf. book
   ‘Boris will write a book.’

In order to derive various temporal references, the verb feature on T must be
checked by the verb. So the question arises whether this is done through the operation
Agree and the verb staying inside vP or this is done by the verb moving to T.

3.3.2.1 Verb Movement Tests in Russian

There are three dominating hypotheses regarding the verb movement in Russian.
King (1995) argues that the verb moves to T in Russian resulting in discourse-neutral
VSO order. In contrast to the verb movement hypothesis, Bailyn (1995) argues that the
verb does not move to T in syntax in Russian, similar to English. Moreover, Bailyn
(2003, 2004) proposes that T has a strong verb feature resulting in a requirement on verb
movement in inversion constructions in Russian (i.e., OVS sentences, locative inversion,
adversity impersonal constructions, etc.), but no verb movement in SVO sentences.
However, as it will be shown below, most of the arguments that King (1995) and Bailyn
(1995, 2003, 2004) provide are compatible with both verb movement and no verb
movement analyses. I turn to this now.

3.3.2.1.1 Coordination

This argument is based on the assumption that if two items can be coordinated,
they are assumed to be constituents of the same category, as shown in (13) (from King
13. a. Nekotorye deti čitali knigi i smotreli fil’m
   ‘Some children were reading books and watching a film.’

b. Nikto [T ne čital knig] i [T ne smotrel fil’mov]
   No one not read-Past.masc.sg. books-Gen. and not watch-Past-masc.sg.films-Gen.
   ‘No one read books and watched films.’

c. Ja budu ves’ den’ [VP pisat’ pis’ma] i [VP čitat’ knigi]
   I-Nom. will all day write-Inf. letters-Acc and read-Inf. books-Acc.
   ‘I will write letters and read books all day.’

   King (1995) argues that in (13b) T-bar constituents are coordinated, while in
   (13c) VPs can be coordinated. Based on this test, King suggests that an infinitive and its
   arguments form a constituent which does not include the finite verb, i.e., there is a VP
   constituent and a separate T-bar with T position for inflected verbs. However, this
   argument is circular (Bailyn 1995) since King assumes that there is overt verb raising and
   she argues for this by the data. Moreover, coordination of T-bar would be theoretically
   problematic since only maximal projections are allowed to be conjoined in the Minimalist
   Approach (Chomsky 1995). If an opposite assumption is taken, i.e., the verb does not
   move to T, then (13a) and (13c) would be a result of coordinated vPs, and (13b) can be
   accounted for by NegP coordination.

3.3.2.1.2 Scrambling

   The argument is based on the requirement that long-distance scrambling (as well
   as any other type of movement) only affects maximal projections, as illustrated in (14)-

14. a. Ja slyšal, on budet [učit’śja v novoj škole]
   I-Nom. heard he-Nom. will [study-Inf. in new school]
   ‘I heard that he will study in a new school.’
b. Ja [učit’sja v novoj škole]i slyšal, on budet ti
   I-Nom. [study-Inf. in new school] heard he-Nom. will
   ‘I heard that he will study in a new school.’

15. a. Ja skazal (čto) on [pošel v školu]
    I-Nom. said that he-Nom. [went to school]
    ‘I said that he had gone to school.’

b. *Ja [pošel v školu]i skazal (čto) on ti
   I-Nom. [went to school] said that he-Nom.
   ‘I said that he had gone to school.’

Based on the contrast between (14b) and (15b), King shows that scrambling the
infinitival vP, as in (14b), is grammatical, but scrambling the finite T-bar is not. This
suggests that tensed elements in Russian undergo verb raising to T and, as a result, are
located not in the verb phrase, but in T. Therefore, the tensed verb doesn’t form a
maximal projection with its internal argument; instead it forms a T-bar and cannot
scramble. On the other hand, a non-finite verb remains in the verb phrase and forms a
maximal projection with its internal arguments. King concludes that the scrambling data
argue for the movement of verb to T in tensed clauses.

However, Bailyn (1995) claims that a covert movement analysis is also
compatible with the data, as shown in (16).

In (16a), where the scrambled phrase is an infinitival vP, the verb feature of the
embedded TP is properly checked by the auxiliary verb and does not cause the derivation
any problems. However, in (16b) the verb feature of the embedded TP stays unchecked
and the derivation crashes. Hence, the scrambling argument is compatible with both
overt and covert verb movement accounts.
3.3.2.1.3 Distribution of Negation Markers

King (1995) claims that sentential negation in Russian is associated with T in that negation is never separated from the finite verb and is adjoined to T. Since the genitive of negation on the object can be licensed only under the scope of negation, this scope shows where the negation is located in conjoined constructions, as in (17) (from King 1995: 42).
17. a. Ja ne budu [pisat’ pis’em] i [čitat’ knig].
I-Nom. not will write-Inf. letters-Gen. and read-Inf. books-Gen.
‘I will not write letters and read books.’

b. Ja ne pisala pis’em i ne čitala knig.
I-Nom. not write-Past letters-Gen. and not read-Past books-Gen.
‘I did not write letters and did not read books.’

c. Ja ne pisala pis’em, a čitala knigi.
I-Nom. not write-Past letters-Gen. and read-Past books-Acc.
‘I did not write letters and (*did not) read books.’
d. *Ja ne pisala pis’em i čitala knig.

I-Nom. not wrote-Past letters-Gen. and read-Past books-Gen.

‘I did not write letters and (*did not) read books.’

In (17a) the negation is adjoined to the auxiliary verb in T and takes scope over both conjuncts where the genitive of negation is properly licensed. In (17b), the negation is adjoined to T in each of the conjuncts and licenses the genitive of negation there. However, if the negation is adjoined to T in the first conjunct, the negation does not percolate to T’. As a result, only accusative case can be licensed to the object in the second conjunct, as in (17c), while the genitive of negation cannot be licensed there, as in (17d).

However, King’s assumption that the negative marker is adjoined to T leads to theoretical problems (Bailyn 1995, Kondrashova 1994, Borovikoff 2001). First, negation should not be located higher than vP to avoid taking scope over the subject. Indeed, when the negative feature percolates to T’ in (17), then it takes scope not only over internal arguments, but also over external arguments. However, this is not empirically true in Russian. Second, the assumption that the negation is inseparable from the finite verb makes the wrong prediction regarding independent infinitival sentences, as in (18).
18. a. Bilety bylo ne kupit’.
    Tickets-Nom. was not buy-Inf.
    ‘It was impossible to buy the tickets.’

b. *Bilety ne bylo kupit’.
    Tickets-Nom. not was buy-Inf.
    ‘It was impossible to buy the tickets.’

To account for the data, Bailyn (1995) proposes that negation projects its own phrase NegP located above VP, but below vP (PredP in Bailyn’s analysis). Because it is also a clitic phonologically, the Neg element requires lexical support. In case of an overt element in T, as in (17a), the negative element raises to T. This is illustrated in (19).

19. Ja ne budu [pisat’ pis’em]
    I-Nom. not will write-Inf. letters-Gen.
    ‘I will not write letters.’

---

2 NegP cannot be located above vP in Russian to avoid taking scope over the subject. Otherwise, the subject would appear under the scope of negation and would be wrongly predicted to take the genitive case of negation.
In cases where there is no overt element in T, as in (17b)-(17d), a verb raises into NegP, as in (20).

20.  Ja ne pisala pis’em
     I-Nom. not wrote-Past letters-Gen.

‘I did not write letters.’

Bailyn’s (1995) analysis with NegP located below vP correctly accounts for the data in (17a-d), where the constituents conjoin at the level of vP, but each of the conjuncts has its own NegP projection below vP. This accounts for why negation in the first conjunct does not take scope over the second conjunct, as in (17d). Moreover, Bailyn’s analysis with a separate NegP correctly predicts that the negative marker is independent from a finite verb. This allows to correctly account for the data in (18). The analysis is given in (21) (adapted from Kondrashova 1994).

     tickets-Nom. was not buy-Inf.

‘It was impossible to buy the tickets.’
Kondrashova (1994) shows that similar to modal clauses, independent infinitival clauses have Modal P with a null modal operator in them. The analysis in (21) demonstrates that the negative marker can cliticize to the closest element in the structure, i.e., the infinitive, but it cannot cliticize to the auxiliary *bylo* since the null modal operator prevents the negative marker from raising to T.

It has been shown so far that Bailyn’s (1995) analysis of covert verb movement provides a good account for the data with genitive of negation scope. However, this analysis is also compatible with a verb movement hypothesis, as illustrated in (22).

22.  Ja ne pisala pis’em

I-Nom. not wrote-Past letters-Gen.

‘I did not write letters.’
The structure in (22) shows that nothing precludes the verb from overt movement to T. As long as the NegP merges in the structure below vP and does not take scope over the subject, the negative marker can cliticize to the verb and raise to T overtly.

In sum, the distribution of negation marker in Russian does not provide any evidence in favor of the verb movement hypothesis.

3.3.2.1.4 Yes-no Questions with Particle *li*

King (1995) claims that the verb movement analysis makes the right prediction about the yes-no questions with particle *li*. If the formation of *li* yes-no questions involves the head-movement of material from T to C, then the negative marker should also move to C in *li* questions, as in (23) (from King 1995: 42).

23. a. Oni sprosili, ne videli li my Ivana vchera vecherom.
    They asked not saw-Past-pl. Q we Ivan yesterday evening
    ‘They asked if we hadn’t seen Ivan yesterday evening.’

   b. *Oni sprosili, videli li my ne Ivana vchera vecherom.
    They asked see-Past-pl. Q we not Ivan yesterday evening
    ‘They asked if we hadn’t seen Ivan yesterday evening.’

The data in (23a) show that the verb with the cliticized negative marker moves to the head of C (or FiniteP in Rizzi’s 1997 left-periphery). Moreover, the data in (23b) illustrates that the negative marker cannot have *ne* without verbal support in Russian. The movement of the verb to C (or Fin) provides evidence that the verb moves to T before it lands in C (Fin); otherwise, skipping T would result in the locality condition violation where T is closer to C (Fin) than v. However, the data does not shed any light on whether the verb moves to T in sentences without T to C movement of the verb, i.e., in declarative sentences.
3.3.2.1.5 Russian Word Order in Transitive Sentences and VSO Languages

Bailyn (1995) claims that a direct comparison of Welsh and Russian examples makes it apparent that the structure of Russian word order does not correspond to the structure of Welsh word order, which is a true VSO language, as illustrated in (24) (from Bailyn 2004: 35).

24. a. Rhoddodd yr athro lyfr i’r bachgen ddoe V-S-DO-IO Welsh
gave-3sg. the teacher book to the boy yesterday
‘The teacher gave a book to the boy yesterday.’

b. *Dal učitel’ knigu mal’čiku včera. *V-S-DO-IO Russian
gave-3sg. teacher-Nom. book-Acc. boy-Dat. yesterday
‘The teacher gave a book to the boy yesterday.’

The data in (24) show that VS DO IO is unacceptable in thetic contexts in Russian, whereas it is the norm in a true VSO language like Welsh. However, the cross-linguistic comparison of word orders is irrelevant to the issue of verb movement. For example, French, which is considered an SVO language, has verb movement to T, while English, which is also an SVO language, does not have verb movement to T. Hence, the surface word order may be misleading in terms of the movement of the verb.

3.3.2.1.6 Pronoun Fronting

Pronouns in Russian usually appear before the verb, as demonstrated in (25).

25. a. Ivan ego priglasil.
Ivan him-Acc. invited
‘Ivan invited him.’

b. Ivan emu pomog.
Ivan him-Dat. helped
‘Ivan helped him.’

c. Ivan s nim perepisyvaetsja.
Ivan with him corresponds
‘Ivan corresponds with him.’

The data show that regardless of the case of a pronoun, it appears preverbally in non-emotive sentences. Pronouns may appear postverbally only in emotive sentences when the focal stress is on the verb, as in (26a) or on the pronoun, as in (26b).

26. a. Ivan PRIGLASIL ego.
    Ivan invited him-Acc.
    ‘Ivan invited-Foc him.’

    b. Ivan priglasil EGO.
    Ivan invited him-Acc.
    ‘Ivan invited him-Foc.’

Since pronouns merge into the structure in the same position where their non-pronominal counterparts merge into the structure, it is natural to assume that they have moved to the preverbal position. Under Bailyn’s (1995) account which assumes no movement of the verb, the fronted pronouns are located in Spec of vP. However, this account is not superior to King’s (1995) verb movement account where the fronted pronouns are located in a position adjoined to TP.³ Therefore, the data with fronted pronouns is compatible with both verb movement and no verb movement analyses.

³ Bailyn (1995) argues that King’s analysis where the topic position is adjoined to TP and focus position is in Spec TP, cannot account for the sentences with fronted focus subjects, as in (i) below.

i. Kto videl Ivana? BORIS ego videl.
Who saw Ivan Boris him saw
‘Who saw Ivan?’ ‘Boris-Foc. saw him.’

However, the contrastive focus position could be accounted for under the assumption that contrastive focus items raise to FocusP, which could merge in the derivation above TP.
3.3.2.1.7 Adverb Test

Pollock (1989) was the first to propose that adverb placement can be used as a test for verb movement in different languages. In French, certain adverbs follow the verb and precede the direct object showing that the verb moves to T. In English, on the contrary, the position of these adverbs before the verb proves that the verb does not move. This is illustrated in (27)-(28).

27. a. Je sais que Jean embrasse souvent Marie.
   I know that Jean kisses often Mary
   ‘I know that John often kisses Mary.’

   b. *Je sais que Jean souvent embrasse Marie.
   I know that Jean often kisses Mary
   ‘John often kisses Mary.’

28. a. I know that John often kisses Mary.

   b. *I know that John kisses often Mary.

In Russian, it has been assumed (Bailyn 1995, Ionin & Wexler 2001, Harves 2002, among many others) that the most natural position of the adverb is before the verb, as in (29a).

29. a. Ja dumaju chto Ivan často celuet Mashu.
   I think that Ivan-Nom. often kisses Mary-Acc.
   ‘I think that Ivan often kisses Mary.’

   b. ?Ja dumaju chto Ivan celuet často Mashu.
   I think that Ivan-Nom. kisses often Mary-Acc.
   ‘I think that Ivan often kisses Mary.’

Bailyn 1995 (among many others) claims that (29b) is ungrammatical, thus, showing that Russian patterns with English where there is no verb movement. However, the actual picture is more complicated. Even though the pre-verbal position of an adverb
is preferable for speakers, the postverbal position of an adverb in Russian is not as bad as it is in English. More evidence for this comes from other Slavic languages.

Cross linguistic data from Ukrainian, Polish, Bulgarian and Serbo-Croatian show that the postverbal position of an adverb is not completely ungrammatical in other Slavic languages, but is rather degraded. Some examples with manner and frequency adverbs are given in (30-33).

30. Ukrainian (an East Slavic language)
   a. Ivan (švidko) jist’ (?švidko) beterbrody.
      Ivan-Nom. quickly eats quickly sandwiches-Acc.
      ‘Ivan (quickly) eats (quickly) sandwiches.’
   b. Ivan (často) ciluye (?často) Mashu.
      Ivan-Nom. often kisses often Mary-Acc.
      ‘Ivan (often) kisses (often) Mary.’

31. Polish (a Western Slavic language)
   a. Jan (szybko) jada (?szybko) kanapki.
      Ivan-Nom. quickly eats quickly sandwiches-Acc.
      ‘Ivan (quickly) eats (quickly) sandwiches.’
   b. Jan (czesto) całuje (?czesto) Marie.
      Ivan-Nom. often kisses often Mary-Acc.
      ‘Ivan (often) kisses (often) Mary.’

32. Bulgarian (an Eastern South Slavic language)
   a. Ivan (bûrzo) jade (?bûrzo) sandviči.
      Ivan-Nom. quickly eats quickly sandwiches-Acc.
      ‘Ivan (quickly) eats (quickly) sandwiches.’
   b. Ivan (često) celuva (?često) Maria.
      Ivan-Nom. often kisses often Mary-Acc.
      ‘Ivan (often) kisses (often) Mary.’
33. Serbo-Croatian (a Western South Slavic language)
   a. Ivan (brzo) jede (?brzo) sendvice.
      Ivan-Nom quickly eats quickly sandwiches-Acc.
      ‘Ivan (quickly) eats (quickly) sandwiches.’
   b. Ivan (cesto) ljubi (?cesto) Maria.
      Ivan-Nom. often kisses often Mary-Acc.
      ‘Ivan (often) kisses (often) Mary.’

   Native speaker intuitions regarding the data with pre-verbal and postverbal
   adverbs are then consistent in that the pre-verbal position is preferred, but the postverbal
   position is not ruled out as ungrammatical and is allowed in fast or casual speech. This
   means that Slavic languages do not pattern together with English where postverbal
   position of an adverb is completely ungrammatical.

   In the absence of other tests for verb movement, the adverb test is very significant
   evidence for proving or disproving verb movement. The results of the adverb test are
   based on the experiment discussed in chapter 2. I will briefly summarize the results
   below and discuss the implications of these results for the syntactic analysis.

   3.3.2.2 Implications of the Adverb Placement Test Results

   First, the Russian individual and group results show that the best place for manner
   and frequency adverbs is before the verb. SVO, OVS and SOV sentences demonstrate the
   same pattern where the immediate preverbal position is better than the postverbal one.
   Moreover, neither type of adverb nor perfectivity of the verb affects the adverb
   placement. Second, the postverbal position is less preferred by speakers; however, it is
   not ruled out as completely ungrammatical by most of the speakers, but rather has a
   significantly degraded status. Importantly, the Russian vs. English comparison test
   revealed that the postverbal position of an adverb in Russian was significantly better than
the same position of an adverb in English. This means that Russian differs from English in adverb placement.

The results of the adverb placement test have a direct implication for the syntactic analysis of the word order. The fact that the preverbal position is grammatical and strongly preferred in Russian signifies that the verb does not move as high as TP. Otherwise, if the verb moved to TP, then the preverbal position would be expected to be ungrammatical.

At the same time, the fact that the postverbal position has a degraded status, rather than grammatical or completely ungrammatical status, needs to be explained. Let us entertain some possibilities. One way to account for the degraded status could be to suggest that adverbs can optionally left-adjoin to VP in Russian, as in (34).

34. a. Ivan (bystro) est (/?/?bystro) buterbrody.

Ivan quickly eats-3sg. quickly sandwiches

‘Ivan (quickly) eats (quickly) sandwiches.’

b.           TP

       Ivan  
       T’

             T

            vP

       bystro  
       vP

       tsubj

       est

            v’

               VP

       bystro  
       VP

       buterbrody

       tv

The structure in (34b) illustrates the hypothetical case when an adverb is either adjoined to vP or to VP. If Russian allows adjunction to VP, then postverbal position of the verb is expected to be grammatical. However, as the data show, the postverbal
position is evaluated as degraded by most of the speakers. Moreover, two adjunction positions are expected to have different interpretations related to difference in focus scope. For example, vP adjoined adverbs are expected to have a wider scope over VO, while VP adjoined adverbs are expected to have a narrow scope over O only. This means that with VO focus scope speakers should prefer pre-verbal adverb position while with narrow focus scope speakers should accept more sentences with postverbal adverbs. However, this prediction is not supported empirically, as shown in chapter 2, since regardless of the focus scope, speakers have a strong preference for preverbal position of adverbs and degraded status of postverbal adverbs. This means that the position of an adverb is not tied to a particular interpretation. Since the postverbal position is not preferred and is not related to a particular interpretation, the VP adjunction analysis becomes very problematic.

Similar problems jeopardize an account where the verb raises to some functional projection FP in between vP and TP, which may stand for an EventivityP (Travis 1994), PerfP (Slabakova 2001) or AspP (Smith 1991, Borik 2002, Pereltsvaig 2005). The derivation with FP is given in (35). In this case, two positions for an adverb are created and the postverbal adverbs are wrongly predicted to be completely grammatical. Moreover, similar to VP adjunction, two interpretations are expected to be associated with two adverb positions, which are not supported by the data.

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4 Notice that it is also not the case that the degraded status is related to individual variation of speakers: some speakers allow VP adjunction and some not. If it were the case, then the individual results would display a split in acceptability of adverbs in postverbal position. Some speakers would evaluate postverbal adverbs as grammatical and some as ungrammatical. However, individual results reveal that most of the speakers evaluate postverbal adverbs as neither grammatical nor ungrammatical, assigning them a degraded status. See section 2.4 in chapter 2 for more detail on the results of the adverb placement test.

5 I am grateful to Paula Kempchinsky for pointing this idea to me.
Another possibility would be to assume that the verb optionally raises to FP in Russian. In this case the postverbal adverbs are expected to be grammatical if the verb raises to FP and ungrammatical if the verb does not raise. However, this possibility requires an independent motivation to explain an optionality of verb raising to FP and, consequently, can be discarded. Therefore, we conclude that the verb does not move out of vP in SVO sentences in Russian. The same is true for other word order permutations such as OVS and SOV where the immediate preverbal position is significantly better than the postverbal position.

However, if the verb does not move out of vP in Russian and adverbs cannot adjoin to VP, then Russian should be similar to English and treat postverbal adverbs as ungrammatical, which is not the case either. Indeed, Russian postverbal adverbs are not completely ungrammatical in Russian, but rather have a degraded status. This means that there must be something in the derivation of the word order permutations that differentiates Russian from English. I would like to propose that the degraded status of postverbal adverbs is similar to the degraded status of VSO, VOS and OSV orders, which are computed to encode the pragmatic structure in Russian. In chapter 5, I propose that what differentiates the two languages is the ranking of the constraints in the pragmatic
component of grammar responsible for computing the word order permutations in Russian and in English. Similar to SVO and VSO word order permutations, the preverbal and postverbal position of adverbs does not affect the pragmatic structure of a sentence and, consequently, does not cause strong violations of high ranking constraints. The only violation that it causes is the violation of linearity of constituents, which is a low ranking constraint. As a result, VSO and postverbal adverbs have a degraded status compared to SVO and preverbal adverbs, respectively. In English, the linearity constraint is high ranking and, consequently, the permutations of the basic word order cause violations of a high ranking constrain resulting in complete ungrammaticality of those word orders. I will return to the analysis of adverbs in chapter 5. However, what is crucial for now is that the verb does not move out of vP in Russian, similar to English.

3.3.2.3 Concluding Remarks on the Verb Feature in Russian

It has been shown that most of the arguments pro and contra verb movement that King (1995) and Bailyn (1995, 2003, 2004) provide (e.g., coordination, scrambling, distribution of negation markers, yes-no questions with particle li, pronoun fronting and comparison with VSO languages) are not conclusive. For example, the coordination argues for no verb movement analysis while, yes-no questions with particle li argues for the verb movement analysis. Scrambling, distribution of negative markers, pronoun fronting and comparison with VSO languages are compatible with both analyses. The deciding factor for verb movement has been the adverb placement test. Based on this test, it has generally been assumed that Russian patterns with English where adverb is grammatical in preverbal position and ungrammatical in postverbal position.

This assumption was experimentally tested with native speakers of Russian and contrasted with the control results of native speakers of English. The results in chapter 2 showed that the preverbal position is grammatical in both languages; however, the postverbal position receives different grammaticality judgments in English and in
Russian. It was suggested that the verb does not move out of vP in Russian, similar to English. In chapter 5, I will show that the degraded, but not ungrammatical status of adverbs can be accounted for within a model which considers word order permutations as part of a post-syntactic component of grammar.

3.3.3 The EPP in Russian

The status of the EPP in Russian has also received significant attention in the literature (Bailyn 1995, 2003, 2004, Babyonyashev 1996, Junghanns and Zybatow 1997, Borovikoff 2001, Lavine and Freidin 2002, among others). There is a view that all grammatical features in Russian, including the EPP, are checked through the operation Agree, as in Chomsky (2000, 2001), and do not require movement. For example, Junghanns and Zybatow (1997) argue that in many cases there is no reason to assume movement of the verb, the subject and the object, as shown in examples in (36) (from Junghanns and Zybatow 1997:298-299).

36. a. Maša [vP vnimatel’no [vP t̩ čitaet knigu]]
   Masha-Nom. attentively read-3sg. book-Acc.
   ‘Masha is attentively reading a book.’

b. Lajut [vP sobaki t̩ ]
   bark-3sg. dogs-Nom.
   ‘Dogs are barking.’

c. Prislali [vP muž t̩ den’gi].
   Send-Past.-masc.sg. husband-Nom. money-Acc.
   ‘The husband sent money.’

In (36a), where the adverb marks the left periphery of the VP, the verb and the object stay in situ. Similarly, in (36b) and (36c) there is no reason to assume that the subject and the object move rather than stay in situ. Thus, Junghanns and Zybatow (1997) claim, “If an element stays in situ, then its features are checked at LF. On the other hand,
overt (IS-) [Information Structure] movement necessarily involves early checking of (some of) the element’s grammatical features since movement up the tree is not undone at LF” (Junghanns and Zybatow 1997:300).

However, there are several problems with this approach. First, this approach allows movement optionality where in some cases a constituent moves and in some it does not. For example, in (36a) the verb stays in situ and in (36b) and (36c) the verb moves out of vP. Moreover, it is not clear what triggers this optional verb movement since sentences in (36a) and (36b) are used in thetic contexts, and, consequently, have the same discourse structure with focus taking scope over the whole sentence. Second, the data in Russian show that movement is triggered not only by discourse structure (or Information Structure in their analysis), but also by the EPP requirement. The evidence for the existence of the EPP in Russian comes from the experimental data with thetic (all focus) sentences discussed in chapter 2. Specifically, the data reveal that the dominant word order in thetic transitive, ditransitive and unergative sentences is subject initial (SVO in transitive, SV IO DO/ SV DO IO in ditransitive, SV(PP) in unergative). The only class of thetic sentences that allows variation is unaccusative sentences where SV(PP) word order co-occurs with (PP)VS word order. Since the discourse structure of thetic sentences excludes any discourse-functional movement (i.e., topicalization or focalization), the presence of the subject in the preverbal position uniformly argues for the important role of the EPP requirement in Russian.

Further evidence for the existence of the EPP in Russian comes from inversion constructions (Bailyn 2003, 2004), which require movement of a non-nominative constituent out of the lexical projection vP. These constructions include the locative inversion construction, adversity impersonals, PP constructions, ‘bad health’ verbs, dative experiencer constructions and quotative inversion constructions, given in (37).
37. a. Locative inversion
   \[ \text{Na posadočnuju polosu prizemlilsja samolet} \]
   ‘The airplane landed on the runway.’

b. Adversity impersonals
   \[ \text{Uši založilo} \]
   ‘My ears got clogged up.’

c. PP constructions
   \[ \text{U nas rodilas'} dočka } \]
   ‘We had a daughter born.’

d. ‘Bad health’ verbs
   \[ \text{Sestru tošnilo ot ryby.} \]
   ‘The sister got nauseated from the fish.’

e. Dative experiencers
   \[ \text{Saše nravjatsja deti.} \]
   ‘Sasha likes children.’

f. Quotative inversion
   \[ \text{“Ničego sebe!” skazal Petja.} \]
   ‘Wow’ said Petya.

All sentences in (37) can be produced in thetic contexts and, consequently, can have all focus discourse structure. Yet, all examples in (37) have a common feature where a non-nominative element appears in the preverbal position in these sentences and
checks the EPP there. Thus, the data demonstrate another important and uncontroversial property of the EPP in Russian, i.e., its category neutral nature. In (37a), the EPP is shown to be checked by a Locative phrase, in (37b) and (37d) by an accusative NP, in (37c) by a PP construction, in (37e) by a dative experiencer argument and in (37f) by a quotative.

The idea that the EPP in Russian can be satisfied with any XP is also illustrated by the data in (38)-(39) (Borovikoff 2001: 202-203).

38. a. Pod mostom bylo/kazalos’ ix izljablennym mestom dlja igr.
   Under bridge-Instr. was/seemed their favorite place-Instr. for games
   ‘Under the bridge was/seemed their favorite place to play.’

   b. U morja bylo/schitalos’ otlichnym mestom otdyxa.
   By sea-Gen. was/considered excellent place-Instr. rest
   By the sea was (considered) an excellent place to spend a vacation.’

39. a. V sostave kazhdoj komissii okazalos’ po rabočemu.
   In staff each committee was DIS worker-Dat.
   ‘In each committee there was one workman.’

   b. V kazhdom diktante bylo dopuščeno po odnoj ošibke.
   In each dictation was admitted DIS one mistake-Dat.
   ‘One mistake was made in each dictation.’

In (38)-(39), the postverbal DPs/APs with instrumental case or distributive phrases are part of the predicate phrase structure, so the only remaining candidate for the EPP checking is the sentence-initial Locative phrase which merges the structure as an internal argument (see unaccusative sentences in chapter 4). Hence, it has been generally agreed that Russian has a category neutral EPP requirement (Bailyn 1995, 2003, 2004, Babyonyshev 1996, Kondrashova 1996, Borovikoff 2001, Lavine & Freidin 2002, among others).
Although there is no question about the presence of the EPP requirement in Russian, there is still no consensus on whether this requirement takes the form of an EPP feature (Bailyn 1995, Babyonyshev 1996, Borovikoff 2001) or whether the EPP is not a feature, but is just a requirement for an overt material in subject position (Lasnik 2001, Bailyn 2003, 2004, Harves 2002, Lavine & Freidin 2002). The literature reveals that the status of any proposed principle is completely theory-dependent. Within the earlier Minimalist approach of Chomsky (1993, 1995), the EPP is a feature-checking (i.e., morphological) requirement that the D-feature of T be checked overtly. On the contrary, within later Minimalist Approach (Chomsky 2000, 2001), the EPP property is regarded as a requirement for overtly filled specifier. This is a very important difference that I will return to later in this section.

However, the issue that has not received consensus in the literature on Russian is the location of the EPP feature in the derivation and the nature (A- or A-bar) of the movement to fulfill this requirement. The researchers unanimously agree that the head carrying the EPP should be located below CP in Russian, as proved by the following two arguments. First, the data show that the PP VS and Dat V Nom word orders can appear in thetic embedded sentences in Russian, as in (40).

40. a. Boris skazal, čto na yablone poyavilis’ počki

   Boris-Nom. said that on apple-tree appeared buds-Acc.

   ‘Boris said that buds appeared on the apple-tree.’

b. Boris skazal, čto emu trebuetsja vrač.

   Boris-Nom. said that he-Dat. requires doctor-Nom.

   ‘Boris said that he requires a doctor.’

In (40a) the PP VS word order follows the complementizer čto ‘that’ showing that the PP checks the EPP in a position below CP. Similarly, in (40b), the dative argument checks the EPP feature below the CP domain.
Another argument comes from yes-no questions in Russian. Following Rizzi’s (1997) split complementizer system, as in (41), where the Finiteness Projection (FinP) is located at the low end of the CP domain, I assume that the verb moves to FinP in Russian yes/no questions, as illustrated in (42).

41. [Force P …(Topic P) … (Focus P) … Fin P …]

42. Kupila Olja knigu?


‘Has Olya bought the book?’

If the verb is at the lowest end of CP, then the PPs and dative arguments checking the EPP feature in (43) also stay below the CP domain.

43. a. Pojavilis’ na dereve počki?

Appear-Past.-pl.-refl. on tree buds-Nom.

‘Have the buds appeared on the tree?’

b. Trebuetsja Borisu vrač?

Require-Pres./3sg.-refl. Boris-Dat. doctor-Nom.

‘Does Boris require a doctor?’

In (43), the yes/no question is formed by the verb moving to FinP, while the PP and the dative argument stay below the CP domain. Based on the two arguments above, it has been proposed that the EPP is checked below the CP domain in Russian (King 1995, Bailyn 1995, Babyonyshev 1996, Kondrashova 1996, Borovikoff 2001, among others).

Now I will turn to the issue where a consensus has not been reached: the nature of the landing site involved in EPP checking. In general, there are three approaches to this issue: the EPP checking involves A-movement (Bailyn 2003, 2004), A’-movement (Babyonyshev 1996) and a mixture of A- and A’-movement (Borovikoff 2001). The three approaches are summarized in the following subsections.
3.3.3.1 Bailyn (2003, 2004)

According to the first approach, proposed and developed in Bailyn (1995, 2003, 2004), the EPP is a feature on T checked by an XP raised to Spec TP as a result of an overt A-movement. Following Alexiadou and Anagnostopoulou (1998), Bailyn (2003, 2004) argues that all cases of Inversion constructions, as in (37), as well as the inverted word order in transitive OVS sentences, are driven by the EPP that forces movement of any XP into the Spec TP position. In addition, Bailyn (2003, 2004) claims that the verb feature forces verb movement to T in Inversion cases. To account for the lack of verb movement in SVO sentences in Russian, Bailyn proposes that there are two ways to satisfy the verb feature in Russian: by Nominative subject moving to Spec TP or by a raised tensed verb (head movement).

If the raised XP is the Nominative subject, then the Nominative argument checks the EPP and satisfies the verb feature, as shown in (44). This mechanism allows Bailyn to account for the fact that the verb does not move in SVO sentences.

44. a. Ivan čitaet etu knigu

Ivan-Nom. reads-3sg. this book-Acc.

‘Ivan reads this book.’

b. 

```
  TP
   /\           
  T'        T
   /\        /\ 
  vP       vP
    /\     /\  
   v    t_i v'
    \    /      
     v     VP
      \   /  
       v  etu knigu t_k
```

In (44), a transitive SVO is derived when the nominative argument moves to Spec TP to check the EPP and also the verb feature, while the verb stays in situ.
If the construction involves inversion, as in OVS sentences or Inversion constructions in (37), then the raised XP checks the EPP and the verb moves over the Nominative subject to check the verb feature, as illustrated in (45) and (46).

45. a. Etu knigu čitaet Ivan


‘Ivan reads this book often.’

b. 

\[
\begin{align*}
&TP \\
&\quad etu\ knigu_i \\
&\quad T' \\
&\quad T \\
&\quad vP \\
&\quad \chiitaet_v \\
&\quad v \\
&\quad t_k \\
&\quad VP \\
&\quad t_i \ldots t_v
\end{align*}
\]

46. a. Na posadočnuju polosu prizemlilsja samolet


‘The airplane landed on the runway.’

\[
\begin{align*}
&TP \\
&\quad PP_r \\
&\quad PP \\
&\quad Na \ posadočnuju \\
&\quad DP \\
&\quad polosu \\
&\quad T \\
&\quad vP \\
&\quad \chiizemlilsja_i \\
&\quad v \\
&\quad v \\
&\quad t_k \\
&\quad VP \\
&\quad t_j \\
&\quad t_i
\end{align*}
\]

In (45)-(46), the accusative NP *etu knigu* ‘this book’ or the PP *na posadočnuju polosu* ‘onto runway’ checks the EPP on T. Also, the verb moves to T to check the verb feature, which cannot be checked by an accusative DP or a PP. The Nominative case is
valued through Agree with the uninterpretable φ-features on T. In brief, Bailyn’s (2003, 2004) analysis accounts for the Generalized Inversion constructions by proposing the EPP feature in Spec TP and a verb feature on T. However, this analysis is problematic in several respects.

One argument against the A-movement Generalized Inversion analysis comes from the adverb test. The analysis predicts that SVO sentences, where the verb does not move, should allow the adverbs in preverbal position and disallow them in postverbal position, while in OVS sentences the most natural position of an adverb should be postverbal. However, the data show that in OVS sentences and Locative inversion constructions the most natural and fully acceptable position of an adverb is before the verb, as in (47).

47. a. Obed bistro sgotovila Olja.
Dinner-Acc. quickly cooked Olga-Nom.
‘Dinner was quickly cooked by Olga.’

b. ?Obed sgotovila bistro Olja.
Dinner-Acc. cooked quickly Olga-Nom.
‘Dinner was cooked quickly by Olga.’

c. Gosti bystro vošli v dom.
Guests-Nom. quickly came in into house.
‘The guests quickly came into the house.’

d. ?Gosti vošli bystro v dom.
Guests-Nom. came in quickly into house.
‘The guests came quickly into the house.’

The data in (47) is supported by experimental evidence (see chapter 2) which confirms that the preverbal position in SVO and OVS sentences is equally preferred over the postverbal position. This argues against Bailyn’s Generalized Inversion analysis where the moved XP is in Spec TP and the verb is adjoined to the head of TP.
Furthermore, Bailyn’s Generalized Inversion analysis makes a prediction that the moved XP should show subject properties. Bailyn (2003, 2004) claims that this is the case and that an inverted XP constituent is in the syntactic subject position. However, as will be shown below, this is not supported by the data in Russian.

The first piece of evidence provided by Bailyn (2003, 2004) is the ability of an inverted constituent to bind anaphors, as in (48) and (49).

48. a. *Svoi podčinennye volnujut Ivana
   [self’s subordinates]-Nom.pl. worry Ivan-Acc
   ‘Self’s subordinates worry Ivan.’

   b. ??Ivana volnujut svoi podčinennye.
   Ivana-Acc. volnujut self’s subordinates-Nom.pl.
   ‘Ivan is worried by his subordinates.’

49. a. *Svoi staryj mer vernulsja v Moscu.
   Self old mayor-Nom. returned to Moscow.
   ‘Moscow’s old mayor returned to Moscow.’

   b. ??V Moskvu vernulsja svoj staryj mer.
   In Moscow returned self old mayor-Nom.
   ‘To Moscow i returned its old mayor.’

Bailyn (2004) correctly predicts that (48a) and (49a) should be ungrammatical since an anaphor embedded in the subject violates principle A. However, he also predicts that (48b) and (49b) should be grammatical since there is no Principle A violation there. Interestingly, the data reveal that there is a grammaticality contrast between the anaphor and a pronoun in sentences, (48b) and (49b) and in sentences (50a) and (50b), respectively.

50. a. Ivana volnujut ego podčinennye.
   Ivana-Acc. volnujut his subordinates-Nom.pl.
   ‘Ivan is worried by his subordinates.’
b. V Moskvu vernulsja ejo staryj mer.’

In Moscow returned its old mayor-Nom.

‘Moscow’s old mayor returned to Moscow.’

The contrast between (48b) vs. (50a), as well as between (49b) vs. (50b), demonstrates that the anaphor causes the degraded grammaticality in the sentences in (48b) and (49b), which could be significantly improved by pronouns. The naturalness of the pronoun rather than the anaphor shows that the element in that position is free in its binding domain. This may be accounted for under the reconstruction hypothesis stating that the constituents occupying A-positions do not reconstruct at LF while the constituents that occupy A’-positions may reconstruct to their base-generated positions. If we assume that the accusative argument and the PP are in A’-position, rather than A-position, then they may undergo reconstruction to their original positions at LF. As a result, the nominative NP c-commands the reconstructed argument.

The next piece of evidence provided by Bailyn is related to Principle B, which requires that pronouns must be free in their binding domain. Bailyn proposes that if a raised XP occupies an A-position, then the Inversion construction should improve binding relations. However, this is not what we find in the data.

51. a. *Ivan_i ljubit ego_i druzej.  (Bailyn 2004:22)

Ivan-Nom. loves his friends-Acc.

‘Ivan loves his friends.’

b. *Ego_i druzej ljubit Ivan_i.

His friends-Acc. loves Ivan-Nom.

‘His friends are loved by Ivan.’

52. a. *Staršij brat_i pojavilsja v ego_i dome.  (Bailyn 2003:161)

Older brother-Nom appeared in his house

‘The older brother appeared in his house.’
b. *V ego, dome poyavilsja staršij brat.

In his house appeared elder brother.

‘In his house appeared the elder brother.’

Bailyn (2003, 2004) argues that (51b) and (52b) should be better than (51a) and (52a) where the ungrammaticality can be accounted for by the violation of Principle B. In fact, even though both sentences (51) and (52) are grammatical without the coreference, the interpretation where the pronominal ego ‘his’ is co-referenced with Ivan or staršij brat ‘elder brother’ is excluded regardless of the position of the DP with the pronoun.

Similarly to the examples in (48)-(50), the unacceptability of (51b) and (52b) could be easily accounted for if we assume that the accusative argument and the PP occupy an A’-position. At LF they reconstruct to their original position in VP and are c-commanded by the nominative argument triggering a principle B violation. The support for this analysis comes from the fact that sentences in (51)-(52) significantly improve if the pronouns are substituted by the anaphor, as in (53)-(54).

53. a. Ivan ljubit svoix druzej. (Bailyn 2004:22)

Ivan-Nom. loves self’s friends-Acc.

‘Ivan loves self’s friends.’

b. Svoix druzej ljubit Ivan.

Self’s friends-Acc. ljubit Ivan-Nom.

‘Self’s friends are loved by Ivan.’

54. a. Starshij brati pojavilsja v svojom dome. (Bailyn 2003: 161)

Older brother-Nom appeared in self house

‘The older brother appeared in self’s house.’

b. V svojom dome poyavilsja starshij brat.

In self house appeared elder brother.

‘In self’s house appeared the elder brother.’
In (53a) and (54a), the anaphor is properly c-commanded by the nominative binder in overt syntax and in (53b) and (54b), it is properly c-commanded after reconstruction.

Finally, Bailyn provides evidence from the Principle C effects which he claims can be triggered in the inverted constructions, but not in case of Long-Distance (A’-) movement. An example of A-movement, but not A’-movement, triggering a Principle C violation is given by the English paradigm in (55) (from Bailyn 2003: 162):

55. a. Friends of Johni introduced himi to Mary.
   b. *Hei was introduced to Mary by friends of Johni.
   c. Himi, friends of Johni introduced tı to Mary.

Passivization in (55b) triggers a Principle C violation whereas Topicalization in (55c) does not. However, in contrast to Bailyn’s accounts, the Russian data does not reveal a grammaticality asymmetry between the PP inversion and Long Distance (discourse-related)-movement, as illustrated in (56)-(57) (Bailyn 2004:25).

56. a. [Znakomye Ivana,] predstavili egoi predsedatelju.
   ‘Friends of Ivani introduced hom to the chairman.’
      Him-Acc. introduced friends-Nom Ivan-Gen. chairman-Dat.
      ‘Hei was introduced to the chairman by Ivani’s friends.’
      ‘Himi, friends of Ivani introduced to the chairman.’

57. a. [Znakomye Ivana,] žili u negoi.
   Friends-Nom Ivan-Gen lived at him
   ‘Friends of Ivani lived at hisi house.’
b. *U nego, žili [znakomye Ivana,].

At him lived friends-Nom. Ivan-Gen.

‘At his house lived friends of Ivan.’

c. *U nego, my xotim čtoby žili [znakomye Ivana,].

At him we want that lived friends-Nom. Ivan-Gen.

‘We want friends of Ivan, to live at his, (Ivan’s) house.’

(56a) and (57a) demonstrate that a possessive element does not c-command out of the NP containing it. Therefore, Principle B is not violated and the sentence is fully grammatical. In (56b) and (57b), the ungrammaticality is related to Principle C violations. However, if the DO and PP are assumed to be in Spec TP position in (56b) and (57b) and not undergo reconstruction, the sentences in (56c) and (57c), with A’-movement, are expected to be grammatical by allowing coreference of ego ‘him-Acc.’ or u nego ‘at his house’ and Ivan. Yet this is not the case and the reading with coreference is unavailable there. This means that equally ungrammatical sentences (56b-c) and (57b-c) involve a similar process of reconstruction.

Hence, Bailyn’s arguments related to Principle A, Principle B and Principle C do not provide evidence that the inverted PP undergoes A-movement and raises to Spec TP. On the contrary, all the data is compatible with the A’-analysis, which is discussed below.

3.3.3.2 Babyonyshev (1996)

Following Branigan (1992), Babyonyshev (1996) proposes that there are two landing sites for pre-verbal elements in Russian: the Specifier of ΠP, a separate projection immediately dominating the TP, and the Specifier of the TP, as illustrated in (58) (from Babyonyshev 1996: 97).
According to Babyonyshev’s (1996) analysis, the non-nominative preverbal XP occupies the Spec of ΠΠ in overt syntax and the nominative argument stays within the νP. Later, the nominative NP undergoes covert rising to Spec TP position, checking its case on T. In sentences where the nominative argument appears preverbally, it passes through Spec TP where it checks case and φ-features, and then moves into Spec ΠΠ, as demanded by the EPP.

Babyonyshev (1996) argues that although the preverbal XPs and nominative subjects end up in the same position, the nominative subjects pass through TP, but the pre-verbal XPs do not. Her argument is based on the Binding Theory phenomena which demonstrate that pre-verbal DOs and PPs but not pre-verbal nominative NPs undergo reconstruction at LF. This means that preverbal DOs and PPs occupy an A’-position, and behave as if they were located in their base-generated VP-internal position for the purposes of the binding conditions. The nominative NPs, on the contrary, occupy an A-position at some point in the derivation and, thus, do not reconstruct to their original VP-internal position and are able to c-command the material inside the VP. The data is provided in (59) (from Babyonyshev 1996:43).
59. a. Vanja, ljubit *egoi/ *egoi sem'ju/ svojui sem'.

   Vanja-Nom. love-3sg him-Acc. his family-Acc./ self's family-Acc.

   ‘Vanya loves him/ his family.’

b. Vaninyi roditeli ljubjat egoi

   Vanya’s parents-Nom. love-3pl. him-Acc.

   ‘Vanya’s parents love him.’

c. *V Vaninomi dome živet oni.

   In Vanya’s house live-3sg. he-Nom.

   ‘In Vanya’s house lives he.’

d. V Vaninomj dome živut egoi roditeli.

   In Vanya’s house live-3pl. his parents-Nom.

   ‘In Vanya’s house live his parents.’

   In (59a) the nominative subject Vanja binds the pronoun ego ‘him-Acc.’ or the
   pronominal possessive element within the direct object ego sem’ju ‘his family-Acc.’ and
   creates a Principle B violation. Thus, the sentence is grammatical only when the
   possessive element within the direct object is a reflexive svoju sem’j ‘self’s family-
   Acc.’, which, therefore, must satisfy Principle A. In addition, (59b) demonstrates that a
   possessive element does not c-command out of the NP containing it. Otherwise, (59b)
   would be ungrammatical according to Principle B.

   In (59c), with a PP in the pre-verbal position, the ungrammaticality cannot be
   accounted for by Principle B violation since a possessive element does not c-command
   out of the NP containing it. Babyonyshev argues that the sentence must be ungrammatical
   because the PP is occupying an A’-position in overt syntax and has to undergo
   reconstruction at LF. As a result, the VP-internal pronoun on ‘he-Nom.’ binds the R-
   expression Vaninom, creating a Principle C violation. Moreover, Babyonyshev highlights
   that the ungrammaticality of (59c) demonstrates that the preverbal PP does not move
through the Spec of TP; otherwise, the PP could not undergo LF reconstruction and (59c) would be grammatical.

Finally, in (59d), similar to (59c), the PP, being in A’-position in overt syntax, can undergo reconstruction at LF. However, in contrast to (59c), the PP is not c-commanded by the pronoun ego ‘him-Acc.’ since the pronominal element is a possessive and cannot c-command out of the NP. Hence, Babyonyshev (1996) provides arguments that the PP in the locative inversion construction undergoes A’-movement, rather than A-movement.

Importantly, this argument may be applied to OVS sentences in Russian where the preverbal DO reveals the properties of an A’-movement, rather than an A-movement similar to PPs in the locative inversion constructions. This is illustrated in (60).

60. Ivanai priglasili *svoi roditeli/ egoi roditeli.

Ivan-Acc. invited self parents-Nom./ his parents-Nom.

‘Ivan was invited by his parents.’

The sentence in (60) shows that if the DO Ivana were in an A-position, then it would c-command the VP-internal element and the nominative argument with the reflexive svoi roditeli ‘self’s parents’ would be grammatical. Yet, this sentence is possible only with the pronominal possessive element in the nominative argument ego roditeli. Being in an A’-position, the accusative argument can reconstruct at LF. However, this does not cause violation of Principle C since a possessive element does not c-command out of the NP containing it. This shows that the DO Ivana is in an A’-position and has to undergo reconstruction to a VP internal position at LF.

To summarize, contra to Bailyn (2003, 2004) who argues for the A-position of the EPP checking constituent, Babyonyshev (1996) argues that the EPP is checked in an A’-position in a separate projection above TP. Based on the reconstruction principles of the Binding Theory, she demonstrates that when a nominative argument appears preverbally, it passes through the Spec of TP where it checks case, and then moves into the Spec of
ΠIP as demanded by the EPP. One the other hand, if a PP or a DO appears preverbally, it moves directly to the spec of ΠIP to fulfill the EPP requirement.

3.3.3.3 Borovikoff (2001)

Finally, there is an analysis which considers the EPP checking position as neither A, nor A’, but rather a mixture of both. Borovikoff (2001) argues against Babyonyshev (1996) and claims that there is “only one preverbal position in Russian discourse-neutral sentences which is required to be filled overtly” (Borovikoff 2001: 199).

Borovikoff’s first argument for a single Spec position is based on the data that pre-verbal subjects and fronted spacio-temporal phrases do not co-occur in discourse-neutral sentences. Sentences with subjects and PPs in the preverbal position require focusing of one of the two preverbal constituents, as in (61) (from Borovikoff 2001: 208).

61. a. Za domom rosla zemljanika.
   Behind house grew strawberry-Nom.
   ‘There was wild strawberry growing behind the house.’

   b. Za domom ZEMLJANIKA rosla.

   c. ZA DOMOM zemljanika rosla.

In (61b) and (61c), where the subject and the PP co-occur in the preverbal position, one of them attracts the focal stress (marked by capitalized words) to make the sentence felicitous. Moreover, the experimental evidence in chapter 2 supports this observation in that it shows that adults do not produce PP SV sentences and produce only 1% (6/563) of S PP V sentences in thetic contexts. Hence, the empirical evidence shows that only one constituent usually appears in the preverbal position in non-emotive sentences.

Another argument that Borovikoff (2001) uses to support a single Spec TP position in Russian is her observation that spacio-temporal phrases are not topicalized in the preverbal position and are not emphasized in any way by stress or intonation.
Moreover, they are obligatorily pre-verbal in thetic sentences, as she illustrates in (62) (from Borovikoff 2001:208).6

62. a.?Rosla zemljanika za domom.
   Grew strawberry-Nom. behind house

   b.?Rosla za domom zemljanika.

Borovikoff (2001) claims that the sentences in (62) are infelicitous. The experimental evidence in chapter 2 supports this observation by showing that in locative inversion constructions PP VS sentences are predominant (85%) while VS PP and V PP S sentences occur only in 15% (4/27) of the data. Moreover, the data show that the PP VS word order is not related to topicalization since it can occur in thetic (all focus) sentences. Hence, Borovikoff’s arguments suggest that there is one pre-verbal position, which is not related to topicalization in Russian.

Furthermore, she proposes that the EPP checking position, which is Spec TP, has a dual status where constituents moving to this position reveal A and A’ properties. In fact, this interpretation of the dual status is ambiguous. On the one hand, this interpretation can mean that constituents with either A or A’ properties can move to this position. On the other hand, this interpretation can mean that every constituent that moves to that position displays both A and A’ properties. Borovikoff (2001) argues for the second option where in her analysis the single Spec TP projection (she calls it the joint Subj/EPP position ) should always display some subject (A-properties). To prove that, she claims that locative phrases reveal A-properties, which are related to extraction across-the-board from coordinate structures and triggering that-trace effect, as in (63) and (64), respectively.

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6 Borovikoff (2001) argues that PPs are obligatorily preverbal in unaccusative thetic sentences. However, empirical evidence (see chapter 2) shows that both SV PP and PP VS (locative inversion) are possible word orders in unaccusative thetic sentences.
63. a. Na opushke [cvela čerjomuxa] i [peli pticy].
   In forest clearing blossomed cherry and sang birds
   ‘On the forest clearing blossomed cherry and sang birds.’

   b. Into the meadow [strolled Rosebud] and [ran Milo].

64. a. [Pod kakim oknom]i vy skazali, (?čto) ti rastjot siren’?
   Under which window you said that grows lilac
   ‘Under which window did you say (that) the lilac grows?’

   b. [Into which bar]i did you say (*that) ti sauntered the sheriff?

   The data in (63) displays extraction from two conjuncts, but these data do not support the idea that the PP movement is A-movement, rather than A’-movement, as shown in (65).

65. Gde Masha sobirala cvety, a Vanya pel pesni?
   Where Masha picked up flowers and Vanya sang songs
   ‘Where did Masha picked up flowers and Vanya sang songs.’

   In (65), the PP is extracted from two conjuncts, but displays an A’-movement rather than A-movement.

   The data in (64) show that the presence of the complementizer that makes the sentence ungrammatical in English, while in Russian, a that-trace effect with čto ‘that’ does not make the sentence ungrammatical, but rather degraded in grammaticality.

   However, if we compare the sentences with the PP movement in (64a), repeated in (66a), to the sentence with a moved nominative NP in (66b), then a grammaticality contrast in that-trace effect arises.

66. a. Pod moim oknom rastjot siren’.
   Under my window grows lilac
   ‘Lilac grows under my window.’
b. [Pod kakim oknom], vy skazali, (?čto) ti rastjot siren’?
Under which window you said that grows lilac
‘Under which window did you say (that) the lilac grows?’

c. Siren’ rastjot pod moim oknom
Lilac grows under my window
‘Lilac grows under my window.’

d. Čto, vy skazali (*čto) ti rastjot pod vašim oknom?
What you said that grows under your window
‘What did you say (that) grows under your window?’

The data in (66b) and (66d) reveal a contrast in grammaticality where wh-movement of the nominative NP triggers that-trace effect and movement of the locative PP does not. If the nominative argument and the PP had the same movement to Spec TP, then we would not expect the grammaticality contrast between (66b) and (66d). On the contrary, if the PP undergoes an A’-movement to Spec TP position, then acceptability of the sentence is predicted to be better than the acceptability of a sentence in which NP undergoes an A-movement to Spec TP. Hence, as shown by the data, preverbal PP arguments do not reveal A-properties.

In contrast to Borovikoff (2001), I propose that the dual (A/A’) status of Spec TP position is a result of a category neutral status of the EPP in Russian. The data showed that nominative arguments display A-properties, while non-nominative arguments (such as PPs, direct objects, etc.) display only A’-properties. Thus, the dual status is required in Russian to allow constituents with either A-properties or A’-properties to check the EPP in Spec TP position.

The dual approach to Spec TP is especially interesting since it receives independent motivation from various languages. Thus, Diesing (1990) argues for the ‘dual’ nature of the subject position in Yiddish. Haegeman (1995) proposes ‘mixed’ A-/A’-properties of subjects using the data from West Flemish, Italian and English, (see

3.3.3.4. Concluding Remarks on the EPP in Russian.

Three major alternative analyses regarding the EPP checking position have been discussed. It has been shown that the analysis where the EPP checking position is regarded as an A-position (Bailyn 2003, 2004), is not supported by the empirical evidence. The major problem of the analysis is that non-nominative arguments checking the EPP reveal consistent A’-movement properties, while nominative arguments checking the EPP reveal consistent A-movement properties. Therefore, the question that remains is the location of the EPP feature. According to Babyonyshev (1996), the EPP is located in a separate projection П above TP and the EPP checking position is an A-bar position. On the other hand, Borovikoff (2001) suggests that the EPP is located on T and the EPP checking position is Spec TP position.

Positing a separate projection П above TP (as in Branigan 1992, Babyonyshev 1996) raises an issue about the syntactic content and the necessity of that projection in Russian. Given that movement is morphology driven and each projection hosts certain syntactic features, positing a separate projection, which does not host any morphology, is not very effective. Furthermore, the analysis which creates an A’-position below CP runs into a problem where an A’-movement out of a clause crosses a potential landing site. Babyonyshev (1996:38) admits the problem and shows that an alternative solution to this would be to suggest that the EPP is checked in an outer Spec TP in the multiple specifiers account (Ura 1994) and the definition of the minimal domain is such that both Spec CP and the outer Spec TP are in the minimal domain of the same head.

In the later Minimalist approach, i.e., Derivation by Phase, φ-features of T value nominative case to an argument with matching features through the operation Agree and
do not require movement of the nominative argument to Spec TP. As a result, the status of Spec TP position reduces to checking the EPP of T. This eliminates any need to create a separate projection for checking the EPP, as in Branigan (1992) and Babyonyshev (1996). The EPP of T, or as it is also called “edge feature of T” is disassociated from φ-features of T. Hence, following the Derivation by Phase framework, I assume that the EPP is a requirement on overtly filled Spec TP through the operation Move (see Bošković 2002 for more discussion).

3.3.4 Aspectual Features of the Verb in Russian

The last type of features that I would like to discuss is aspectual features. Russian, as a Slavic language, is well-known for the overt realization of its rich aspectual morphology. Each verb in Russian (whether finite or non-finite) is specified for perfective or imperfective aspect. The means of signaling the perfective/imperfective distinction are extremely diverse, and the most productive include: (a) addition of a preverb, (b) use of aspectual suffixes, (c) irregular formation including stem alternation and stress shift (Filin, 1979: 40-41). Examples are given in (67).

67. a. *Preverbs*: a prefix is added to derive a perfective verb from an imperfective one (the choice of prefix is lexically determined for each verb).
   
   pisa - t’ - na - pisa - t’
   Imp./write - Inf. - Perf. - write - Inf.

   b. *Aspectual suffixes*: a suffix is added to a perfective verb to derive a secondary imperfective.

   otkry - t’ - otkry - va - t’
   Perf./open - Inf. - open - Imp. - Inf.

7 The apostrophe after the infinitival morpheme -t’ indicates palatalization.
c. Irregular formation including stem alternation

<table>
<thead>
<tr>
<th>bra</th>
<th>t’</th>
<th>vzya</th>
<th>t’</th>
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<tbody>
<tr>
<td>Imp./take - Inf.</td>
<td>- Perf./take - Inf.</td>
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The data in (67a) show that some verbs come from the lexicon as imperfective whereas their perfective forms are derived by adding prefixes. I refer to the imperfective verbs from the lexicon as *zero derivation imperfective* and the derived perfective verbs as *morphological perfective*. Similarly, (67b) shows that some verbs come from the lexicon as *zero derivation perfective* and then become *morphologically imperfective* (also known as secondary imperfective) via suffixation morphology. Finally, in (67c) where the formation process of perfective-imperfective contrast is bidirectional, I assume that both perfective and imperfective forms come from the lexicon with zero derivational aspectual morphology.

There are various approaches to Russian aspectual morphology. Some analyses maintain that Russian aspectual prefixes are a realization of lexical aspect (Slabakova, 2005, Borer, 2005, Di Sciullo & Slabakova, 2005). In contrast, there are analyses of aspectual contrast in Russian as grammatical aspect (Borik, 2002; Pereltsvaig, 2005; Smith, 1991). Moreover, some analyses treat Russian perfective prefixes as neither lexical nor grammatical, but rather consider prefixed verbs as new verbs lexically derived from their base (Filip, 2001, 2003). Finally, Bertinetto (2001) treats Russian prefixed verbs as a syncretism of lexical and grammatical aspect.8

In general, grammatical aspect (also called sentence aspect or viewpoint aspect) reflects ‘different ways of viewing the internal temporal constituency of a situation’ (Comrie 1976: 3). The perfective grammatical aspect looks at the situation from outside and disregards its internal structure. The imperfective grammatical aspect looks at the

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8 For more details regarding various approaches to Slavic Aspectual system, see Slabakova (2005).
situation from inside and is concerned with its internal structure without specifying beginning or end. Some examples of grammatical aspect marking are the aorist in Bulgarian, perfect and imperfect in Romance languages, perfect and progressive in English. Lexical aspect (also called VP-level aspect or Aksionsart or telicity marking), on the other hand, refers to the semantic property of predicates, which depends on the meaning of the verb and its argument structure.

In my dissertation, I assume that grammatical aspect is missing in Russian, and follow the approach considering Russian perfective/imperfective aspect as an instantiation of lexical aspect (after Borer 2005, and Slabakova 2005). In particular, I propose that lexical aspect features are checked in a separate projection AspP located between vP and VP. Following Borer (2005), I consider perfectivity in Russian verbs as the presence of head features which can assign range to AspP, and which, according to the specific range assignment properties of each particular head feature, are realized phonologically as prefixes or suffixes (Borer, 2005: 157).9 Following Borer (2005), I assume that AspP defines an open value associated with aspect, but its specific value, i.e., perfective/imperfective, is open. Therefore, when verbs merge at AspP, the overtly realized head features on the verb, i.e., affixes, will assign range to AspP. This means that morphological perfective and imperfective verbs, which have phonologically realized head features, can assign range to AspP, and, consequently, check their aspect features in AspP.10

9 Di Sciullo and Slabakova (2005) propose that external and internal aspectual features are checked in the maximal projection TP and vP, respectively, thus showing lack of necessity for AspP projection in the derivation. In my analysis I leave the AspP projection as part of the derivation, based on the fact that nothing important hinges on this assumption.

10 I use AspP as a cover term for two different types of lexical aspect, i.e., inner and outer lexical aspect which are presumably located within the vP domain. The two aspectual projections roughly correspond to perfective and secondary imperfective. For more details on inner and outer lexical aspect, see Di Sciullo & Slabakova (2005); Slabakova (2005).
3.3.5 Summary of the Feature Inventory in Russian

In this chapter, the features required for the derivation of word order in Russian were analyzed. Using the Derivation by Phase approach, it was shown that the accusative and nominative cases are valued through the operation Agree between the uninterpretable \( \phi \)-features of the probe, \( v \) and \( T \), respectively, and the matching interpretable features of the goal. The analysis of the verb feature of \( T \) revealed that the verb does not move to \( T \) in Russian and the verb feature of \( T \) is valued through Agree. This conclusion was made primarily based on the experimental evidence of adverb placement test discussed in chapter 2. Furthermore, the location and status of the EPP in Russian were analyzed. It was argued, similar to Borovikoff (2001) and contra to Bailyn (2002, 2003) and Babyonyshev (1996), that Spec TP has dual A/A’ status. It was shown that the EPP is category neutral in Russian and is checked by any XP in Spec TP through the operation Move. Finally, in order to account for the rich aspectual morphology in Russian, it was proposed that aspectual features are checked in AspP located between \( vP \) and \( VP \). The summary of the syntactic features is given in Table 18.

Table 18. Syntactic features and requirements necessary for word order derivations

<table>
<thead>
<tr>
<th>Uninterpretable syntactic features</th>
<th>Syntactic category with the interpretable syntactic feature</th>
<th>Checking requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \phi )-features on ( v )</td>
<td>Direct object in Spec VP</td>
<td>Through Agree</td>
</tr>
<tr>
<td>( \phi )-features on ( T )</td>
<td>Subject in Spec ( vP )</td>
<td>Through Agree</td>
</tr>
<tr>
<td>Verb feature on ( v )</td>
<td>The verb</td>
<td>Though Move to ( v )</td>
</tr>
<tr>
<td>Verb feature on ( T )</td>
<td>The verb</td>
<td>Through Agree</td>
</tr>
<tr>
<td>The EPP</td>
<td>Any XP in the minimal domain</td>
<td>Through Move to Spec TP</td>
</tr>
<tr>
<td>Aaspectual features on Asp</td>
<td>The verb</td>
<td>Through Move to Asp</td>
</tr>
</tbody>
</table>
The features discussed in this chapter together with the operations of the narrow syntax computational system (Merge, Agree and Move), and conditions on the derivation and on movement are the driving force of the basic word order in Russian. The implementation of this driving force for deriving Russian word order is discussed in chapter 4.
CHAPTER 4
SYNTACTIC ANALYSIS OF WORD ORDER PERMUTATIONS IN RUSSIAN

4.1 Introduction

In chapter 3, the feature inventory required for deriving word order in Russian was analyzed. It was shown that the nominative and accusative cases are valued through agreement with φ-features of T and v, respectively, and aspectual features are checked by the verb in AspP located between vP and VP. It was argued that the verb makes a short movement to v where it checks the verb feature on v, but does not move to T. Finally, the EPP is checked through movement to Spec TP in Russian.

In this chapter, it will be shown how the features discussed in chapter 3 allow the word orders in Russian to be derived. First, I will show that given the above features the basic word order can be derived within the Derivation by Phase approach. Basic word orders are the ones usually surfacing in thetic sentences; they start a discourse or answer the question ‘What happened?’. Based on the psycholinguistic experimental evidence, the basic word orders in Russia are SVO in transitive sentences, SV DO IO/ SV IO DO in ditransitive, SV (PP) in unergative and SV (PP)/ (PP) VS in unaccusative sentences.

Then, in the second part of this chapter, I will address the issue of discourse-dependent word orders in Russian. Discourse-dependent word orders are the ones which contain topic-discourse neutral information-focus structure. The word order in these sentences is constrained by the discourse functions of topic and focus. However, it will be shown that assuming [+Topic] and [+Focus] features as part of the narrow syntax inventory results in numerous undesirable consequences. The only way to account for these word orders is to analyze them in a post-syntactic component of grammar.
4.2 Basic Word Orders in Russian

In this section, I will illustrate that the features discussed in chapter 3 allow generating basic word orders in transitive, ditransitive and intransitive sentences in Russian. Each of these types of sentences will be discussed separately.

4.2.1 Transitive Sentences in Russian

In transitive sentences a direct object and a verb Merge into VP. Then higher projections AspP and vP merge with the structure deriving a transitive predicate structure, as in (1).

1. a. Olja pročitala knigu.
   ‘Olja read/ has read a book.’

   b. 
   \[ \begin{array}{c}
   \text{vP} \\
   \text{VP} \\
   \text{AspP} \\
   \text{t}_v \\
   \text{t}_v \\
   \text{knigu} \\
   \text{pročitala} \\
   \text{Olja} \\
   \end{array} \]

   The head of vP carries the verb feature which requires short verb movement to \( v \). Moreover, the uninterpretable object agreement \( ϕ \)-features of vP are checked via Agree with the interpretable active feature of the direct object. As a result, the direct object’s accusative case feature is assigned a value under agreement feature of the \textit{probe}. Since the direct object does not have any active features, it is Spelled-Out at the end of the strong vP phase and transferred to interface components. In contrast to the DO, the subject and the verb still have active interpretable features and, therefore, cannot be Spelled-Out at vP phase. Observing the Phase Impenetrability Condition (PIC) (Chomsky 2001) they are visible for further narrow syntax operations.
When TP merges with the structure, the uninterpretable feature of T agrees with the tense feature of v and gets deleted. Similarly, the uninterpretable φ-features of T are deleted through agreement with the interpretable active feature of the subject valuing nominative case to it. Hence, within the Derivation by Phase approach the subject does not have to move to TP to receive the nominative case. Yet, it still moves to Spec TP in transitive sentences for a different reason. The EPP of TP causes the matching goal to move to Spec TP and fulfill the requirement for the structure to converge, as in (2).

```
2.   CP
     /\   \\
    C   TP
         /\   \\
        Olja T' vP
         \  \   \  \ \
         T   v' ts pročitala ...
```

Since the subject and the verb do not have any active features by now, they remain till the end of the strong phase CP and then Spell-Out to the next component. As a result, the narrow syntax component results in basic SVO transitive word order in Russian.

4.2.2 Ditransitive Sentences in Russian

Following Bailyn (1995), I assume that IO merges with the structure as a sister of the lower V, while DO merges in Spec VP, as shown in (3).

```
3. Spec vP v'
    /\  \  \
   v  v' VP
        /\   \  \
       DO V' IO V
```
There is abundant evidence revealing the asymmetry between the DO and IO in Russian (Bailyn 1995) including passivization (4), distributive *po*-phrases (5), assignment of genitive by a quantifier (6), assignment of the genitive of negation (7), and subject-oriented partitive (8). These asymmetries are summarized below.

   Book-Nom. was given Peter-Dat.
   ‘A book was given to Peter.’

   b. *Petr byl dan knigu.
   Peter-Nom. was given book-Acc.
   ‘Peter was given a book.’

5. a. Mama dala yabloki dočkam.
   Mother-Nom. gave apples-Acc. daughters-Dat.
   ‘Mother gave apples to her daughters.’

   b. Mama dala dočkam po yabloku.
   Mother-Nom. gave daughters-Dat. *po* apple-Dat.
   ‘Mother gave each daughter an apple.’

   c. *Mama dala yabloki po dočkam.
   Mother-Nom. gave apples-Acc *po* daughters-Dat.
   ‘Mother gave apples to each daughter.’

6. a. Volodya podaril pjat’ podarkov pjati druz’jam.
   Volodya-Nom gifted five presents-Gen five friends-Dat
   ‘Volodya gifted five presents to five friends.’

   b. *Volodya podaril pat’ podarkov pjati druzej.
   Volodya gifted five presents-gen five friends-Gen
   ‘Volodya gifted five presents to five friends.’
7. a. Roditeli kupili synu mašinu.
   Parents-Nom. bought son-Dat. car-Acc.
   ‘The parents bought their son a car.’

   b. Roditeli ne kupili synu/ *syna mašinu/ mašiny
   Parents-Nom. not buy son-Dat. son-Gen. car-Acc. car-Gen.
   ‘The parents did not buy their son a car.’

8. a. Maša prinesla podružka m konfety/ konfet.
   Masha-Nom. brought friends-Dat. candies-Acc. candies-Gen.
   ‘Masha brought friends candies/ some candies.’

   b. Maša prinesla konfety podružkam/ *podružek
   Masha-Nom. brought candies-Acc. friends-Dat. friends-Gen.
   ‘Masha brought candies to her friends/ some friends.’

   The data in (4) show that arguments normally marked accusative can passivize into nominative, while dative arguments cannot. In (5), distributive po-phrases reveal another asymmetry between accusative and dative arguments, where accusative arguments can be replaced by distributive po-phrases while dative arguments cannot. In (6), the quantifier ‘five’ assigns genitive only to an accusative object, but not to a dative object. In (7), accusative arguments can be assigned genitive under sentential negation while dative cannot. Finally, in (8), accusative arguments can be assigned partitive genitive while dative arguments cannot.

   The evidence above proves that there is an asymmetry between the accusative and the dative argument where the accusative argument bears a structural accusative case and the dative bears a lexical dative case. However, this evidence does not shed any light on structural hierarchy of the accusative and dative arguments. The structural hierarchy is revealed through the tests with reciprocal drug druga ‘each other’ and control of instrumental small clauses. The tests are discussed below.
4.2.2.1 Object-Oriented Anaphor *drug druga* ‘each other’

It is well known that the anaphor *sebja* ‘self’ and the possessive anaphor *svoj* ‘self’s’ are subject-oriented in Russian. In order to test the structural position of accusative vs. dative arguments, a compound reciprocal *drug druga* ‘each other’ can be used. As the data in (9) show, the compound reciprocal can be coreferent with the direct object.

9. a. Sveta predstavila dvux novyx sotrudnikov<sub>k</sub> drug druguk.<br>
    Sveta-Nom. introduced two new co-workers-Acc. each other-Dat.<br>
    ‘Sveta introduced two new co-workers to each other.’<br>

b. Sveta predstavila drug druguk<sub>k</sub> dvux novyx sotrudnikov<sub>k</sub>.<br>
    Sveta-Nom. introduced each other-Dat. two new co-workers-Acc.<br>
    ‘Sveta introduced two new co-workers to each other.’

The data show that the accusative argument can antecedent the reciprocal regardless of its structural position. However, if the reciprocal is in accusative it cannot be coreferent with the dative argument in a ditransitive construction regardless of its surface position, as in (10).¹

¹ Under the assumption that binding holds at both structural and surface levels, the sentence in (10a) is expected to be grammatical. In (10a), the dative argument is higher than the accusative argument in the surface structure and, therefore, is expected to bind the anaphor. The grammaticality judgments of ten speakers revealed that (10a) is better (2.5 out of 5 points) than completely ungrammatical (10b), which receives only 1.4 out of 5 points. However, most speakers report that it is significantly degraded compared to (9a), which receives 5.0 out of maximal 5 points. The reason for the degraded grammaticality in (10a) is not clear to me now. Importantly, however, the degraded grammaticality does not affect the assumption that the accusative argument merges with the structure higher than the dative argument since it makes the correct prediction about (9a), (9b) and (10b). If the reverse hierarchy is assumed where the dative argument merges in higher than the accusative argument, then the analysis makes the wrong predictions. Specifically, (9b) is expected to be ungrammatical, while (10a) and (10b) are wrongly predicted to be grammatical.
10. a. ??Sveta predstavila dvum novym sotrudnikam\textsubscript{k} drug drugak.
\text{Sveta-Nom. introduced two new co-workers-Dat. each other-Acc.}
‘Sveta introduced each other to two new co-workers.’
b. *Sveta predstavila drug drugak dvum novym sotrudnikam\textsubscript{k}.
\text{Sveta-Nom. introduced each other-Acc. two new co-workers-Dat.}
‘Sveta introduced each other to two new co-workers.’

The asymmetry between data in (9) and (10) can be accounted for, only if the direct object is structurally higher than the indirect object. The same conclusion can be reached on the basis of instrumental small clauses.

4.2.2.2 Instrumental Small Clauses

There is a class of secondary predicates in Russian which are called instrumental small clauses. Following the analysis of Bailyn and Rubin (1991, 1993), the secondary predicate with the instrumental case can be either an argument or an adjunct, as in (11).

11. a. Boris sčitaet Ivana durakom.
\text{Boris-Nom. considers Ivan-Acc. fool-Instr.}
‘Boris considers Ivan to be a fool.’
b. Boris našol Ivana p’janym.
\text{Boris-Nom. found Ivan-Acc. drunk-Instr.}
‘Boris found Ivan drunk.’

In (11a), the secondary predicate with the instrumental case is an argument, while in (11b), it is an adjunct. Under the assumption that adjunct instrumental small clauses can be adjoined to either \(\nu P\) or VP (Bailyn 1995), they can be used as a test for the hierarchical position of accusative and dative arguments. This is illustrated in (12).

12. a. Olja\textsubscript{i} podarila kuklu-Barbi\textsubscript{k} dochke\textsubscript{m} goloj\textsubscript{ik/\textasciitilde{m}}.
\text{Olya-Nom. gifted Barbie-doll-Acc. daughter-Dat. naked}
‘Olya gifted Barbie-doll to her daughter naked.’
The data show that regardless of the surface word order in ditransitive sentences the subject of instrumental small clauses can be controlled by either the nominative or accusative argument. However, it cannot be controlled by the dative argument.

To summarize the results, the data show that the accusative argument merges with the syntactic structure in a higher position (Spec VP) than the dative argument (sister of V). This derivation can account for the SV DO IO basic word order in ditransitive sentences. However, as the data show (see chapter 2), the basic ditransitive word orders in thetic contexts are equally split between SV IO DO (49%) and SV DO IO (46%). To account for that, let’s return to vP derivation in Russian.

4.2.3 vP Derivation Revised

The ditransitive data reveal an interesting case of optionality where DO and IO may appear in the inverted word order in Russian. I propose that the optionality results from a D-feature on Asp. A possible candidate for this feature could be an aspectual feature, e.g., specified quantity (SQ) by Verkuyl (1993) or event measurement (EM) by Borer (1994). Alternatively, the D-feature on Asp could be associated with narrow mid-sentence focus where, according to Delfitto and Bertinetto (2000), AspP plays the role of

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2 An alternative account of the optionality in ditransitive word orders is the EPP feature on v. However, to derive the correct word orders, where the verb precedes the direct and indirect object, this approach has to assume that the verb moves to T. I reject this alternative on empirical grounds since the adverbial placement test does not support this assumption (see chapter 3).
Rizzi’s (1997) Focus P. Finally, the D-feature on Asp could be analyzed as the EPP similar to the EPP feature on T. I will not bind myself to any particular analysis at this point. What is important about this feature is that it is checked not through the operation Agree, but rather via movement of an argument in the minimal domain to Spec AspP. The definition of the minimal domain is given in (13).

13.  The definition of the minimal domain (Chomsky 2000: 122-123)
   a.  The minimal domain of a head H is the set of terms immediately contained in projections of H.
   b.  Terms of the same minimal domain are “equidistant” to probe.

Since DO and IO are in the same minimal domain from the target D-feature on Asp, either DO or IO is able to check the feature. The derivation of a ditransitive sentence with SV DO IO and SV IO DO word orders, as in (14a) and (14b), is illustrated in (14c).

     ‘Olja gifted a book to Boris.’
   b.  Olja podarila Borisu knigu.
     ‘Olja gifted Boris a book.’
   c.  

\[
\begin{array}{c}
\text{Olja} \\
\text{vP} \\
\text{vdarila} \\
\text{AspP} \\
\text{Spec} \\
\text{Asp} \\
\text{VP} \\
\text{knigu} \\
\text{V} \\
\text{Borisu}
\end{array}
\]
The structure in (14c) shows that DO and IO are in the same minimal domain and are equidistant from Asp. DO is valued accusative case through agreement with ϕ-features of v and IO is assigned lexical case by the verb when the two merge. DO and IO are equidistant to satisfy the D-feature of Asp and, consequently, either of them can move to Spec AspP. If DO moves to Spec AspP, then it is Spelled-Out higher than IO. On the other hand, if IO moves to satisfy the EPP, then it is Spelled-Out higher than DO. This predicts the optionality of SV DO IO vs. SV IO DO basic word orders in ditransitive sentences in Russian.\(^3\) The rest of the derivation proceeds as in transitive sentences.

To summarize, it was proposed that the optionality of SV DO IO/ SV IO DO word orders in ditransitive thetic sentences is related to a D-feature on Asp.

### 4.2.4 Intransitive Sentences in Russian

The last type of predicates to consider is intransitive predicates, which consist of unaccusative and unergative verbs. It has long been noticed that there is a correlation between the word order and the unaccusativity of the predicate. The experimental evidence in chapter 2 supported this by showing that speakers produce mostly (92.2%) SV(PP) in thetic unergative sentences, but have optionality between SV(PP) and (PP)VS in thetic unaccusative sentences, as illustrated in (15)-(16) (from Babyonyshev 1996:27).

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3 One issue that has to be clarified is the intervention of the IO in Agree operation between the probe with ϕ-features of v and the direct object goal. The assumptions for the operation Agree to take place are given in (i) (from Chomsky 2000:122).

i. a. Matching, which is a relation that holds of a probe P and a goal G, is feature identity.
   b. G must (at least) be in the domain of D(P) of P and satisfy locality conditions.
   c. Locality reduces to “closest c-command”.

If IO moves to Spec AspP to satisfy the EPP there, then IO is the closest c-command. However, it does not have a matching set of interpretable features to check the uninterpretable ϕ-features of v. Moreover, the accusative case of the direct object also stays unvalued. To avoid the crash of the derivation, it might be suggested that Agree applied before Move. Specifically, the accusative case of DO is valued before the IO moves to Spec AspP. A similar assumption will be made in the analysis of unaccusative sentences with PP moving to TP to check the EPP there. See footnote 6 of this chapter.
15. a. Vanya svistit sebe pod nos.
   Vanya-Nom. whistles-Pres.3sg. self-Dat. under nose
   ‘Vanya whistles to himself.’

b. ??(Sebe pod nos) svistit Vanya.
   Self-Dat. under nose whistles-Pres.3sg. Vanya-Nom.
   ‘To himself whistles Vanya.’

16. a. Čajnik svistit na kuxne.
   kettle-Nom.sg. whistles-Pres.3sg. in kitchen
   ‘The kettle whistles in the kitchen.’

b. (Na kuxne) svistit čajnik.
   In kitchen whistles-Pres.3sg. kettle-Nom.sg.
   ‘In the kitchen whistles the kettle.’

The data show that the inverted word order is degraded with unergative verbs, as in (15b), but is acceptable with unaccusative verbs, as in (16b). This optionality, which is used as a diagnostic of unaccusativity in Russian, is also supported by the experimental evidence showing that speakers produce both SV(PP) (in 63.5% of the sentences) and (PP) VS (in 36.5% of the sentences) (see chapter 2 for more detail).

The difference between unergative (15) and unaccusative (16) word orders could be accounted for based on the semantic interpretations of unaccusative vs. unergative sentences. The example in (16b) shows that the inverted word order may appear in VS or PP VS unaccusative sentences. Babyonyshev (1996) noticed that in VS unaccusative sentences, a specific location of the event described by the predicate is always presupposed, as in (17) (from Babyonyshev 1996:29).

17. a. Zašli gosti
   came-in guests-Nom.pl.
   ‘Some guests dropped by (my place).’
b. Gosti zašli

Guests-Nom.pl. came-in

‘The guests came in (unspecified location).’

In (17a), where the subject is in postverbal position, the guests must be interpreted as dropping by the speaker’s apartment, i.e. the PP has a deictic, definite interpretation. In (17b), the interpretation is that guests came in some unspecified location, non-deictic interpretation. Based on the semantic contrast, Babyonyshev (1996) proposes that there is a phonologically null locative argument present in a verb-initial unaccusative structure where the null PP and the internal argument are base-generated in the same minimal domain in a single VP-shell structure, as in (18).

18. VP
   PP
   V’
   V
   NP

The structure in (18) shows that in unaccusative sentences, a PP is projected as an argument and may be either phonologically null, as in VS sentences, or overt, as in PP VS sentences. The requirement on a null/overt PP in the structure accounts for the name of this structure, i.e., the locative inversion construction. This name highlights that there is always a locative PP in the unaccusative structure.4

Babyonyshev’s structure in (18) and the Minimal Link Condition (MLC) (Chomsky 1995) predict that either the null/overt PP or the NP can equally move to satisfy the EPP in unaccusative sentences. Hence, it has been shown that positing a locative PP as an obligatory argument in an unaccusative structure allows us to account for the optionality of the two word orders in unaccusative sentences. In unergative

4 The requirement on a null/overt PP in the structure is subject not only to change of location unaccusative verbs, but to other classes of unaccusative verbs as well (e.g., change of state, appearance, inherently directed motion, etc.).
sentences, the external argument of the verb always moves to check the EPP to avoid a violation of MLC. Therefore, the expected word orders in unergative sentences are restricted to SV (PP).

However, Harves (2002) notices that in order to derive SV PP word order in unaccusative sentences, Babyonyshev (1996) has to assume the verb movement to T. Otherwise the sentences where the nominative argument raises to check the EPP will surface with S PP V word order. Since the verb does not move to T in Russian (see chapter 3), Harves (2002) proposes a modified version of the analysis for unaccusative sentences where a locative PP is an adjunct rather than an argument, and merges in a position right-adjoined to VP, as shown in (19) (from Harves 2002:114).

19. \[ \text{VP} \quad \text{PP} \quad \text{V} \quad \text{NP} \]

However, the adjunction analysis of a PP in (19) is problematic in several respects. First, it eliminates the principal idea that the presence of a (null/overt) PP is mandatory, i.e., that PP is an argument. Indeed, the adjunct status of a PP contradicts the intuitions about the data where the locative PP is always present in the structure. Second, the adjunct analysis of the locative PP obliterates the contrast between unaccusative and unergative verbs. Furthermore, the locative PP as an argument receives a cross-linguistic motivation. The argument status of the locative PP was proposed for Bantu languages and Japanese (Ura 2000) where it accounts for some grammatical function splitting phenomena. In addition, the argument status of PP was proposed for the locative inversion construction in Italian (Pinto 1994).

In order to preserve the argument status of a PP and also account for SV PP word order, I propose a structure for unaccusative sentences, as in (20), where the light VP has no external \( \theta \)-role and in this respect is of deficient nature (Adger 2003, among others).
The structure in (20) assumes that there is a deficient vP in unaccusatives, thus, the head of vP is semantically non-causal and does not project an agent. Also, as suggested in chapter 3, there is a D-feature on Asp which has to be checked by movement to Spec AspP. Since the PP and the NP are in the same minimal domain and are equidistant from Spec AspP, either of them can move to check the D-feature there.5

In contrast to unaccusative verbs, unergative verbs have an external θ-role and the agentive DP merges in the structure, as in (21). As a result, the subject DP is always closer to the target to check the EPP on T. Moreover, the derivation of an unergative verb may optionally have a PP, which adjoins VP internally.

5 I assume following Grimshaw 2000 that a PP forms an extended projection with the DP it dominates and that a PP should be considered as a kind of nominal. Therefore, a PP can check a D-feature of AspP and the EPP similar to nominal categories.
Hence, the derivations of intransitive sentences fall into two distinct patterns. The derivation of unergative intransitive sentences is closer to the one in transitive sentences, while the derivation of unaccusative intransitive sentences is different since it contains a defective vP and consists of one-phase. The Derivation by Phase approach assumes that some functional categories may be defective. To be defective means to be unable to inactivate a matched element by deleting its unvalued features (Chomsky 2001:6). Defectiveness of the probe depends on ϕ-completeness: a probe lacking a full set of ϕ-features is defective. If v is defective, then it fails to value accusative case to the direct object. This means that the active feature of the direct object should be valued by a higher probe with ϕ-complete features. Therefore, defective v creates a weak phase visible for further operations. This is what happens with unaccusative sentences.

Unaccusative sentences consist of a single-phase derivation (Harves 2002, Lavine and Freidin 2002), given in (22).

22. a. Yabloko upalo s dereva.
   Apple-Nom. fell-Past.-neut.sg. from tree
   ‘An apple fell from a tree.’
Being in the same minimal domain, either DO or PP can move to Spec AspP to check the D-feature of Asp there (see footnote 5). If DO moves to Spec AspP, then the PP stays in situ. Furthermore, unaccusative v is defective and cannot value accusative case to the direct object. As a result, the case on the direct object is valued by ϕ-complete T, which assigns nominative, rather than accusative case. The EPP of TP is also satisfied by the direct object, which is the closest candidate for Move operation. Thus, if the direct object moves to check the EPP of AspP, then the narrow syntax component Spells-Out the sentence with SV PP word order.

Now let us consider the case when the PP moves to check the D-feature of Asp and the direct object stays in situ. In this case the PP is closer to the EPP probe of TP and, consequently, moves to Spec TP to check the EPP there. Moreover, similar to the previous derivation, the direct object is valued nominative case by ϕ-complete T since v is defective and cannot value accusative case. The derivation is demonstrated in (23).

23. a. S dereva upalo yabloko.
    from tree fell-Past.-neut.sg. apple-Nom.
    ‘From a tree fell an apple.’

b. CP
   \[\text{Phase 1}\]
   C
   TP
   PP
   T
   \text{AspP}
   \text{VP}
   t_{\text{pp}}
   t_v
   t_{\text{pp}}
   upalo_v
   dereva
   t_{\text{pp}}
   t_{\text{pp}}
   Asp'
   vP
   yabloko
   V'
   t_v
   t_{\text{pp}}
Hence, movement of PP to check the D-feature of Asp and the EPP of T results in
PP VS word order in Russian unaccusative sentences where the internal argument is
valued nominative case.6

In contrast to unaccusative sentences, unergative sentences have a two-phase
derivation, as demonstrated in (24).

Children-Nom. play-Pres.3pl. in ball
‘Children play with a ball.’

The derivation in (24) shows that the optional PP, which does not bear any active
features, is Spelled-Out in situ at the first strong phase, vP phase, while the subject NP
and the verb are still visible for further operations. They are Spelled-Out at the next
strong phase after the tense feature of the verb and the nominative case of the subject are
valued through agreement, and the subject is attracted to Spec TP to check the EPP.

6 Similar to ditransitive sentences, it should be assumed here that the operation Agree
applied before Move to avoid the intervention of PP in valuing nominative case to the direct
object (see footnote 3).
To summarize the discussion of intransitive sentences in Russian, it has been shown that unergative sentences, similar to transitive and ditransitive sentences, are two-phase derivations and Spell-Out with SV (PP) word order. On the contrary, unaccusative sentences are one-phase derivations Spelling-Out with either SV (PP) or (PP) VS word order.

4.2.5 Summary of the Basic Word Orders in Russian

In this section, the basic word orders in transitive, ditransitive and intransitive sentences were analyzed within the Derivation by Phase approach. It was shown that the narrow syntax component allows us to derive the basic word orders in all types of sentences in Russian. However, it has been shown in the previous chapters that the word order is determined by the discourse structure in Russian where the notions of topic and focus frame the word order permutations. In the remaining sections of this chapter, I will attempt to show that it is very problematic to generate all discourse-dependent word orders if topic and focus notions are encoded as syntactic features into the narrow syntax component.

4.3 Derivation of Discourse-Dependent Word Orders in Russian

In contrast to thetic sentences, in discourse-dependent sentences, the word order is constrained by the discourse structure with topic-discourse-neutral information-focus in non-emotive sentences and fronted focus in emotive sentences. This means that based on what discourse function a constituent fulfills, it appears in a particular position in a sentence. For instance, in subject focus sentences, the object occurs in the pre-verbal position and in object focus sentences, the subject is in the pre-verbal position. This means that the surface word orders show correlation with the discourse notions of topic and focus in Russian.

This led many researchers to think that discourse functions should be incorporated into syntax as [+Topic] and [+Focus] features. In this section, I will show that this
approach is not an optimal solution. First, it does not allow the generation of all word order permutations in Russian without theory internal stipulations. Second, it does not provide an explanation of the degraded status of some felicitous word orders compared to others. The analysis is discussed below.

4.3.1 [+Topic] and [+Focus] Features in the Grammar

Generative approaches which encode the notions topic and focus in the grammar generally assume that the elements that bear topic or focus have a [+Topic] or [+Focus] feature. For example, Jäger (1995) proposes a syntactic analysis for German where the feature [+Topic] is required to account for the word order in German subordinate clauses. He states, “In German, full DPs bearing the feature [+Topic] scramble obligatorily while DPs lacking this feature remain in situ” (Jäger 1995:70). Meinunger (2000), following Jäger (1995), claims that [+Topic] is a syntactic feature assigned to constituents which are discourse-linked. He also proposes that the constituents with [+Topic] feature move to a Spec of AgrP, the top-most projection before the CP domain, to check this feature.

Following Diesing (1992), Bailyn (1995) proposes an analysis of Russian word order, the Generalized Tree Splitting hypothesis, which could be considered as representative of a feature-driven analysis of Russian. He claims that Russian arranges in the surface syntax certain linguistic relations that other languages represent post-syntactically. He states (Bailyn 1995: 282):

“The difference between “free” word order languages like Russian and the English-type is parallel in a typological sense to the difference between languages that exhibit multiple WH-movement in the syntax (e.g., Serbo-Croatian, Bulgarian) and those in which WH-movement occurs at an abstract post-syntactic level (Chinese, Japanese). Scrambling in this model is a cover term for adjunction processes whose purpose is to establish at surface structure quantifier scope relations in some languages (Hungarian) and in others to properly associate elements with the half of the sentence that they belong to before the application of Generalized Tree Splitting.”
Bailyn (1995) suggests a number of rules, which determine topic and focus constituents in Russian and assign pragmatic features to these constituents. Specifically, he proposes that depending on the assigned intonation, the focus constituent receives either a focus feature [+Focus] in non-emotive sentences or a sentence focus feature [+Sentence Focus] in emotive sentences. After that, all material in the sentences not marked by [+Focus] feature becomes part of the Tema (=Theme) and receives the feature [+Topic]. The final step in the derivation is when all material marked [+Focus] is adjoined to Pred P (vP) and all material marked [+Topic] is adjoined to IP/CP (see chapter 1 for more detail on Bailyn’s (1995) analysis). Therefore, Bailyn (1995) shows that Russian word orders in emotive and non-emotive sentences can be characterized by a tree-splitting system.

Moreover, the existence of a Focus P with a [+Focus] feature has been proposed for many languages: Bródy (1990, 1995), Kiss (1995) for Hungarian, Rizzi (1997) for Italian, Tsimpili (1995) for Greek, Laka (1990), Ortiz de Urbina (1999) for Basque, Ouhalla (1994) for Standard Arabic, Zubizarreta (1998) for Spanish, among many others. The differences between these analyses are in the location of Focus P with respect to other heads and the type of movement involved (see Szendrői (2004) for more discussion of various feature-driven approaches). Let us consider what problems arise if we implement this approach to Russian.

4.3.2 Problems of [+Focus] Feature Analysis in Russian

I would like to start by showing several problematic issues related to assigning [+Focus] features to constituents in narrow syntax. Reinhart (2003) notices that focus is not a property of a constituent or a node. Since focus can be defined only at the level of a sentence, an assignment of a focus feature cannot be encoded in the information in the numeration. She contrasts the Q(uantifier) feature with the focus feature by showing that the Q feature marks DPs that may undergo Quantifier Raising, and so [+Q] is internal to
that DP. The focus feature, on the other hand, is not internal to a constituent, but rather is a relation between an expression and a sentence. Therefore, she concludes that approaching focus from a feature-driven perspective leads to a conceptual problem.

In addition, Bailyn (2003) recognizes that the feature checking approach requires the presence of a unique Functional Category, eg., FocusP, to house the checking relations. However, the data in Russian show that the identificational focus constituent is not fixed to a particular position, as demonstrated in (25).

25. a. Čto Boris dal Ivanu?
   What Boris-Nom. gave Ivan-Dat.
   ‘What did Boris give to Ivan?’

b. Boris dal Ivanu knigu.
   Boris-Nom. gave Ivan-Dat. book-Acc.
   ‘Boris gave a book-Foc. to Ivan.’

c. Boris dal KNIGU Ivanu.
   ‘Boris gave a book-Foc. to Ivan.’

d. Boris KNIGU dal Ivanu.
   Boris-Nom. book-Acc. gave Ivan-Dat.
   ‘Boris gave a book-Foc. to Ivan.’

f. KNIGU Boris dal Ivanu.
   ‘Boris gave a book-Foc. to Ivan.’

The data in (25) show that the information focus of non-emotive sentences usually stays in a sentence-final position, as in (25b); however, the identificational focus in emotive sentences usually gets fronted, as in (25c)-(25f), and the focal stress is no longer on the final word. Importantly, it has been shown that the focal stress in emotive sentences is associated with the same contour tone that is implemented on information
focus in non-emotive sentences (Paducheva 1985, Borovikoff 2001). This means that information focus and identificational focus represent the same pragmatic category which can either stay in situ (in non-emotive sentences) or be dislocated (in emotive sentences). Given the numerous options for a focused constituent, it is difficult to propose a fixed position for Focus P, which would accommodate all those positions.

Finally, if the inventory of syntactic features includes the [+Focus] feature, which must be checked by a constituent with the corresponding feature for a derivation to converge, then there should not be any ambiguity in focus scope in sentences. However, focus scope is ambiguous in SVO sentences in Russian, as shown in (26).

   Ivan-Nom. broke-Past.masc.sg. window-Acc
   ‘Ivan broke a window.’

b. Ivan [razbil okno]-Foc.

c. Ivan razbil [okno]-Foc.

The sentences in (26) are ambiguous in their focus scope: focus can take scope over a whole sentences, as in (26a), over the VP, as in (26b), and over the DO, as in (26c).

In sum, the feature-driven approach based on the notion of [+Focus] feature is problematic for both conceptual and language specific reasons in Russian.

4.3.3 Flaws of [+Topic] Feature Analysis in Russian

In contrast to focus, topics bear some properties in Russian that make them an attractive target for [+Topic] feature. First, topics are discourse-linked. Even though there might be multiple topics, it is always predicted from the preceding context what constituent bears the [+Topic] feature, as illustrated in (27).
27. a. Čto delaet zajac?
   what does-3sg. rabbit-Nom.
   ‘What is the rabbit doing?’

   b. Zajac sidit pod kustom.
   Rabbit sits-3sg. under bush
   ‘The rabbit is sitting under the bush.’

   c. Zajac gryzjot kapustu.
   Rabbit-Nom. bites-3sg. cabbage-Acc.
   ‘The rabbit is biting cabbage.’

   d. Zajac gryzjot kapustu v ogorode.
   Rabbit-Nom. bite-3sg. cabbage-Acc. in vegetable-garden
   ‘The rabbit is biting cabbage in the vegetable-garden.’

   In (27), the same question may be answered differently where in (27b) the focus
   is the verb and a locative; in (27c) – the focus is the verb and the DO, and in (27d) the
   focus includes the verb, the DO and a locative. However, what is common to all those
   sentences is the topic zajac ‘rabbit-Nom.’, which is discourse-linked to the question and
   is predicted to bear a [+Topic] feature.

   Second, the position of the topic is fixed to the clause initial position where the
   topic anchors the structure of the sentence in non-emotive sentences. This position can be
   occupied by various syntactic constituents, including adjuncts, PPs, DOs, etc., as
   illustrated in (28). Yet, the topic constituent is always associated with the core high pitch
   and is always at the left-most periphery of the clause.

   7 What constituents are foci can be determined through the question test where focus
   constituents represent a new (non-presupposed) part of the sentence.
28. a. Kto včera razbil okno v škole?

Who yesterday broke-Past.masc.sg. window-Acc. at school
‘Who broke the window at school yesterday?’

b. Director skazal chto včera razbil okno Boris.
Principal said that yesterday broke-Past.masc.sg. window-Acc. Boris-Nom.
‘The principal said that Boris broke the window yesterday.’

c. Director skazal čto v škole razbil okno Boris.
Principal said that at school broke-Past.masc.sg. window-Acc. Boris-Nom.
‘The principal said that Boris broke the window at school.’

d. Director skazal čto okno razbil Boris.
Principal said that window-Acc. broke-Past.masc.sg. Boris-Nom.
‘The principal said that Boris broke the window.’

The data in (28) show that the topic position follows the complementizer čto ‘that’ in the embedded clause. Given the discourse-linked nature of the topic and its fixed position in the structure, it is very attractive to propose a [+Topic] feature analysis of the word order permutations in Russian. However, this analysis appears to be problematic. Let us take a closer look at this option.

A successful [+Topic] feature-driven analysis must be able to provide derivations for non-emotive word order permutations with three types of discourse structure: object focus, as in (29), subject focus, as in (30), and verb focus, as in (31). Furthermore, this analysis should be able to account for the degraded status of the sentences with verb-initial VSO and VOS, as in (29b) and (30b) and OSV in (31b).

29. a. Zajac gryzjot kapustu. (acceptability 5.0 out of 5)

Rabbit-Nom. bites-3sg. cabbage-Acc.
‘A rabbit is biting cabbage-Foc.’
b. ?Gryzjot zajac kapustu. (acceptability 3.2 out of 5)
   bite-3sg. rabbit-Nom. cabbage-Acc.
   ‘A rabbit is biting cabbage-Foc.’

30. a. Kapustu gryzjot zajac.
   cabbage-Acc. bite-3sg. rabbit-Nom.
   ‘A rabbit-Foc. is biting cabbage.’

b. ?Gryzjot kapustu zajac. (acceptability 3.4 out of 5)
   bite-3sg. cabbage-Acc. rabbit-Nom.
   ‘A rabbit-Foc. is biting cabbage.’

31. a. Zajac kapustu gryzjot. (acceptability 4.3 out of 5)
   Rabbit-Nom. cabbage-Acc. bite-3sg.
   ‘A rabbit is biting-Foc. cabbage.’

b. ?Kapustu zajac gryzjot. (acceptability 3.1 out of 5)
   cabbage-Acc. rabbit-Nom. bite-3sg.
   ‘A rabbit is biting-Foc. cabbage.’

The SVO sentence in (29a) is similar to the basic word order in Russian. The only difference is that the subject and the verb are discourse-linked and, consequently, must check the feature [+Topic], whereas in the SVO thetic sentences the topic is absent. There are several possible locations to host the [+Topic] feature. It could be hosted in a separate projection Topic P above TP (Rizzi 1997). Alternatively, [+Topic] could be checked in the EPP position, Spec TP (Zubizarreta 1998). If EPP is expressed as a property on a feature of a head (Goodall 2001), i.e., [+Topic] on T, then the material that moves to Spec TP to check [+Topic] can automatically satisfy the EPP property. Since nothing important hinges on any of those assumptions, I will assume the analysis, where the [+Topic] feature is checked in Spec TP. The derivation of (29a) is provided in (32).
In (32), the verb feature of $v$ requires short verb movement via the head of AspP where the verb $\text{gryzjot}$ ‘bites-3sg.’ checks aspectual features. The direct object $\text{kapustu}$ ‘cabbage-Acc.’ is case-valued through agreement with the $\varphi$-features of $v$ and moves to Spec AspP to check the D-feature of Asp. Moreover, the direct object, being focus, does not have an interpretable [+Topic] feature. Thus, by the end of the strong $v$P phase, i.e., Phase 1, the direct object does not have any active features and Spells Out to the next component. However, the subject $\text{zajac}$ ‘rabbit-Nom.’ and the verb still have unchecked active features and, therefore, cannot be Spelled-Out at $v$P phase. Staying at the edge of $v$P, they meet the Phase Impenetrability Condition (PIC) (Chomsky 2001) and are visible for the next phase.

After TP merges with the structure, the subject’s case feature gets valued with nominative case through agreement with the $\varphi$-features of $T$ and the verb checks the verb feature on $T$ in situ. However, the uninterpretable [+Topic] feature on $T$ with the EPP property causes movement of the local argument (the subject) to Spec TP to check this feature. The verb in subject focus SVO sentences, as in (32), also has the interpretable feature [+Topic]. Yet, the verb’s active [+Topic] feature cannot be checked with $T$’s uninterpretable feature [+Topic] since uninterpretable features are deleted after checking.
and another argument cannot check them again. Hence, it has to be assumed that the structure converges with the verb’s feature unchecked and the verb still having the interpretation of the topic. By the end of the strong phase CP the subject and the verb Spell-Out to the next component and the narrow syntax component results in SVO order.

Let us now see how VSO order in (29b) could be accounted for. The experimental evidence shows that VSO order is perceived as a felicitous word order by native speakers, but, in contrast to SVO, it is not used by native speakers (see chapter 2). This means that the syntax must be able to generate the VSO derivation, but this derivation is less preferable than the derivation of SVO sentences. I will consider different possibilities for the VSO derivation.

The vP phase of the derivation will be the same as in SVO sentences. The difference appears to be at the next stage after the subject and the verb are valued the nominative case and the verb feature. In order to derive the verb-initial word order, the verb has to be higher than the subject. The easiest way to do this is to assume that the EPP can be checked through head movement of the verb to T, as proposed by Alexiadou & Anagnostopoulou (1998) for Celtic, Greek and Romance languages. Staying at the left-periphery of vP, the subject and the verb are equidistant from the target [+Topic] feature with the EPP property. If both of them have the interpretable feature [+Topic], then either of them can move to check it. In (32), we considered the case when the subject moves to Spec TP and the SVO order is derived. Now, in (33), I provide the derivation of VSO.

33. \[
\begin{array}{c}
CP \\
\text{Phase 2} \\
C \\
TP \\
gryzjot_v \\
vP \\
zajac \\
\text{subject} \\
t_v \\
\ldots
\end{array}
\]
(33) shows that when the verb moves to check the [+Topic] feature, the subject stays in situ with its [+Topic] feature being unchecked. Similar to the SVO derivation in (32), the subject cannot check the uninterpretable [+Topic] feature on T if the feature has been checked and deleted by the verb. However, it still has to be assumed that the structure converges with the subject’s [+Topic] feature unchecked and the subject still having the interpretation of the topic. It could also be argued that this derivation is less preferred by speakers compared to the SVO derivation in (32) since the EPP is checked via head movement rather than XP movement to Spec TP. However, the problem with the derivation arises if the adverb placement test is considered. In fact, the analysis predicts that the only position for the adverb is before the subject where the adverb adjoins to vP. Yet, native speakers prefer the position of an adverb after the subject slightly more than the position before the subject, as illustrated in (34).8

34. a. Čto bystro gryzjot zajac?
   What quickly bites-3sg. rabbit-Nom.
   ‘What does the rabbit bite quickly?’

   b. ?Gryzjot bystro zajac kapustu. (acceptability 3.4 out of 5)
      bites-3sg. quickly rabbit-Nom. cabbage-Acc.
      ‘A rabbit is biting cabbage-Foc.’

   c. ?Gryzjot zajac bystro kapustu. (acceptability 3.7 out of 5)
      bites-3sg. rabbit-Nom. quickly cabbage-Acc.
      ‘A rabbit is biting cabbage-Foc.’

8 The acceptability of the sentences in (34) is based on testing 9 native speakers of Russian (4 males and 5 females) who were asked to rate the answers to the question on a 5-point scale (5 is fully acceptable; 1 is unacceptable). The acceptability in the brackets is calculated as an average for the nine speakers. These sentences were not included in the grammaticality judgment test since VSO word order is not produced by speakers and has degraded acceptability.
The data in (34) reveal that neither of the answers is considered as fully acceptable by native speakers supporting the finding that VSO has a degraded status. However, the answer with the adverb after the subject, as in (34c), is slightly more acceptable to native speakers than the answer with the adverb before the subject. This creates a problem for the analysis proposed in (33). In order to account for the data in (34), it should be proposed that the subject moves to a position higher than Spec vP, but lower than TP, which is an unmotivated movement. Otherwise, it could be proposed that adverbs adjoin inside vP (to AspP or VP) in Russian, which creates additional problems related to the degraded status of postverbal adverbs in SVO sentences (see chapter 3). In brief, the easiest analysis of VSO where the verb moves to T makes the wrong prediction about the adverb data. Moreover, the verb in SVO and the subject in VSO receive the interpretation of topic while their [+Topic] feature is not checked.

In the next two word orders, OVS and VOS, as in (30a) and (30b), there is narrow focus on the subject while the direct object and the verb bear the interpretable [+Topic] feature. This means that in contrast to SVO and VSO where the object does not have any active features at the Spell Out of the vP phase, in these two word orders the direct object has an active [+Topic] feature. For the derivation to converge, the direct object is required to move to the outer Spec vP before the Spell-Out of the vP phase, as illustrated in (35).

35. \[
\begin{array}{c}
\text{vP} \\
\text{kapustu_o} \quad \text{vP} \\
\text{zajac} \quad \text{v'} \\
\text{gryzjot} \quad \text{AspP} \\
\text{t_0} \quad \text{Asp'} \\
\text{t_v} \quad \text{VP} \\
\text{t_0} \quad \text{t_v}
\end{array}
\]

\text{Phase 1}
(35) shows that the direct object, the subject and the verb are at the left-edge of the vP and are visible for the next strong phase. During the next phase, when TP merges in, the subject’s case is valued as nominative through long-distance agreement with φ-features of T. Since the subject does not have an active [+Topic] feature, it stays in Spec vP till the end of the phase where it Spells Out to the next component. On the other hand, the verb and the direct object have an active [+Topic] feature. This feature should be checked against the uninterpretable [+Topic] feature on T, which has the EPP property. However, checking of the uninterpretable [+Topic] feature causes a problem. When one of the arguments (the direct object or the verb) moves to TP to check the uninterpretable [+Topic] feature, the feature is deleted and the other argument cannot move to check it again. In order to derive OVS sentences, the direct object moves to Spec TP to check the [+Topic] feature with the EPP property. However, the verb cannot move to T to check the feature again since it has been deleted. Moreover, based on the adverb test, it was shown in chapter 3 that the verb does not move to T in Russian (since the immediate preverbal position in OVS sentences is fully grammatical). Therefore, the only way to account for the verb before the subject is to stipulate that there is another projection, for example, Eventivity Phase (EP) (see Travis 1994, Slabakova 2001), which is located above vP and below TP. The analysis of OVS is given in (36).
The derivation in (36) illustrates that the direct object moves to Spec TP and the verb moves to the head of EP. As a result, the OVS word order is derived. However, this analysis leaves the question about the motivation for the EP projection unanswered. In fact, it was shown in chapter 3 that a projection above vP creates an extra adjunction position for adverbs and predicts that immediately postverbal adverbs should be as grammatical as the immediately preverbal ones. However, as shown in chapter 3, this prediction is not supported by the data demonstrating that postverbal adverbs are degraded in Russian.

The derivation of VOS, given in (37), also creates some problems. In order to derive the verb-initial word order, it has to be assumed that the verb moves to T to check the [+Topic] feature with the EPP property through the head movement. A similar assumption was made to account for VSO word order.

37. \[
\begin{array}{c}
\text{CP} \\
\text{Phase 2} \\
\text{C} \\
\text{TP} \\
gryzjot \\
\text{vP} \\
\text{kapustu_0} \\
\text{object} \\
\text{vP} \\
zajac \\
\text{subject} \\
v^* \\
t_v \\
\end{array}
\]

In (37), the verb moves to T while the direct object stay at the left-edge of vP. The direct object still has the interpretable [+Topic] feature, which cannot be checked since the uninterpretable [+Topic] feature was checked by the verb and deleted. Thus, the direct object had to move to the left-edge of vP to be able to check its [+Topic] feature at the next phase, but cannot check it since the feature has already been checked and deleted by the verb. In sum, the derivations of OVS and VOS have to account for how the verb in OVS and the direct object in VOS receive the interpretation of topic if their [+Topic]
feature is not checked. Furthermore, the derivation of OVS requires a separate unmotivated projection above vP and below TP.

Finally, the word orders SOV and OSV with the narrow focus on the verb should be considered. In these word orders the subject and the object have [+Topic] feature. Similar to the derivations in OVS and VOS, the object has to move to the left-edge of vP by the end of the vP phase to be visible for the next phase. Hence, the first phase of their derivations is the same as in OVS and VOS, repeated for convenience in (38).

38. \[vP\]

At the end of the vP phase, the object and the subject appear at the left-edge of vP visible for the next phase. After the TP merges with the structure, they appear to be equidistant from the [+Topic] feature on T. Importantly, the derivation predicts that the object and the subject can equally move to Spec TP since they both have [+Topic] feature. The movement of the object to Spec TP derives OSV word order, as in (39).
In order to derive SOV, it has to be assumed that the subject moves to Spec TP to check its [+Topic] feature while the direct object stays at the left edge of vP with an unchecked active [+Topic] feature, as shown in (40).

The derivation of SOV in (40) is predicted to be equally preferred by the speakers as the derivation of OSV in (39) because in SOV the object has an unchecked [+Topic] feature and in OSV the subject has an unchecked [+Topic] feature. However, as the data show, the SOV is accepted and produced by the speakers while OSV is not produced and has a degraded acceptability. To sum up, the derivations of SOV and OSV make the wrong predictions about the acceptability of the word orders. Moreover, the SOV and
OSV derivations have to account for how the direct object in SOV and the subject in OSV receives the interpretation of topic if they do not check their [+Topic] feature.

To summarize, it has been shown in this section that an analysis relying on [+Topic] feature is problematic in several respects. First, a feature-driven analysis which accounts for word order permutations in the narrow syntax component requires numerous theory internal stipulations and assumptions. For example, such an analysis has to explain how the verb in SVO and OVS or the subject in VSO and OSV or the object in SOV and VOS receive the interpretation of topic if their [+Topic] feature is not checked. In addition, the derivation of OVS requires a separate unmotivated projection above vP and below TP to account for the position of the verb before the subject. Furthermore, the analysis of VSO where the verb moves to T makes the wrong prediction about the adverb data. Finally, even though the analysis motivates the preference of SVO and OVS over the verb initial word orders VSO and VOS, respectively, this analysis does not shed light on the preference of SOV over OSV.

4.3.4 Russian Word Orders as a Result of Syntactic p-movement

Another approach to discourse-dependent word orders is to consider them as part of narrow syntax, but as prosodically motivated movement, i.e., p-movements. This approach is developed by Zubizarreta (1998) and is discussed in chapter 5. In this section, I will consider if Russian non-emotive word orders could be analyzed as p-movements, which are syntactic operations applying at the narrow syntax component after all syntactic features are checked. I will show that there is a significant difference between Spanish/Italian word orders and Russian word orders, which does not allow analyzing Russian word orders via p-movements. Let us discuss the analysis of Spanish and Italian word orders in more detail.

In Spanish, both SVO and (XP) VSO sentences constitute basic word order, as in (41) (from Zubizarretta 1998:125).
41. a. María me regaló la botella de vino.
   Maria me-Dat. gave the bottle of wine
   ‘Maria gave me (as a present) a bottle of wine.’

   b. Me regaló María la botella de vino.
      me-Dat. gave Maria the bottle of wine
      ‘Maria gave me (as a present) a bottle of wine.’

   c. Todos los días compra Juan el diario.
      Every day buys Juan the newspaper
      ‘Juan buys the newspaper every day.’

The data with SVO in (41a) and VSO in (41b) may equally have either wide focus interpretation where the whole sentence is in the focus scope and narrow scope interpretation where the focus takes the scope over the direct object only. Moreover, (41c) shows that XP VSO is a possible word order in Spanish where XP is the topic. The topic can be expressed by any category in Spanish (temporal or locative adverb, dative or locative argument).

In addition, if the structure involves fronting of a focused or an emphatic phrase, then only Focus-V and Emphatic-V are possible, while Focus-XP-V or Emphatic-XP-V are not allowed, as shown in (42).

42. a. A NADIE le devolvió María su manuscrito.
      To nobody Dat.cl. returned Maria-Nom. his manuscript-Acc.
      ‘Maria returned his manuscript to nobody.’

   b. *A NADIE María le devolvió su manuscrito.
      To nobody Maria-Nom. Dat.cl. returned his manuscript-Acc.
      ‘Maria returned his manuscript to nobody.’

To account for the data, Zubizarreta proposes an analysis of Spanish in which Spec TP is not restricted to subjects, but rather can be occupied by any constituent. She argues that T constitutes a syncretic category with other discourse-based features, such as
“topic”, “focus”, or “emphasis”. Nominative case can be checked either overtly in Spec TP or via agreement. Thus, in (40a), the nominative argument moves to Spec TP to check the features of T and the nominative case there. In (40b), lacking any overt XP, an anaphoric temporal adverb controlled by the time of speech or discourse checks the features of T while the nominative argument checks the case through agreement. The word order in (40c) is derived by an overt movement of the adverb phrase to Spec TP checking the features of T there while the nominative argument checks its case via agreement. After the syntactic features are checked, the structure is Spelled Out into the LF component where the interpretation of the structure is derived. In sum, this analysis allows to derive the basic SVO or (XP) VSO word orders in Spanish.

In those cases where word order scrambling is involved, as in subject focus sentences, the p-movement applies. The relevant data is provided in (43) (from Zubizarreta 1998: 125-126, 132).

43. a. Quién te regaló la botella de vino?
   who you-Dat. gave the bottle-Acc. of wine
   ‘Who gave you a bottle of wine?’

b. Me regaló la botella de vino María.

c. *La botella de vino me regaló María.

The question in (43a) elicits a structure with a narrow information focus on the subject. Zubizarreta (1998:125) argues that the only possible way of answering the question with a full sentence is to use VOS word order, as in (43b). It will be shown below that (43c) is ruled out because it violates the locality condition on p-movement.

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9 Zubizarreta claims that the sentences with fronted focus are possible with a contrastive focus interpretation only, as in (i).

I a. MARÍA me regaló la botella de vino (no Juan).
   Mary me-Dat. gave the bottle-Acc. of wine (not Juan)
   ‘MARY gave me the bottle of wine, not Juan.’

b. *Me regaló MARÍA la botella de vino (no Juan).
Zubizarreta argues that VOS, as in (43b), which has the nuclear stress and the narrow focus on the subject, is derived from the basic word order VSO via p-movement. SVO cannot be the source of VOS since the only way it could be done is by leftward adjunction of T’ to TP. Yet, X’ nodes cannot undergo movement because only maximal projections and heads are visible to the syntactic computation. On the contrary, if VOS is derived from VSO, then it could be done by adjunction of VP to vP, as shown in (44a).

Zubizarreta notices that p-movement is strictly local allowing movement immediately above the focused constituent. This accounts for the ungrammaticality of (43c), where the object moves not only across the focused subject, but also across the verb, as in (44b) (from Zubizarreta 1998:132).

44. a. \[TP \text{ me regaló } [vP \text{ la } \text{ botella de vino}_k [e_k [V \ e_k]]] [vP \text{ María } [v [vP \text{ e}_i]]]]

   b. *[TP \text{ [vP la } \text{ botella de vino}_k [e_k [V \ e_k]]] [TP \text{ me regaló } [vP \text{ María } [v [vP \text{ e}_i]]]]]

   In brief, the word order scrambling facts in Spanish can be accounted for by the local operation of p-movement which derives scrambled word orders from the basic ones.

   Italian is different from Spanish in that it does not allow (XP) VSO as a basic word order, as in (45) (Belletti & Shlonsky 1995:510; Zubizarreta 1998:118).

45. a. Cosa è successo?

   ‘What happened?’

   b. Maria mi ha dato una bottiglia di vino.

   Maria-Nom. me-Dat. has given a bottle-Acc. of wine

   ‘Mary gave me (as a present) a bottle of wine.’

   c. *(Ieri) mi ha dato Maria una bottiglia di vino.

   Yesterday me-Dat. has given Maria-Nom. a bottle-Acc. of wine

   ‘(Yesterday) Mary gave me (as a present) a bottle of wine.’

   The data in (45b) show that Italian has a requirement on overt preverbal subject in its basic word order. (45c) demonstrates that it allows neither VSO nor XP VSO in thetic
sentences. Moreover, VSO is not possible with narrow focus scope in Italian either, making the sentence just as bad as with the whole sentence scope. This is shown in (46).

46. a. Cosa ti ha dato Maria?
   
   What you-Dat. has given Maria-Nom.
   
   ‘What has Maria given to you?’

b. Maria mi ha dato una bottiglia di vino.
   
   Mary-Nom. me-Dat. has given a bottle.Acc. of wine
   
   ‘Mary gave me (as a present) a bottle of wine.’

c. * Mi ha dato Maria una bottiglia di vino.
   
   The data in (46) together with the data in (45) proves that VSO is not grammatical in Italian regardless of the focus scope.

In addition, Italian is different from Spanish in that it allows the order Focus-XP-V and Emphatic-XP-V, as in (47) (from Rizzi 1997:299).

47. QUESTO Gianni ti dirà (non quello che pensavi).
   
   this Gianni-Nom. you-Dat. say-Fut. not what thought
   
   ‘Gianni will tell you this-Foc, not what you thought.’

Based on the facts above, Zubizarreta suggests that the functional feature T in Italian cannot constitute a syncretic category with the functional features ‘topic’, ‘focus’, or ‘emphatic’, as in Spanish. She proposes that Italian has an optional Focus or Emphasis projection, as well as an optional Topic projection, located between CP and TP.

Furthermore, she argues that the absence of XP VSO is a result of the requirement on overt checking of the nominative case in Spec TP. Thus, SVO with focused subject is derived by the subject moving to Spec TP to check the nominative case there and then moving to Spec Focus P, which is above TP.

VOS is possible in subject focus sentences with a degraded acceptability status in Italian, as in (48).
48. a. Či ti ha dato una bottiglia di vino?
   who you-Dat. has given a bottle-Acc. of wine
   ‘Who gave you a bottle of wine?’

b. *Una bottiglia di vino mi ha dato Maria.

c. Mi ha dato una bottiglia di vino Maria.

   In order to account for VOS, in (48c) with narrow focus scope on the subject,
   Zubizarreta suggests that in Italian VOS is derived from SVO via leftward adjunction of
   TP to Focus P. The structure is provided in (49) (from Zubizarreta 1998:136).

49. ?[FP [TP e1 [mi ha dato una botella de vino]]] [FP Mariai [TP e1]]

   Zubizarreta highlights that it is possible to derive VOS from SVO in Italian
   because the subject and the verb are in two different projections, Focus P and TP,
   respectively. So TP with the verb and the object can left-adjoin to Focus P. This is
   different from Spanish where there is no Focus P above TP, so VSO cannot be derived
   from SVO. Hence, VOS in Spanish and in Italian have different sources. In Spanish it is
   derived from VSO, while in Italian it is derived from SVO.

   Interestingly, the acceptability status of VOS sentences in Spanish and Italian are
   different. To account for the degraded acceptability of Italian VOS word order,
   Zubizarreta claims that p-movement is sensitive to the Relative Weight Constraint, given
   in (50).

50. Relative Weight Constraint (from Zubizarreta 1998:137)

   P-movement of constituent A across constituent B is degraded if A is “metrically
   heavier” than B.

   A is “metrically heavier” than B if A is branching and B is not (where only
   metrically visible material counts for computing “branchingness”), unless B has
   heavier pitch than A.

   Based on the definitions in (50), TP is metrically branching and, consequently,
   metrically heavier than Focus P. Therefore, p-movement of TP over Focus P results in
degraded acceptability. In Spanish, object moves around S, and the relative heaviness of O and S is relevant. This explains why VOS is fully grammatical in Spanish.

Another important issue about the word orders in Spanish and Italian is that OVS has ungrammatical status in these two languages, as in (51). However, the ungrammaticality disappears if a clitic doubled construction is used, as in (52) (from Zubizarreta 1998:136).

51. a. *La manzana comió Juan.
   The apple-Acc. ate Juan-Nom.
   ‘Juan-Foc. ate the apple.’

b. *La mela ha mangiato Gianni.
   The apple-Acc. has eaten Gianni-Nom.
   ‘Gianni-Foc. ate the apple.’

52. a. La manzana, la comió Juan.

b. La mela, l’ha mangiata Gianni.

The obligatorily clitic doubled constructions with OVS in Spanish and Italian show that objects are left-dislocated in (52). In sum, based on the word order properties of Spanish and Italian, Zubizarreta proposes an analysis which accounts for the basic and discourse-dependent word orders in these languages. However, the word orders in these languages are significantly different from Russian, as discussed below.

Similar to Italian, Russian has only SVO as the basic word order. The VSO word order is stylistically marked in thetic contexts, as illustrated in (53).

53. a. Čto proizošlo?
   ‘What happened?’

---

10 The left-dislocated status of objects in OVS sentences is also supported by Ordónez & Trevino 1999, among others).
b. Maša podarila mne butylku vina.
Masha gave me-Dat. bottle-Acc. wine-Gen.
‘Maria gave me (as a present) a bottle of wine.’

c. Podarila mne Maša butylku vina.

It has been shown in the literature that VSO thetic sentences are marked ‘epic-style’ sentences typical of folklore and tales in Russian (Bailyn 1995, Babyonyshiev 1996, Borovikoff 2001, among others). Being stylistically marked, they cannot be analyzed by the same rules as SVO thetic sentences. Further support for that comes from the experimental evidence in chapter 2. It was shown there that VSO sentences are not used by native speakers in thetic contexts. All this evidence shows that SVO is the only basic word order. This word order is derived by the narrow syntax component as a result of subject movement to Spec TP to check the EPP there.

Moreover, object focus sentences can have SVO and VSO word orders where VSO has a degraded status of acceptability, as in (54).

54. a. Čto podarila tebe Maša?
what gave you-Dat. Masha-Nom.
‘What did Masha give to you?'

b. Maša podarila mne butylku vina.
Masha gave me-Dat. bottle-Acc. wine-Gen.
‘Maria gave me (as a present) a bottle of wine.’

c. Podarila mne Maša butylku vina.

In subject focus sentences, OVS and VOS are grammatical word orders, yet the status of VOS is degraded, as in (55).

55. a. Kto podaril tebe butylku vina?
Who gave you-Dat. bottle-Acc. wine-Gen.
‘Who gave you a bottle of wine?’
b. Butylku vina podarila mne Maša
   bottle-Acc. wine-Gen. gave me-Dat. Masha
   ‘Maria-Foc. gave me (as a present) a bottle of wine.’

c. Podarila mne butylku vina Maša.
   Verb focus sentences with SOV and OSV are another area where Spanish and
   Italian differ from Russian. In Spanish and Italian these sentences are ungrammatical if
   no intonational pauses are made, as illustrated in (56).
   56. a. *María la botella de vino me regaló.
         Maria the bottle of wine me-Dat. gave
         ‘Maria gave me (as a present)-Foc. a bottle of wine.’
   b. *La botella de vino María me regaló.
   c. *María la bottiglia di vino mi ha dato.
         Maria-Nom. the bottle-Acc. of wine me-Dat. has given
         ‘Mary gave me (as a present)-Foc. a bottle of wine.’
   d. *La bottiglia di vino Maria mi ha dato.

   In Russian, SOV and OSV sentences are grammatical, but OSV has a degraded
   status of acceptability, as in (57).
   57. a. Čto sdelala Maša s butylkoj vina?
         What did Masha-Nom. with bottle wine-Gen.
         ‘What did Masha do with the bottle of wine?’
   b. Maša butylku vina podarila
         Masha-Nom. bottle-Acc. wine-Gen. gave
         ‘Maria gave as a present-Foc. a bottle of wine.’
   c. ? Butylku vina Maša podarila.
Finally, in contrast to Spanish and similar to Italian, Russian allows the order Focus-XP-V and Emphatic-XP-V, as in (58).

58. BORISU Maša podarila butylku vina.
    Boris-Dat. Masha-Nom. gave bottle-Acc. wine-Gen.
    ‘Maria gave Boris-Foc. a bottle of wine.’

The word order facts of Spanish, Italian and Russian are summarized in Table 19.

Table 19. Summary of the word orders in Spanish, Italian and Russian.

<table>
<thead>
<tr>
<th></th>
<th>Spanish</th>
<th>Italian</th>
<th>Russian</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic WO</td>
<td>SVO</td>
<td>SVO</td>
<td>SVO</td>
</tr>
<tr>
<td>(XP) VSO</td>
<td>*(XP) VSO</td>
<td>??(XP) VSO</td>
<td></td>
</tr>
<tr>
<td>Object focus</td>
<td>SVO</td>
<td>SVO</td>
<td>SVO</td>
</tr>
<tr>
<td></td>
<td>VSO</td>
<td>*VSO</td>
<td>?VSO</td>
</tr>
<tr>
<td>Subject focus</td>
<td>*OVS</td>
<td>*OVS</td>
<td>OVS</td>
</tr>
<tr>
<td></td>
<td>VOS</td>
<td>?VOS</td>
<td>?VOS</td>
</tr>
<tr>
<td>Verb focus</td>
<td>*SOV</td>
<td>*SOV</td>
<td>SOV</td>
</tr>
<tr>
<td></td>
<td>*OSV</td>
<td>*OSV</td>
<td>?OSV</td>
</tr>
<tr>
<td>Fronted focus</td>
<td>Focus-V</td>
<td>Focus-XP-V</td>
<td>Focus-XP-V</td>
</tr>
</tbody>
</table>

Note: OVS in Spanish and Italian are ungrammatical without intonational pauses, but are possible with a clitic doubled construction.

Table 19 shows that Russian is similar to Italian in its basic SVO and ability to have a fronted focus before XP-V. Based on that, it might be suggested that similar to Italian, the functional feature T in Russian cannot constitute a syncratic category with the functional features ‘topic’, ‘focus’, or ‘emphatic’, as in Spanish. In this case, it has to be assumed that Russian has an optional Focus or Emphasis projection, as well as an optional Topic projection, located between CP and TP. This is illustrated on the derivation of an SVO object focus sentence in Russian, as in (59).
(59) shows that if Russian is analyzed as Italian, then the subject moves to Spec Topic P.\textsuperscript{11} In contrast to Italian, Russian allows VSO sentences with narrow focus on the object. In order to derive VSO order, the verb has to move to a position higher than the subject. This means that if the subject stays in Spec TP in SVO sentences in Russian, the verb has to p-move to a higher projection, i.e., Topic P, as in (60).

\textsuperscript{11} In SVO sentences with narrow focus scope on the object, it has to be assumed that the verb, which also bears [+Topic] feature, stays inside vP in Russian rather than moves via head movement to TopicP. Otherwise, if the verb moves to TopicP, the analysis makes wrong predictions regarding the position of adverbs, which are wrongly expected to be ungrammatical in the immediately preverbal position.
The structure in (60) shows that in VSO word order, the verb moves to Topic P as a result of the p-movement mechanism, while the subject stays in Spec TP. However, based on Zubizarreta’s definition of Relative Weight Constraint, VSO is predicted to be as acceptable as SVO since the verb moves over a branching projection TP. Yet, this is not supported by the data since VSO has a degraded grammaticality status compared to SVO.

Furthermore, in order to account for the Russian VOS the same mechanism that Zubizarreta uses for VOS in Italian can be applied. In Italian VOS is derived by left-adjunction of TP with the verb and the object to Focus P. In contrast to Italian, the verb in Russian does not move to T in narrow syntax. Therefore, VOS in Russian can be derived by leftward adjunction of vP to TopicP, as in (61).

61. CP
   \[ C \rightarrow \text{Topic P} \]
   \[ \text{vP} \rightarrow \text{Topic} \]
   \[ t_s \quad v' \quad TP \]
   \[ \text{gryz jot}_v \quad \text{AspP} \quad \text{zajac}_s \quad T' \]
   \[ \text{kapustu}_o \quad \text{Asp'} \quad \text{subject} \quad \text{T} \quad t_v \]
   \[ t_s \quad t_o \quad t_v \quad \text{VP} \]

The structure in (61) shows that after the narrow syntax derives SVO order where the subject is in Spec TP, the p-movement left-joins vP to Topic P deriving VOS. However, the analysis in (61) makes the wrong prediction about the position of adverbs in the sentences with VOS in Russian. The analysis predicts that adverbs should not be
allowed between the verb and the direct object in Russian, which is not supported empirically, as illustrated in (62).12

62. a. Kto bystro gryzjot kapustu?
   Who quickly bites-3sg. cabbage-Acc.
   ‘Who bites cabbage quickly?’

b. ?Gryzjot bystro kapustu zajac. (acceptability 3.9 out of 5)
   Bites-3sg. quickly cabbage-Acc. rabbit-Nom.
   ‘Rabbit quickly bites cabbage.’

c. ?Gryzjot kapustu bystro zajac. (acceptability 3.5 out of 5)
   Bites-3sg. cabbage-Acc. quickly rabbit-Nom.
   ‘Rabbit quickly bites cabbage.’

The data in (62) show that native speakers prefer the position of adverb between the verb and the direct object slightly more than the position between the object and the subject. Hence, even though Zubizaretta’s analysis accounts for VOS derivation in Russian, it makes a wrong prediction about the position of adverbs.

More difficulties arise when the derivation of OVS is considered. Interestingly, in Spanish and Italian, OVS is not allowed, but may surface as a result of object left-dislocation marked by a clitic and a pause after the object. This significantly distinguishes Russian from Spanish and Italian since the Russian object is not left-dislocated and appears within the clause domain. The structure of an OVS sentence in Russian is provided in (63).

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12 The acceptability of the sentences in (60) is based on testing 8 native speakers of Russian (4 males and 4 females) who were asked to rate the answers to the question on a 5-point scale (5 is fully acceptable; 1 is unacceptable). The acceptability in the brackets is calculated as an average for the eight speakers. These sentences were not included in the grammaticality judgment test since VOS word order is not produced by speakers and has degraded acceptability.
The structure in (63) demonstrates that after the narrow syntax derives SVO order with the subject in Spec TP, the verb moves to the head of Topic P and the direct object left-adoins Topic P. However, this analysis is problematic in several respects. First, OVS cannot be derived out of SVO without violating the locality condition on p-movement since the object has to move not only over the subject, but over the verb as well. Second, even if the p-movement of the object were allowed, then the analysis in (63) makes the wrong prediction about the position of adverbs in OVS sentences. The analysis predicts that the position of an adverb immediately before the verb should be significantly worse than the position immediately after the verb. However, as shown in chapter 2, the results of the adverb placement test reveal a reverse picture: adverbs are significantly more accepted immediately before the verb, than after the verb.

Finally, SOV and OSV sentences create even more problems for the p-movement analysis. In Spanish and Italian these word orders are ungrammatical and, thus, do not cause any problems; in Russian these word orders are allowed and, as a result, should be accounted for. The default interpretation of SOV and OSV in Russian is with narrow focus on the verb and with the subject and object as topics. In SOV order, the subject and the object have to move to Spec positions of TopicP, while the verb stays in vP.
The structure in (64) illustrates that in order to derive SOV, the object is expected to p-move to Topic P first and the subject second. In OSV, the order of subject and object p-movement to the Spec positions of TopicP is reversed, as in (65).

The structure in (65) shows that in OSV sentences the subject moves first and the object adjoins second. However, in both SOV and OSV cases the movement of the object
violates the locality condition since the object has to move not only over the verb, but over the subject as well. Moreover, based on Zubizarreta’s definition of Relative Weight Constraint, SOV and OSV are predicted to be equally acceptable. Yet, this is not supported by the data since OSV has a degraded grammaticality status compared to SOV.

Thus, p-movement does not allow deriving all word orders in Russian, as it does in Spanish and Italian.

4.3.5 Collapse of the Feature-Driven Approach

The previous three sections revealed that if discourse functions of topic and focus are incorporated into narrow syntax, then the analysis suffers from numerous shortcomings. It has been demonstrated that [+Focus] feature in narrow syntax is conceptually problematic because focus is not a property of a constituent or a node. Moreover, given the numerous options for a focused constituent in emotive and non-emotive sentences, as well as the ambiguity of focus, it is difficult to propose a fixed position for Focus P in Russian. Positing [+Topic] feature into syntax does not remedy the situation. Indeed, the analysis of discourse-dependent word orders using [+Topic] feature results in numerous theory-internal stipulations. For example, the derivation of OVS requires a separate unmotivated projection above vP and below TP to account for the position of the verb before the subject. Moreover, the verb in SVO and OVS or the subject in VSO and OSV or the object in SOV and VOS receive the interpretation of topic when their [+Topic] feature is not checked. However, even with those stipulations, the analysis still fails to explain the degraded status of OSV compared to SOV. Also, the analysis of VSO where the verb moves to T makes the wrong prediction about the adverb data.

In addition, it was shown that Zubizarreta’s analysis of word orders via the mechanism of p-movement has certain limitations which do not allow us to account for all word orders and their grammaticality status in Russian. For example, the degraded
grammaticality of VSO and OSV is left unexplained. Movement of the object in OVS, SOV and OSV violates the locality condition on p-movement. Finally, the derivations of OVS and VOS make the wrong prediction about the position of adverbs in those sentences.

Hence, Russian word order permutations cannot be accounted for as narrow syntax derivations regardless of whether this is a feature-checking mechanism or p-movement. A better solution is to analyze discourse-dependent word order permutations as part of a different component of grammar, i.e., a post syntactic component.

4.4 Conclusions

This chapter investigated the syntactic derivations of basic and discourse-dependent word orders in Russian within the Derivation by Phase framework. The features together with the operations of the syntactic component allow deriving the basic word orders in all types of predicates in Russian. In transitive, ditransitive and unergative sentences, the same vP structure is projected with the only variation in the number of arguments merging in the structure, as in (62).

Unaccusative predicates differ from all other types of predicates by the deficient nature of vP, which has no external θ-role and, as a result, has a non-causal, non-agentive semantic meaning, as in (63).
The sentence structures in (62) and (63) allow generating basic word orders, but they do not allow generating the word orders in discourse-dependent sentences. In the latter type of sentences, the word order correlates with the discourse functions of topic and focus. However, the final sections of this chapter show that this approach suffers from numerous shortcomings. It was demonstrated that neither feature-driven approach nor p-movement approach by Zubizarreta (1998) allow us to account for the discourse-dependent word orders in Russian.

A solution to this problem could be found if the discourse-dependent word order permutations are derived at a different component of grammar. In chapter 5, the analysis of word order permutations within the Derivation by Phase approach will be presented. In particular, it will be shown that word order permutations in discourse-dependent sentences surface as a result of linear discourse structure rules in the pragmatic component of grammar.
CHAPTER 5
WORD ORDER PERMUTATIONS AS A RESULT OF THE
PRAGMATIC COMPONENT OF GRAMMAR

5.1 Introduction

In two previous chapters it was shown that syntactic features together with the
operations of the narrow syntax component derive the basic word order with transitive,
ditransitive and intransitive verbs. However, discourse-dependent word orders pose a
problem. It was shown in chapter 4 that it is not promising to incorporate the discourse
notions of topic and focus into the narrow syntax component because such analysis
suffers from many limitations. In particular, it was demonstrated that [+Focus] feature is
problematic because the numerous options for a focused constituent in emotive and non-
emotive sentences, and the ambiguity of focus in Russian are difficult to account for if a
fixed position of Focus P is assumed. Furthermore, the analysis of discourse-dependent
word orders using [+Topic] feature results in numerous theory-internal assumptions and
stipulations. However, even with those assumptions, the analysis still fails to explain the
degraded status of OSV compared to SOV in Russian, as well as makes the wrong
prediction about the adverb data in VSO sentences. Finally, it was shown that the analysis
of discourse-dependent word orders as p-movements does not allow us to account for all
word orders in Russian.

In this chapter, the mechanism generating discourse-dependent word orders in
Russian will be analyzed. It will be proposed that after narrow syntax generates basic
word order sentences, these sentences are input to a post-syntactic component of
grammar where the pragmatic functions of topic and focus are assigned to each
constituent. These functions can be realized either by prosodic means such as stress and
intonation or by word order permutations. In the former case, the pragmatic structure is
transferred to the PF component of grammar where emotive sentences are derived. In the
latter case, the OT-type constraints derive discourse-dependent non-emotive word orders in Russian. The details of the analysis are in the next sections.

5.2 Word Order Permutations as Part of a Separate Pragmatic Component

The target analysis of discourse-dependent word order permutations should be able to meet the criteria listed in (1).

1.  a. The analysis should be able to account for both emotive and non-emotive word orders;
   b. The analysis should be able to account for felicitous and infelicitous word orders in each type of discourse structure (thetic sentences, subject focus sentences, object focus sentences, verb focus sentences)
   c. The analysis should be able to account for the acceptable and degraded status of the felicitous word orders.

Given the autonomy of syntax and its function as a ‘dumb computational system’ (Chomsky 2001:32), it is not expected that pragmatic notions of topic and focus are directly encoded in the syntactic computational system. Further support for this comes from analyses showing that topic and focus structure should be part of a post-syntactic interface (Pereltsvaig 2004, Erteschik-Shir & Strahov 2004, Zubizarretta 1998). These analyses are discussed below.

5.2.1 Pereltsvaig 2004

In order to account for the syntactic structure and pragmatic interpretation of topic and focus in Russian, Pereltsvaig (2004) proposes that pragmatic functions are not associated with specific syntactic positions. On the contrary, elements interpreted as topics and foci can appear in several different syntactic positions. She argues that narrow syntax moves the topic constituent to the left edge of the sentence and contrastive focus constituent to the right edge of IP. At the next stage, the constituents at the edges of the
clause are assigned topic and focus interpretations, respectively, by a separate informational component of grammar. To prove that topics can occupy different syntactic positions, she provides an argument with topics in Russian copular sentences, given in (2) (from Pereltsvaig 2004:330).

2. a. Ubijcej byl doctor Šeppard.
   murderer-Instr. was doctor-Nom. Sheppard
   ‘The murderer was doctor Sheppard.’

   b. Ubijca byl doctor Šeppard.
   murderer-Nom. was doctor-Nom. Sheppard
   ‘The murderer was doctor Sheppard.’

   Using the binding test she claims that the instrumental topic is in Spec CP position, while the nominative topic is in Spec TP position. This is illustrated in (3) (from Pereltsvaig 2004:330).

3. a. Svoimi lučšim drugom byl Olegi.
   Self-Instr. best-Instr. friend-Instr. was Oleg-Nom.
   ‘Oleg was his own best friend.’

   b. *Svoji lučšij drug byl Olegi.
   Self-Nom. best-Nom. friend-Nom. was Oleg-Nom.
   ‘Oleg was his own best friend.’

   Examples in (3) show that instrumental and nominative topics behave differently with respect to the binding test. (3a) shows that the anaphor with instrumental case is grammatical in the sentence-initial position. This is possible only if instrumental topic is in an A’-position and reconstructs to a vP internal position below the nominative argument. At the same time, (3b) where the anaphor with the nominative case is also in sentences-initial position is ungrammatical. This means that the nominative anaphor does not reconstruct to a position c-commanded by an antecedent. Hence, Pereltsvaig concludes that the instrumental topic in (2a) and (3a) occupies an A’-position, which she
assumed is Spec CP, and the nominative topic in (2b) and (3b) occupies an A-position, which is Spec TP. Based on this argument, Pereltsvaig (2004) proposes that topics are always at the left-edge of the sentence (Spec CP or Spec IP) and, thus, are associated with a specific linear position.

Similarly to topics, Pereltsvaig (2004) argues that contrastive focus constituents can be in different syntactic positions, but they are always at the right edge of IP. Here she distinguishes between the information focus (defined as new, non-presupposed part of the clause) and the contrastive focus (defined as an element from a presupposed set of alternatives). She does not discuss information focus, and concentrates on the properties of contrastive focus only. Specifically, she argues that in those cases where the focused element is not in the sentence-final position, the post-focal material is right-dislocated. She supports this view by a prosodic argument and a phonological argument. First, based on the experimental work of Zybatow and Mehlhorn (2000), she illustrates that post-focal material in sentences with contrastive focus has the intonation contour characteristic of right-dislocation (i.e., flat low pitch contour and lack of stress). Second, she provides evidence that re-syllabification does not apply across the focal element and a subsequent post-focal element, as in (4b) (from Pereltsvaig 2004:340).

4. a. Džon ne pokazal slonov ANNE.
   
   [no]o [van]o

   John not showed elephants to-Anna

   ‘John did not show elephants to Anna-Foc (but he showed them to Lena).’

b. Džon ne pokazal SLONOV Anne.
   
   [nof]o [an]o

   John not showed elephants to-Anna

   ‘John did not show elephants-Foc to Anna (but he showed her giraffes).’

In (4a) the pre-focal constituent slonov is in the same syllabification domain (IP) as the focused indirect object Anne. Consequently, /v/ can be syllabified into the onset of
the following syllable. On the other hand, in (4b) the contrastive focus is the direct object, while the indirect object is right-dislocated (outside of IP) and, as a result, is not in the same syllabification domain. This means that /v/ cannot be syllabified into the onset of the following syllable, and stays in the coda, where it devoices into [f].

Thus, Pereltsvaig concludes that post-focal material in sentences with contrastive focus is not part of the core clause, but is adjoined to the right of TP (IP in her analysis). Based on the arguments above, she claims that topic and focus should “be treated as the interpretations assigned by a separate [informational] component of the grammar” (Pereltsvaig 2004:343). While the role of syntax is to allow constituents to move to edge positions, the role of the informational component is to map between syntactic and pragmatic structures where the informational component is interpretative and linear, in contrast to syntax, which operates with hierarchical structures.

Pereltsvaig’s analysis provides an interesting insight into the interaction between narrow syntax and pragmatic functions of topic and focus, which are part of the informational component. Furthermore, she contrasts hierarchical structure of syntax to linearity of the pragmatic component. However, Pereltsvaig’s analysis suffers from a number of shortcomings. First, she argues that topics may appear in different structural positions (Spec TP and Spec CP) in Russian. Her argument is based on the A vs. A’-properties of the topic constituents where topics with A’-properties are assumed to be located in Spec CP and topics with A-properties in Spec TP. However, the interpretation of sentences in (2) provides evidence against the two position approach for A vs. A’-properties of the topic constituents. If the instrumental topic in (2a) and the nominative topic in (2b) occupy different structural positions, then the sentences (2a) and (2b) are expected to have different interpretations. However, the two sentences have the same interpretation where the murderer was doctor Sheppard. The lack of the difference in interpretations in (2a) and (2b) proves that the instrumental and nominative topics occupy the same structural position in the two sentences.
Second, the re-syllabification argument is not supported experimentally. The sentences with /v/ were tested acoustically to determine whether re-syllabification of /v/ applies across the focal element and a subsequent post-focal element. To do that, two native speakers of Russian (a male and a female) were asked to pronounce three sentences, as in (5).

5. a. Boris pokazal slonov Vane.
    Boris-Nom. showed elephants-Acc. Vanja-Dat.
    ‘Boris showed elephants to Vanja.’

b. Boris pokazal slonov Anne.
    Boris-Nom. showed elephants-Acc. Anna-Dat.
    ‘Boris showed elephants to Anna.’

c. Boris pokazal SLONOV Anne.
    Boris-Nom. showed elephants-Acc. Anna-Dat.
    Boris showed elephants to Anna.’

The sentence in (5a) has the indirect object Vane ‘Vanja-Dat.’ as the focus of the sentence and is used as a control sentence. In this sentence, the pre-focal constituent slonov with the word final /v/ appears in the same syllabification domain as the focus, but cannot re-syllabify before a consonant. The same sentence is also supposed to show /v/ in the onset of a stressed syllable.

The sentence in (5b) has the indirect object Anne ‘Anna-Dat.’ as the focus of the sentence. In this sentence, the pre-focal constituent is in the same syllabification domain as the focus and appears before a vowel. So if the re-syllabification rule applied in Russian, then the word final /v/ is expected to re-syllabify to the onset of the next syllable.

Finally, sentence (5c) has the direct object SLONOV ‘elephants-Acc.’ as the focus. Therefore, the word final /v/ in SLONOV and word-initial vowel in Anne are in different syllabification domains, and consequently, do not re-syllabify.
The sentences produced by the speakers in (5) were recorded digitally. The recordings were analyzed acoustically with a speech analysis software package (Wavesurfer 1.8.5). The results of the male speaker are presented in Figures 13-15, respectively. Figure 13 demonstrates a waveform and a spectrogram of the two final words in (5a).

Figure 13. A spectrogram of slonov Vane in the sentence in (5a).

Figure 13 illustrates that /v/ at the end of the word slonov is devoiced into fricative [f], which looks like random energy distributed over a wide range of frequencies. The fricative [f] is followed by blank space corresponding to a pause between the words. Then, a voiced fricative [v] in the onset of a stressed syllable is represented by the vertical striations indicating voicing of the fricative, while the fricative component of [v] is so light that is almost invisible. What is important in this spectrogram is the blank space between the words. The blank space indicates that [f] in
*slonov* and [v] in Vane belong to two different syllables. Now let us look at Figure 14, which demonstrates the two final words in (5b).

![Figure 14. A spectrogram of slonov Ane in the sentence in (5b).](image)

Figure 14 shows that the word final /v/ in *slonov* is pronounced as a voiceless fricative [f], which looks very similar to [f] in the previous sentence, but a little bit lighter. The voiceless fricative is followed by blank space indicating a pause between the two words. The pause is then followed by the formants of the stressed vowel [a]. Importantly, there is no trace if a re-syllabified [v] in the onset of the stressed syllable. As demonstrated in Figure 13, a voiced fricative in an onset is represented by vertical striations indicating voicing of the fricative and a possible light pattern of random energy distributed over a wide range of frequencies. However, there is neither voicing, nor frication before the stressed vowel. This strongly challenges the argument about the re-syllabification of /v/. 
Finally, the two words of the sentence in (5c) are given in Figure 15. This figure demonstrates a spectrogram of the focused direct object *slonov* followed by a post-focal indirect object *Anne*.

![Spectrogram of sloNOV Ane](image)

Figure 15. A spectrogram of *sloNOV Ane* in the sentence in (5c).

In Figure 15, the stressed vowel [o] in *SLONOV* is followed by a light pattern of the voiceless fricative [f]. Then, the blank space indicating a pause between the words is followed by the light formants of the vowel [a] in the post-focal word *Anne*. As can be noticed, the pattern in Figure 15 is very similar to the pattern in Figure 14 with the difference in the intensity of the formants (indicated by darkness) of the stressed and unstressed vowel [a] in the word *Anne*.

The results of the male speaker were supported by the results of the female speaker and are given in Appendix D. Hence, the re-syllabification analysis of /v/ into the onset of the following syllable was not supported. Moreover, the study showed that there is no significant difference between the final /v/ in the pre-focal word and the word-final
/v/ in the focused word. This means that the argument that Pereltsvaig (2004) presents needs further investigation.

In addition, Pereltsvaig’s analysis accounts for contrastive focus position as the right edge of TP (IP), but does not account for non-emotive sentences and emotive sentences with information focus. Consider the examples in (6-7).

6. a. Kto učit ispanskij yazyk?
Who studies-Pres.3sg. Spanish language
‘Who studies Spanish?’

b. Ispanskij yazyk učit Boris.
Spanish language studies-Pres.3sg. Boris-Nom.
‘Boris-Foc. studies Spanish.’

c. BORIS učit ispanskij jazyk.
Boris-Nom. studies-Pres.3sg. Spanish language
‘Boris-Foc. studies Spanish.’

7. a. Olya učit ispanskij yazyk?
Olga-Nom. studies-pres.3sg. Spanish language
‘Is it Olga who studies Spanish?’

b. Net, ispanskij yazyk učit BORIS.
No Spanish language studies-Pres.3sg. Boris-Nom.
‘No, Boris-Foc. studies Spanish.’

c. Net, BORIS učit ispanskij yazyk.
No, Boris-Nom. studies-pres.3sg. Spanish language
‘No, Boris-Foc. studies Spanish.’

The data in (6) and (7) represent the information and contrastive focus, respectively. In (6), the information focus of the sentences is the nominative subject. In (6b) the focus is sentence-final and is accompanied by a non-emotive intonation. In (6c), the focus is sentence-initial and is accompanied by an intonation pattern of an emotive
sentence with a contour tone sharply falling on the focus. The post-focus constituents are pronounced with the same low tone as the intonation center of that phrase. Thus, the sentences with information focus can have a non-emotive and an emotive intonation pattern. Although the sentences in (7b) and (7c) are similar in their word order to the sentences in (6b) and (6c), respectively, they introduce contrastive focus. Contrastive focus, unlike information focus, emphasizes an element taken from a closed set of items known to the interlocutor, which is contrasted with other members of this set (King 1995: 74-75). Sentences with contrastive focus usually have an emotive intonation very similar to intonation contour of emotive sentences with information focus. The only difference is when the focus is in sentence-final position. In this case information focus sentences usually have non-emotive intonation while contrastive focus sentences have emotive intonation. In sum, information and contrastive foci have different semantic properties where information focus introduces new information and contrastive focus selects the information from a known set of items. However, they have similar word order patterns and intonation patterns. In this respect, contrastive focus is a sort of sub-case of information focus. Returning to Pereltsvaig’s (2004) analysis, which accounts only for contrastive focus position, it is unclear what the position of information focus is, which represents a wider spectrum and more common type of focus in Russian.

Furthermore, Pereltsvaig’s analysis predicts that in (7b) the narrow syntax generates the direct object at the left-edge of the clause and the contrastive focus constituent at the right-edge of IP. However, Pereltsvaig assumes that topic and focus features are assigned to constituents only after the narrow syntax structure is transferred to the next component, which is the informational component. Hence, it is not clear what motivates the movement of the direct object to the left-edge of the clause and the contrastive constituent to the right edge of IP in narrow syntax. The movement of the object to the left-edge of the clause cannot be motivated by the EPP checking since it
would violate the Minimal Link Condition (Chomsky 1995). Likewise, the movement of the subject to the right-edge of IP is difficult to account for.

Similarly, the syntactic motivation for the operation of dislocation is not clear. The only function of such a dislocation is to separate a contrastive focus constituent from post-focal constituents; yet, Pereltsvaig states in her analysis that pragmatic function of focus is assigned in a different component of grammar after the narrow syntax component has moved all constituents to the appropriate positions.

To summarize, although Pereltsvaig (2004) proposes that the pragmatic notions of topic and focus are assigned in a post-syntactic component of grammar, her analysis is heavily based on the assumption that topic and focus notions are available in the narrow syntax component. Moreover, her analysis leaves aside the sentences with information focus, and accounts only for emotive sentences with contrastive focus. Finally, her re-syllabification argument is not supported experimentally and her argument with the binding test requires further investigation. In the next section, another analysis proposing a post-syntactic representation of discourse functions will be discussed.

5.2.2 Erteschik-Shir & Strahov 2004

On the basis of the scrambling data from Russian, Erteschik-Shir & Strahov (2004) argue that scrambling is a P(honological)-syntactic rule in the phonology. They propose an I-model of the computational system, as in (8).

8. I-model (from Erteschik-Shir & Strahov 2004:302)

```
s-syntax
f-structure (+top-foc features)
phonology:   p-syntax
            morphology
            phonology
```
According to the model in (8), narrow syntax transfers the output to f-structure component, which assigns topic and focus features to that output. The hierarchical syntactic structure is not retained at f-structure except for the bracketing of topics and foci and the outer bracket of the merged syntactic structure marking edges, Merge-Max. The f-structure, in its turn, feeds P-syntax, where the topic and focus features are checked. The authors propose that depending on a language type, different languages employ different strategies in checking the f-structure features. Some languages check them by morphology, some by intonation and/or scrambling. For example, Russian, which they group as a scrambling language, employs P-syntactic scrambling to place foci VP-finally. On the other hand, Scandinavian languages, considered as non-scrambling languages, incorporate de-stressed elements prosodically. Importantly, all feature checking is subject to P-syntactic constrains such as Adjacency, Edge and Direction (Left/Right). In order to prove that checking of the pragmatic features triggers movement to peripheral topic and focus positions at P-syntax in Russian, Erteschik-Shir & Strahov (2004) use a VP-oriented adverb test and double-object constructions.

First of all, they show that VP-oriented adverbs mark the edge between topic and focus in Russian, as in (9) (from Erteschik-Shir & Strahov 2004:317).

9. a. Maša vtoropjaj [napisala pis’mo]FOC.
   Masha-Nom. in-a-hurry wrote-Past-fem.sg. letter-Acc
   ‘Masha wrote a letter in a hurry.’

b. Maša napisala vtoropjaj [pis’mo]FOC.

The data in (9) illustrate that a constituent, which follows the adverb vtoropjaj ‘in a hurry’ with neutral intonation, is necessarily interpreted as focus. Based on that, they
conclude that the position at the right edge of the VP is a designated focus position in 
Russian.¹

Given that the right periphery is a position in which the focus feature can be 
checked, Erteschik-Shir & Strahov (2004) demonstrate that object foci scramble to the 
right edge of VP to focus position in double object constructions in Russian, as in (10) 

10. a. [Dima]_{TOP} [podaril devočke sumku]_{FOC}.
    Dima-Nom. gave-Past.masc.sg. girl-Dat. bag-Acc
    ‘Dima gave a girl a bag.’
    b. Dima podaril [devočke]_{TOP} [sumku]_{FOC}.
    c. Dima podaril [sumku]_{TOP} [devočke]_{FOC}.
    d. *Dima podaril [devočke]_{FOC} [sumku]_{TOP}.
    e. *Dima podaril [sumku]_{FOC} [devočke]_{TOP}.

¹ Although I agree that focus is aligned with the right edge of the sentence, I disagree that 
the adverb test is a good indicator of the focus scope, as illustrated by the data in (i).

i. a. Čto napisala Maša vtoropjax?
    what wrote Masha in-a-hurry
    ‘What did Masha write in a hurry?’
    b. Maša vtoropjax napisala pis’mo.
       Masha-Nom. in-a-hurry wrote-Past-fem.-sg. letter-Acc
       ‘Masha wrote a letter in a hurry.’
       The answer in (ib) shows that the manner adverb appears in an immediately preverbal 
position while the focus takes scope over the object only. Moreover, as the experimental evidence 
shows (see chapter 2), this is a preferred answer while the answer in (9b) with the manner adverb 
in immediately postverbal position has a degraded status.
       Furthermore, focus does not necessarily consist of the constituents that follow the adverb 
vtoropjax ‘in a hurry’ in Russian, as in (ii).

ii. a. Čto sdelala Maša?
    what did Masha
    ‘What did Masha do?’
    b. ?Maša napisala vtoropjax pis’mo.
       Masha-Nom. wrote-Past-fem.-sg. in-a-hurry letter-Acc
       ‘Masha wrote a letter in a hurry.’
       The sentence in (iib) shows that the adverb is inside the focus VP. Based on the data in (i) 
and (ii), I conclude that the adverb test does not provide a strong argument for the focus scope in 
Russia. However, this does not preclude the idea that focus is located at the right periphery of a 
non-emotive sentence in Russian.
f. Dima podaril \[DEVOČKE_{TOP}\]_{FOC} \[sumku\]_{TOP}.
g. Dima podaril \[SUMKU_{TOP}\]_{FOC} \[devočke\]_{TOP}.

In (10a) focus takes scope over the whole VP, while in (10b) only the direct object is focused and in (10c) only indirect object is focused. Importantly, as (10d) and (10e) show, a focused constituent cannot precede a topic constituent unless, the former one is marked by stress and intonation, as in (10f) and (10g). Contrastive elements in (10f) and (10g) are marked for both topic and focus and can be interpreted in situ. Based on the data in (10), the authors propose that topics scramble to the designated focus position in Russian double object construction.

The scrambling of focus to the right edge is also supported by pronoun fronting in double object constructions in Russian, as demonstrated in (11) (from Erteschik-Shir & Strahov 2004:318).

   Masha-Nom. bought-Past-fem.sg. present-Acc. him-Dat
   ‘Masha bought him a present.’
   b. Maša kupila emu \[podarok\]_{FOC}.
   c. Maša emu \[kupila podarok\]_{FOC}.

Since pronouns are inherently topics, they cannot appear sentence-finally, as in (11a), and, as a result, scramble to a position adjacent to the verb to prosodically incorporate into the verb, as in (11b) and (11c). This shows that P-syntax is responsible for prosodic interpretation and does not require an independent stress rule since the main stress is assigned to the constituents marked as focus.

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2 The marking of contrastive focus constituents as both topics and foci is related to the contrastive focus property to contrast information existing in the previous discourse where the focused material belongs to a closed set known to the speaker and the hearer. Thus, contrastive focus constituents share the features of both topic and focus.
Finally, Erteschik-Shir & Strahov (2004) propose that P-syntax is responsible for semantic interpretation and does not require a separate LF component. This is shown based on the scope relations, which in Russian are determined by the linear order of the quantifier phrases, as in (12).

12. a. Dva studenta izučajut každyj yazyk.
   two students-Nom. study-Pres.3pl. every language
   ‘Two students study every language.’ \( \exists x \forall y \)

b. Každyj yazyk izučajut dva studenta.
   every language study-Pres.3pl. two students-Nom.
   ‘Every language is studied by two students.’ \( \forall y \exists x \)

In (12), the subject quantifier takes scope over the object quantifier. Similarly, the authors show that the focus quantifier always has narrow scope in the double object construction in Russian, as in (13) (from Erteschik-Shir & Strahov 2004:320).

13. a. Učitel’ pokazal každomu studentu kakju-to kartinu.
   teacher-Nom. showed every student-Dat. some picture-Acc.
   ‘The teacher showed every student some (different) picture.’ \( \forall x \exists y \)

b. Učitel’ pokazal kakju-to kartinu každomu studentu.
   teacher-Nom. showed some picture-Acc. every student-Dat.
   ‘The teacher showed some (the same) picture to every student.’ \( \exists y \forall x \)

(13) illustrates that topic necessarily precedes focus and topic always takes a wider scope over focus. In brief, Erteschik-Shir & Strahov (2004) show that P-syntax scrambling places foci to the right edge position in Russian.

The I-model of grammar is a combination of a feature-driven approach and a new interface approach. On the one hand, this approach is based on the assumption that there are topic and focus features in the grammar, which are assigned to f-structure. On the other hand, the model assumes that these features are part of a separate component, f-structure.
In my analysis, I would like to follow their argumentation that pragmatic structure is an integral part of the computational system. However, I would like to diverge from Erteschik-Shir & Strahov’s analysis where they claim that P-syntax is responsible for semantic interpretation and does not require a separate LF component. In particular, I would like to keep the more orthodox position that LF is a separate interface component, which derives semantic interpretation of a sentence. First, the derivation of surface orders and assignment of interpretation are two separate tasks. The task of the pragmatic component is to derive surface word orders, while the task of a logical component is to assign interpretation to a sentence. An argument for this comes from Kondrashova (1996) who illustrates the difference between semantic and discourse principles. Following Kamp (1975) and Heim (1982), she compares the notions of ‘novel/familiar’ that are directly reflected in LF with the discourse notions of ‘new/given’ which are reflected in the pragmatic structure. This is illustrated in (14)-(15) (from Kondrashova 1996:122).

14. a. Eric has a dog and a cat. He likes both pets, but the dog is his favorite.
   b. Let’s see if I’ve done everything I need to. Oh, I forgot to feed the dog!

15. a. Eric saw a dinosaur yesterday.
   b. Where can I see a dinosaur? – You could see a dinosaur in its natural habitat, if you only lived a couple million years ago.

In (14), the bold DP the dog is familiar information in both sentences. Familiar information is usually introduced by the definite DPs which have a referent established in the discourse. However, in (14a), the bold DP has the status of ‘given’ information, while in (14b), it has the status of ‘new’ information. Similarly, in (15), the bold DP a dinosaur is novel in both sentences, but has different discourse status. In (15a), it has the status of ‘new’ information, and in (15b) it has the status of ‘given’ information. The data in (14)-(15) illustrate that there can be both familiar-new, familiar-given, novel-given and novel-new NPs. Kondrashova (1996) argues that the novelty/familiarity distinction is relevant at LF since novel variables must be quantified over; however, the new/given distinction is
blind to quantificational factors. The difference between LF relevant notions and discourse relevant notions shows that LF should be distinguished from the pragmatic component.

Second, I would like to show that the word order and the interpretation are related to the discourse structure of a sentence, but the word order and the interpretation are not related to each other. Schematically, this could be represented as in (16).

16.   Discourse structure      LF
       ↓                      ↓
       Word orders

Supporting evidence for the configuration in (16) comes from word orders with the same discourse structure, as in (17).

17. a. Okno   razbila  Olja
    window-Acc. broke    Olya-Nom.
    ‘Olya-Foc. broke a window.’

   b. Razbila   okno       Olja.
       broke    window-Acc. Olya-Nom.
       ‘Olya-Foc. broke a window.’

   c. OLJA          razbila    okno
       Olya-Nom.    broke    window-Acc.
       ‘Olya-Foc. broke a window.’

The data in (17) show that the sentences have different word orders: non-emotive OVS in (17a), non-emotive VOS in (17b) and emotive SVO in (17c), respectively. However, all sentences have the same discourse structure where the nominative subject *Olja* is the focus and the direct object and the verb are topics. Importantly, regardless of the word order, the interpretation of the sentences is the same such as *‘a specific window was broken by a person called Olja’*. If the computational system had the configuration
of an I-model, represented in (8), where P-syntax is responsible for semantic interpretation and does not require a separate LF component, then each of the word orders were expected to have a different interpretation. However, this is not the case where the sentences with the same discourse structure have the same interpretation.

Further evidence for the configuration in (16) comes from the scrambling data. Kondrashova (1996:113-114) provides examples with scrambling, as in (18)-(19), where variables scramble out of the scope of their operators.

18. a. On prinjos vse žurnaly.
    he-Nom. brought all magazines-Acc.
    ‘He brought all the magazines.’

   b. Žurnaly on prinjos vse.
    Magazines-Acc. he-Nom. brought all.
    ‘He brought all the magazines.’

19. a. Maša redko est morkovku.
    Masha-Nom. seldom eats carrot-Acc.
    ‘Masha seldom eats carrots.’

   b. Morkovku Maša redko est.
    carrot-Acc. Masha-Nom. seldom eats
    ‘Masha seldom eats carrots.’

In (18b), the accusative object žurnaly ‘magazines-Acc.’ scrambles out of the scope of its universal quantifier vse ‘all’, but is interpreted as bound by the quantifier. Likewise, in (19b), the accusative object morkovku ‘carrot-Acc.’ scrambles out of the scope of the quantifier redko ‘seldom’, but is interpreted as being within its scope. The data in (18)-(19) proves that the LF level splits before the surface scrambling takes place.

Finally, even more evidence for the grammar configuration in (16) comes from quantifier interpretations. It was shown in (12)-(13) that the interpretation in scrambling languages is related to the surface word order. However, all cases considered had a topic-
focus non-emotive information structure. If emotive sentences with fronted focus are added to the picture, then the generalization changes. Thus, it would be more accurate to say that the interpretation depends on the pragmatic structure, rather than the word order. Let us consider examples in (20).

20. a. Tri rebjonka otkusili každyj banan.
   three children-Nom. bit-Pst.pl. every banana-Acc.
   ‘Three (particular) children bit every banana.’ $\exists x \forall y$

   b. Každyj banan otkusili tri rebjonka.
   every banana-Acc. bit-Pst.pl. three children-Nom.
   ‘Every banana was bitten by some three children.’ $\forall y \exists x$

   Similar to the data in (12), the surface word order in (20) determines the scope of the quantifiers. In (20a) the existential quantifier takes wider scope over the universal quantifier resulting in the interpretation where *three particular children tasted all bananas*. In (20b) the universal quantifier takes wider scope over the existential quantifier and the interpretation becomes that *every banana was tasted by three different children*. However, the interpretation in (20b) is possible only if the direct object is topic and the nominative argument is focus. If the information structure changes, where the direct object becomes focus (accompanied by focal stress) and the nominative argument becomes topic, then the interpretation changes as well. This is shown in (21).

21. KAŽDYJ BANAN otkusili tri rebjonka.
   every banana-Acc. bit-Pst.pl. three children-Nom.
   ‘Three (particular) children bit every banana.’ $\exists x \forall y$

   In (21), the existential quantifier takes wide scope, as in (20a), and the interpretation is *three particular children tasted all bananas*. This means that the interpretation of a sentence depends on the information structure where topic takes scope over focus regardless of the word order. In non-emotive sentences where topics precede foci the scope relations correlate with the linear order of constituents. However, in
emotive sentences in which focus precedes topic, focus still has narrow scope. Thus, the examples in (20)-(21) prove that LF is not related to word orders in Russian. Moreover, the examples in (20)-(21) illustrate that the interpretation (LF structure) directly depends on the topic-focus structure (pragmatic structure), and, thus, pragmatic structure feeds LF.

Before I conclude this section, I would also like to notice that the component of grammar which checks the pragmatic features of topic and focus should be able to account for the grammatical and degraded status of some felicitous discourse-dependent word orders. Thus, this component should be able to distinguish between SVO, OVS and SOV and their felicitous counterparts with a degraded status of acceptability, such as VSO, VOS and OSV, respectively. Erteschik-Shir & Strahov’s P-syntax, where the topic and focus features are checked by morphology, intonation and/or scrambling, does not allow an account of that. For example, the output of f-structure in (22) may surface as one of the sentences in (23) after P-syntax rules on Adjacency, Edge and Direction (Left/Right) apply.

22. #[Ivan]FOC  [razbil okno]TOP#

23. a. Okno razbil Ivan.
   b. Razbil okno Ivan.
   c. IVAN razbil okno.

Thus, P-syntax does not predict that (23a) and (23c) are significantly more preferable to speakers than (23b). However, the pragmatic component of grammar responsible for encoding word order should be sensitive to different types of movement processes. In section 5.3, it will be shown that the best way to do this is through the mechanism of Optimality Theory constraints and their language-specific ranking. Yet, before that, I would like to discuss another analysis of word order permutations, which has received much attention in the literature.
5.2.3 Zubizarreta 1998

Zubizarreta (1998) introduced another influential approach, which deserves special attention. Zubizaretta (1998) develops a theory of the relations among focus, prosody and word order in Spanish and Italian. She argues that the topic-focus structure is represented at a post-LF component of grammar, i.e., the Assertion structure. Zubizarreta bases her modified model of grammar, given in (24), on the Minimalist model of grammar with PF and LF interfaces.


\[\Sigma\] Structure

\(\text{F(focus)-marking, the Focus Prominence Rule,}
\the Nuclear Stress Rule and p-movement)\]

LF

PF Assertion Structure

Zubizarreta (1998) proposes that \(\Sigma\)-Structure in (24) is a representation of the narrow syntax component at a certain point in the derivation where all syntactic features are checked and the structure results in a single phrase marker. The computation continues after \(\Sigma\)-Structure and the \([F(\text{ocus})]\) feature and prosodic prominence rules apply. The feature \([F]\) corresponds to a semantic contrast between two classes of categories in the structure, and \([\text{prosodic prominence}]\) refers to a phonological contrast between sister categories. The prosodic prominence rules include the Focus Prominence rules (25a), the Nuclear Stress Rule (25b) and \(p(\text{rosodically motivated})\) movement.


Given two sister categories \(C_i\) (marked \([+F]\)) and \(C_j\) (marked \([-F]\)), \(C_i\) is more prominent than \(C_j\).

S(electionally driven)-NSR: Given two sister categories $C_i$ and $C_j$, if $C_i$ and $C_j$ are
selectionally ordered, the one lower in the selectional ordering is more prominent.

C(onstituent driven)-NSR: Given two sister categories $C_i$ and $C_j$, the one lower in
the asymmetric c-command ordering is more prominent.

In those cases when the FPR and the NSR have contradictory outputs,
p(rosodically motivated) movement applies. Zubizarreta (1998) claims that p-movement
accounts for the word order scrambling in Spanish and Italian and should be considered
as a syntactic operation obeying the Last Resort condition.

Zubizarreta proposes that Spell-Out starts before the derivation branches at LF
where it obtains interpretive properties. The two post-syntactic components are PF
structure and Assertion Structure. Zubizarreta argues that Assertion Structure is an
interface focus structure where topic and focus notions are represented. She considers the
notion of focus in terms of a non-presupposed part of the sentence (Chomsky 1971, 1976,
Jackendoff 1972). The focus structure of a sentence is articulated in the form of two
ordered assertions. The first assertion represents the background assertion, which is a
presuppositional part of the statement provided by the context question. The second
assertion is the main assertion of the statement; it assigns a value to the variable
introduced by the background assertion.

In general, Zubizarreta’s model of grammar represents a complete and well-
developed system able to account for the relations between word order, focus and
prosody in Romance languages. However, there are certain distinctions between Spanish
and Italian, on the one hand, and Russian, on the other hand, which prevent Russian from
being analyzed within Zubizarreta’s model of grammar.

First, in Zubizarreta’s model the Assertion Structure is derived from the LF
structure. This means that the interpretation of a sentence is independent from the topic-
focus structure of the sentence. Moreover, the topic-focus structure of a sentence is
derived from interpretation. However, as shown in (20-21), Russian represents a case where the interpretation depends on the pragmatic structure of a sentence. To accommodate the Russian data, the Assertion structure and LF should be reversed, as in (26).

26. Assertion Structure

The reversed structure in (26) makes a correct prediction about the phonological representation of a sentence, which depends on the topic-focus structure in Russian. For example, in emotive sentences the stress and intonation depend on the information structure, as illustrated in (27).

27. a. IVAN razbil okno.
   Ivan-Nom. broke window-Acc.
   ‘Ivan-Foc. razbil okno.’

b. Ivan RAZBIL okno.

c. Ivan razbil OKNO.

The data in (27) show that the placement of focal stress depends on the focus constituent. In (27a), the focus is the subject; in (27b), it is the verb, and in (27c), it is the object.

Moreover, Zubizarreta’s model of grammar assumes that the LF structure is determined from the narrow syntax component after all word orders are derived through the mechanism of p-movement. However, the configuration where word orders are derived before interpretive properties leads to wrong predictions. Specifically this configuration predicts that each word order derived by p-movement has a different interpretation. As shown in the previous section, this prediction is not supported by the data in Russian since Russian allows word orders with the same interpretation.
Furthermore, in order to account for the word orders in Spanish, Zubizarreta proposes that T constitutes a syncretic category with other discourse-based features, such as “topic”, “focus”, or “emphasis”. Moreover, to account for the word order in Italian, Zubizarreta argues for a separate projection Focus P above TP. This means that pragmatic structure of a sentence should be available to narrow syntax. However, this contradicts the grammar model in (24) where topic and focus structure is determined only at the Assertion Structure, which is a post-syntactic interface.

In summary, I have attempted to show that Zubizarreta’s model of grammar where Assertion Structure (topic-focus structure) is derived from LF is not supported by the data. Moreover, according to her model of grammar, the word orders derived by narrow syntax and p-movement rules feed LF component making the wrong empirical predictions. Finally, although Zubizarreta argues for a separate pragmatic interface for topic and focus, her narrow syntax derivation is heavily based on access to pragmatic functions.

5.2.4 Summary

It was shown in this section that introducing a separate component of grammar responsible for topic and focus structure is not a new idea. Zubizarreta (1998) argues that pragmatic functions are assigned at the Assertion Structure, which is a post-syntactic interface. Pereltsvaig (2004) proposes a separate informational component, as a post-syntactic component. Finally, Erteschik-Shir & Strahov (2004) suggest that topic and focus features are assigned at a post-syntactic f-structure and then checked in P-syntax.

All these analyses use different mechanisms to account for discourse-dependent word orders. In Zubizarreta’s analysis, word order permutations are a result of p-movement during the final stage of the syntactic derivation. For Pereltsvaig, the narrow syntax moves constituents ‘looking ahead’: the constituents which become topics are moved to the left-edge of the sentence and contrastive foci constituents to the right edge.
of IP. Interestingly, even though Pereltsvaig and Zubizarreta argue for the existence of a post-syntactic pragmatic interface, their analyses are heavily based on the assumption that topic and focus notions are available in narrow syntax.

Erteschik-Shir & Strahov’s analysis introduces a mechanism for discourse-dependent word orders that does not rely on narrow syntax. For them, word order permutations are a product of P-syntax rules in the Phonological component of grammar. However, their model of grammar does not differentiate between PF and LF. They claim that semantic interpretation with scope relations can be derived after topic and focus features are checked in P-syntax. In addition, their model does not predict degraded grammaticality status of some word orders compared to others. In the next section, I will introduce an alternative account of word order permutations which attempts to provide solutions to these problems.

5.3 Word Order Permutations as an Output of Grammar

In this section, I will argue that discourse-dependent word order permutations are a result of a post-syntactic component of grammar, which I call the pragmatic component. It has been shown that the word order permutations in Russian require a model that should be able to generate both thetic and discourse-dependent sentences. It should have a mechanism to produce both emotive and non-emotive sentences and be sensitive to the acceptability of the output. In what follows I will introduce an architecture that could meet the listed requirements.

5.3.1 Architecture of the Grammar

Similar to Assertion Structure in Zubizarreta 1998, P-syntax in Erteschik-Shir & Strahov 2004, and the Information component in Pereltsvaig 2004, the pragmatic component is a separate component responsible for encoding pragmatic notions of topic and focus into the structure and the derivation of the surface structure. The output of this
component is then transferred to LF and PF interface components. The schematic representation of the grammar components is in (28).

According to this model, lexical items are selected from a numeration, i.e., a set of items from the lexicon included in the derivation, and input into the syntactic component. Syntax within this model is a “dumb” computational system which does not have access to considerations involving discourse situations (Chomsky 2001:32).

In the case of word order permutations, the syntactic component derives the word orders based on the syntactic configuration of a verb, phase structure rules and the language specific feature values. For example, a transitive verb would result in SVO, a ditransitive verb would surface with SV IO DO or SV DO IO, an unergative verb would have SV (PP) and an unaccusative verb would allow two optional SV (PP) or (PP) VS word orders in Russian.

Following the Derivation by Phase approach (Chomsky 2001), I argue that the multiple Spell-Out transfers the structure to the pragmatic component where the constituents are assigned topic and focus features in parallel with the narrow syntax component, as in (29).
The model in (29) illustrates that the pragmatic component structure is building up until the final constituent is transferred to this structure. The features of topic and focus are assigned in parallel with the narrow syntax component.

The question which arises is where the topic and focus features come from. They cannot be part of the lexical items in the numeration; neither can they be part of the syntactic derivation. The only place they can come from is discourse, i.e., the context of the sentence. In order to be assigned the topic feature, a constituent must be D(iscourse)-linked (Pesetsky 1987, Babyonyshev 1996, Meinunger 2000, Brun 2001). The notion of D-linking was first introduced by Pesetsky (1987). Based on this notion, Babyonyshev (1996) proposes that the classification of nominals with respect to information structure should be discourse-based, as given in (30).

30. D-linking (from Babyonyshev 1996:19)

A D-linked nominal has a referent pre-established in the discourse, or a referent belonging to a set pre-established in the discourse. A non-D-linked nominal has a referent new in the discourse or in the utterance.

Babyonyshev (1996) proposes that discourse-linking may be used as a criterion describing a correlation between information structure and the status of NPs in Russian. I assume that through the process of discourse-linking all constituents in the pragmatic
component receive a certain pragmatic function: discourse-linked constituents receive the
topic feature, while non-D-linked constituents that are in the scope of the current interest
to the hearer receive the focus feature.

The notion of the current interest to the hearer (Yokoyama 1986) is important for
assigning the focus feature since it distinguishes focus constituents from discourse-
neutral information. Consider the following example.

31. a. Kto gryzjot kapustu?
Who bites-3sg. cabbage-Acc.
‘Who is biting cabbage?’
b. Kapustu gryzjot v kustax zajac.
Cabbage bites-3sg. in bush rabbit-Nom.
‘Rabbit-Foc. is biting cabbage in the bush?’

The model in (28)-(29) predicts that the PP and the object are spelled out to the
pragmatic component after the vP phase, while the subject and the verb are Spelled Out
after the CP phase. Importantly, the object and the verb receive the topic features since
they are D-linked. The subject receives the focus feature since it is non-D-linked and is of
the current interest to the hearer. However, the PP is neutral for the discourse. On the one
hand, the PP is non-D-linked, and cannot receive the topic feature. On the other hand, it is
not of the current interest to the hearer and, thus, cannot receive the focus feature. Hence,
the notion of the current interest to the hearer together with the notion of D-linking
determine the topic and focus features assigned to the constituents transferred to the
pragmatic component after the multiple Spell Outs.

Thus, the output of the syntactic component feeds the linear pragmatic
component, which is aimed at determining the information structure of a sentence. This
can be illustrated on the example of a simple transitive sentence with a narrow focus on
the subject, as in (32).
The example in (32) shows that the first vP phase of the narrow syntax component Spells Out the object to the pragmatic component. Through the process of D-linking this constituent receives the topic feature and starts building the pragmatic component structure. The second CP phase Spells Out the subject and the verb to the pragmatic component. Through the process of D-linking the subject receives the focus feature and the verb receives the topic feature. After the topic and focus features are assigned, the SVO linear pragmatic structure with assigned discourse functions is built.

After that, the pragmatic structure may either directly input to the phonological component, which will encode the marked discourse functions by prosodic mechanisms such as intonation and stress rules, or encode the discourse functions by word order. The sentences with discourse functions encoded by the phonological component surface as emotive sentences, while the sentences with discourse functions encoded by the pragmatic component surface as non-emotive sentences. This is illustrated in (33).

The model in (33) correctly predicts the optionality in the production of emotive and non-emotive sentences supported by the experimental data. Furthermore, the model also predicts that the emotive sentences should be predominantly SV(O) as generated by syntax.
Let us test how the pragmatic component works. The task for the grammar is to generate an answer to the question in (34).

34. Kto razbil okno?

Who broke-Past.masc.sg. window.Acc.

‘Who broke the window?’

After the lexical items are selected from the numeration and merge in the syntactic structure checking their features, the narrow syntax component Spells Out a syntactic derivation (in two phases), which is transferred to the pragmatic component as a linear structure with SVO in (35a). Based on the D-linking rules, the Spelled Out constituents receive their pragmatic functions and build the pragmatic structure, as in (35b).

35. a. Ivan razbil okno.

b. [Ivan]FOC [razbil]TOP [okno]TOP

Before the structure proceeds with the derivation, the LF structure is read from the pragmatic structure in (35b), thus, predicting that the topic constituents will have scope over the focus constituent. Depending on the intent of the speaker and his/her desire to be emotional or neutral, the structure in (35b) is input to either the PF component directly or the word order permutations mechanism of the pragmatic component. If the speaker
intends to add emotions, then the structure moves to the PF component where the prosodic rules such as Emphatic/Contrastive Stress Rule apply to the structure in (35b) and derive its surface representation, as in (36).

36. IVAN razbil okno.

Alternatively, the speaker may choose to be neutral. In this case, the structure in (35b) is input to the word order permutations mechanism. The word order permutations mechanism, which will be elaborated upon below, determines the optimal word orders, as in (37), and transfers them to PF.

37. a. Okno razbil Ivan.
   b. ?Razbil okno Ivan.

   During the PF component, the Nuclear Stress Rule applies to the structures in (37) and the sentence surfaces as a non-emotive sentence.

In brief, it has been shown how the outlined model builds the derivation of emotive and non-emotive sentences in Russian from a numeration of lexical items. The issue that has not been resolved yet is how the word order permutations mechanism works. We turn to this below.

5.3.2 Word Order Permutations within the OT Approach

As I show earlier, the word order mechanism is aimed at deriving word order permutations in discourse-dependent sentences based on the linear structure with the basic word order, as in (35b). Moreover, this mechanism should be sensitive to the acceptability of various word orders in the language. I will attempt to show that an Optimality Theory approach (Prince and Smolensky, 1993) and specifically a Rank-Ordering Model (Coetzee 2006) allow us to account for the grammaticality, ungrammaticality and the degraded status of particular word orders, which are difficult to account for otherwise.
This approach is based on the Optimality Theory (OT) assumption that there are certain universal and violable constraints in the grammar. While the set of these constraints is universal, the ranking of the constraints is language-specific. In OT, the grammar maps a linguistic input to its correct structural description or output, which is selected from a number of candidates. A surface form is 'optimal' in the sense that it incurs the least serious violations of a set of violable universal constraints.

In standard OT, only one of the potential output forms gains the status of the grammatical output, as illustrated in Tableau 1.

Tableau 1. Standard OT approach

<table>
<thead>
<tr>
<th>/input/</th>
<th>Constraint 1</th>
<th>Constraint 2</th>
<th>Constraint 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ♫ candidate 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. candidate 2</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. candidate 3</td>
<td></td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>d. candidate 4</td>
<td></td>
<td></td>
<td>*!</td>
</tr>
</tbody>
</table>

Tableau 1 shows that candidate 1, which does not incur any violations of the constraints, is selected as the winner. Other candidates have a violation of one of the constraints and, as a result, are discarded as ungrammatical. Importantly, the standard OT approach does not distinguish between the three losing candidates – all that counts is that they are not the winners. Hence, the standard OT approach does not account for the non-categorical phenomena, such as gradation and variation in grammaticality of the output forms.

However, Tableau 1 shows that not all losing candidates are equal. Some of the candidates violate a high ranking constraint, while others violate a low ranking constraint. In order to capture the gradation in well-formedness of the output, I will use a Rank-Ordering Model (Coetzee 2006). According to this model, all candidates including the
losers are evaluated on well-formedness and are ordered with respect to each other. For example, the four candidates in Tableau 1 receive a well-formedness (or grammaticality) ranking, as in (38).

38. Candidate 1 > candidate 4 > candidate 3 > candidate 2

(38) shows that the best candidate, which does not have any violations is candidate 1. The next best candidate is candidate 2, which has only one violation of a low ranking constraint. Finally, candidate 3 and candidate 4 are ranked lower because they incur violations of higher ranked constrains.

Furthermore, following the Rank-Ordering Model, I assume that the constraint set is divided into two strata: the one ranked above the other. These two strata are separated by the “critical cut-off”. The critical cut-off is a position on the constraint hierarchy that divides the constraint set into the constraints that rank higher and those that rank lower than the cut off. The constraints that rank above the cut-off function just like constraints in standard OT, i.e. they select a single optimal candidate. However, the constraints that rank below the cut-off are different. A violation of such a constraint is not severe enough to eliminate a candidate from being an output, so these constraints cannot rule out a candidate as ungrammatical. Hence, the constraints below the cut-off impose a harmonic rank-ordering on the candidates, determining the relative grammaticality of these candidates as outputs. The work of the cut-off is illustrated in Tableau 2.

Tableau 2. The Rank-Ordering Model

<table>
<thead>
<tr>
<th>/input/</th>
<th>Constraint 1</th>
<th>Constraint 2</th>
<th>Constraint 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ♫ candidate 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. candidate 2</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. candidate 3</td>
<td></td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>d. ♬ candidate 4</td>
<td></td>
<td></td>
<td>*!</td>
</tr>
</tbody>
</table>

the cut-off
Tableau 2 demonstrates a ranking of constraints where Constraint 1 and Constraint 2 are above the cut-off and Constraint 3 is below the cut-off. In this case, candidate 2 and candidate 3 are disfavored as violating constraints above the cut-off. However, candidate 4, which violates a constraint below the cut-off, will be considered as a possible output. Hence, the grammatical output in Tableau 2 can be represented as a well-formedness hierarchy: candidate 1 > candidate 4.

Using the Rank-Ordering Model, I propose that the word order permutations in the pragmatic component are determined on the basis of the universal faithfulness and markedness constraints and their language-specific ranking.

5.3.2.1 OT Constraints

To derive word order permutations in Russian, two markedness constraints, Align-Topic and Align-Focus, are used. The formulations of the constraints are in (39).

39. a. **Align-Topic**

Every topic in a structure should align with the left edge of that structure.

b. **Align-Focus**

Every focus in a structure should align with the right edge of that structure.

The formulation of the constraint in (39a) means that if there are two topics in a structure, then each of the topics should be aligned with the left edge, i.e., should appear sentence-initial. Otherwise, one of them incurs a violation. This is illustrated in (40).

40. **Output:** A \_TOP  B \_TOP  C \_FOC - one violation of Align-Topic

Diagram (40) show that if there are two constituents in the structure (A and B) which are topics, then B incurs a violation of the Align-Topic constraint since it is not aligned with the left edge of that structure.

Similar to Align-Topic, the constraint in (39b) means that if there are two constituents with focus in a sentence, then each of them should be aligned with the right-edge, i.e. appear sentence-final, as demonstrated in (41).
Diagram (41) reveal that if focus consists of two constituents B and C, then B incurs a violation of the Align-Focus constraint since it is not aligned with the right edge of that structure.

In addition to the two markedness constraints, I use two faithfulness constraints such as Max-IO and Linearity-IO. They are given in (42).

42. a. **Max -IO** (McCarthy and Prince 1995)
   
   Input segments must have output correspondents. (‘No deletion’)

   b. **Linearity-IO** (McCarthy and Prince 1995)
   
   The linear position of the constituent in the output should reflect the linear position of the constituent in the input.

   The Max-IO constraint in (42a) prevents deletion of a constituent in a structure. The constraint guarantees that the output contains the same constituents that are found in the output.³

   The Linearity-IO constraint in (42b) is needed to preserve the same order of constituent as in the input structure. Here I consider the order of constituents not in terms of the precedence, but rather in terms of the linear position in the structure, as illustrated in (43).

43. Linear position in the structure

   a. Input: A B C
two violations

   Output: C B A

³ I assume that Dep-IO constraint is ranked high in Russian. Since I do not consider the cases where a constituent is inserted into the output but is absent in the input, I do not use the constraint in the analysis.
b. Input: A B C

Output: A C

The diagram in (43a) shows that the linear position of output constituents A and C has changed, while the output position of the constituents B is the same as in the input. Hence, this is regarded as two violations of Linearity-IO, where each constituent which has changed its linear position is counted as a violation.

It is important to notice that within this approach the distance between the same constituent in the input and the output does not correlate with the number of violations. For instance, in (43a), constituent C is in the third position in the input and in the first position in the output. This is counted as one violation. At the same time, in (43b), constituent C is in the third position in the input and in the second position in the output. However, this is still counted as one violation.

Finally, the relative position of a constituent with respect to other constituents in the structure is not considered in Linearity-IO. Thus, in (43b), constituent C is in the final position in the input and in the final position in the output, yet this is still counted as one violation, since the linear number of its position is different: the third in the input and the second in the output.

Thus, the four constraints, given in (39) and (42), determine the optimal word orders in different discourse structures in Russian. The ranking of the constraints is discussed in the next subsection.

5.3.2.2 Ranking of the Constraints

In order to determine the ranking of the constraints, I will consider transitive sentences with different types of discourse structure, listed in (44).

44. a. Object focus sentences with target SVO and VSO;
    b. Subject focus sentences with target OVS and VOS;
c. Verb focus sentences with target SOV and OSV;
d. Object topic sentences with target OVS and OSV.
e. Transitive thetic sentences.

The ranking of the faithfulness Max-IO is illustrated in Tableau 3 with the object focus sentences. In object focus sentences, the subject and the verb are assigned the topic feature and, consequently, are required to be at the left edge of the structure. At the same time, object is assigned the focus feature and is required to stay at the right edge of the structure.

Tableau 3. Object focus non-emotive sentences (target SVO or VSO)

<table>
<thead>
<tr>
<th>Input: /SVO/</th>
<th>Max-IO</th>
<th>Align-Topic</th>
<th>Align-Focus</th>
<th>Linearity-IO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. SO</td>
<td>*!</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>b. ♫ SVO</td>
<td>*</td>
<td></td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>c. ♬ VSO</td>
<td>*</td>
<td></td>
<td></td>
<td>***</td>
</tr>
<tr>
<td>d. OVS</td>
<td>**!</td>
<td></td>
<td>*</td>
<td>**</td>
</tr>
<tr>
<td>e. VOS</td>
<td>*</td>
<td>*!</td>
<td></td>
<td>***</td>
</tr>
<tr>
<td>f. SOV</td>
<td>*</td>
<td>*!</td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>g. OSV</td>
<td>**!</td>
<td></td>
<td>*</td>
<td>***</td>
</tr>
</tbody>
</table>

The tableau demonstrates that the markedness constraints Align-Topic and Align-Focus determine the two winners (b) and (c), which incur the fewest number of violations of these two constraints. Candidate (b) has one violation of Align-Topic since the verb in SVO is not aligned with the left edge of the structure. Candidate (c) also has one violation of Align-Topic because the verb is not aligned with the left edge of the structure. However, candidate (c) also incurs two violations of Linearity-IO because the subject and the verb in VSO occupy different linear positions than in the output.
Candidates (d)-(g) are ruled out because they have a violation of the markedness Align-
Focus constraint. Finally, candidate (a), which does not violate the markedness constraints, is discarded because it violates a higher ranking faithfulness Max-IO constraint. As a result, SVO is the optimal word order and VOS is the second best since it violates only a low ranking Linearity-IO faithfulness constraint.

Table 3 shows that Max-IO should be ordered higher than the two markedness constraints. The Linearity-IO constraint should be ranked low (below the cut off) to allow the candidate VSO as a possible candidate. Further support for the ranking comes from Tableau 4 with subject focus sentences.

In subject focus sentences the object and the verb are assigned the topic feature and, consequently, are required to be at the left edge of the structure. At the same time, the subject is assigned the focus feature and is required to stay at the right edge of the structure.

Table 4. Subject focus non-emotive sentences (target OVS or VOS)

<table>
<thead>
<tr>
<th>Input: /SVO/</th>
<th>Max-IO</th>
<th>Align-Topic</th>
<th>Align-Focus</th>
<th>Linearity-IO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. OS</td>
<td>*!</td>
<td></td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>b. SVO</td>
<td>**!</td>
<td>*</td>
<td></td>
<td>***</td>
</tr>
<tr>
<td>c. VSO</td>
<td></td>
<td>!</td>
<td>**!</td>
<td></td>
</tr>
<tr>
<td>d. ♫ OVS</td>
<td></td>
<td></td>
<td>**!</td>
<td>**</td>
</tr>
<tr>
<td>e. ♬ VOS</td>
<td></td>
<td></td>
<td></td>
<td>***</td>
</tr>
<tr>
<td>f. SOV</td>
<td>**!</td>
<td>*</td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>g. OSV</td>
<td>*</td>
<td>*!</td>
<td></td>
<td>***</td>
</tr>
</tbody>
</table>

In Tableau 4, candidate (a) is ruled out because it violates a high ranking Max-IO. Candidates (b), (c), (f) and (g) fail because (b) and (f) have two violations of Align-Topic and (c) and (g) violate Align-Focus. Thus, the optimal candidate is (d) with OVS word order. The second winner is (e) with VOS word order, which has a degraded status because it incurs an additional violation of a low ranking Linearity-IO faithfulness
constraint. In addition, the contrast between candidates (b) and (d) shows that the markedness constraints Align-Topic and Align-Focus should be ranked higher than Linerarity-IO constraint. The ranking of the constraints is given in (45).

45. Max-IO >> Align-Topic, Align-Focus >> Linearity-IO

At this point it is also important to notice that the cut-off into two strata in Russian lies between the markedness constraints and Linearity-IO. As I showed earlier, the cut-off divides the constraints into the ones which impose high-ranking violations and the ones which do not impose serious violations. Thus, Tableaux 3-4 demonstrate that the candidates that violate Linearity-IO are not ruled out as ungrammatical, but rather are considered as possible candidates. The same ranking is supported by the verb focus sentences in Tableau 5.

Tableau 5 presents verb focus sentences where the subject and the object are assigned the topic feature and the object is assigned the focus feature.

Tableau 5. Verb focus non-emotive sentences (target SOV or OSV)

<table>
<thead>
<tr>
<th>Input: /SVO/</th>
<th>Max-IO</th>
<th>Align-Topic</th>
<th>Align-Focus</th>
<th>Linearity-IO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. SV</td>
<td>*!</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>b. SVO</td>
<td>*</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. VSO</td>
<td>**!</td>
<td>*</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>d. OVS</td>
<td>*</td>
<td>*!</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>e. VOS</td>
<td>**!</td>
<td>*</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>f. ♫ SOV</td>
<td>*</td>
<td></td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>g. ♪ OSV</td>
<td>*</td>
<td></td>
<td>***</td>
<td></td>
</tr>
</tbody>
</table>

Tableau 5 illustrates that the optimal candidate in verb focus sentences is (f) with SOV word order, which has only one violation of the Align-Topic constraint and no violations of the Align-Focus constraint. The second winner is candidate (g) with OSV...
word order, which has the same violation of the markedness constraints as the winner, but
has a degraded status because of an additional violation of the Linearity-IO constraint.

Although I have shown the ranking of the markedness constraints with respect to
the two faithfulness constraints, the Tableaux 3-5 do not reveal if the Align-Topic
constraint is required. In order to show that Align-Topic is as important as Align-Focus, I
have to consider a structure where focus takes scope over two constituents. Moreover, the
target word order should not be SVO. A possible example for this structure is an answer
to a question about the subject and the verb, as in (46).

46. a. Čto s oknom?
   What with window
   ‘What happened to the window?’

   b. Okno razbila Olja
      Window-Acc. broke Olja-Nom.
      ‘Olja broke the window.’

   c. ??Okno Olja razbila.
      Window-Acc. Olja-Nom. broke
      ‘Olja broke the window.’

The data in (46) show that a possible answer to the question in (46a) has a non-
emotive OVS word order, while the degraded, but still possible answer has a non-emotive
OSV word order. This is supported by Tableau 6, which selects the same two best
candidates. Tableau 6 demonstrates that the Align-Topic correctly rules out candidates (b), (c), (e) and (f). Candidates (d) and (g) are equal in terms of their violations of the
constraints above the cut-off, but differ in the number of the low ranking Linearity-IO
where OVS is corrected predicted to be a better word order than OSV. Importantly,
Tableau 6 shows that the Align-Topic is a necessary constraint since the violations of
Align-Topic by candidates (e) and (f) correctly discard these candidates from the set of
optimal candidates.
Tableau 6. Subject-verb focus non-emotive sentences (target OVS and OSV)

<table>
<thead>
<tr>
<th>Input: /SVO/</th>
<th>Max-IO</th>
<th>Align-Topic</th>
<th>Align-Focus</th>
<th>Linearity-IO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. SV</td>
<td>*!</td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>b. SVO</td>
<td>*!</td>
<td>**</td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>c. VSO</td>
<td>*!</td>
<td>**</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>d. ♫ OVS</td>
<td></td>
<td></td>
<td>*</td>
<td>**</td>
</tr>
<tr>
<td>e. VOS</td>
<td>*!</td>
<td></td>
<td>*</td>
<td>***</td>
</tr>
<tr>
<td>f. SOV</td>
<td>*!</td>
<td></td>
<td>*</td>
<td>**</td>
</tr>
<tr>
<td>g. ♬ OSV</td>
<td></td>
<td></td>
<td></td>
<td>***</td>
</tr>
</tbody>
</table>

Finally, it is also important to consider the work of the constraints in transitive thetic sentences. In thetic sentences there is no overt topic constituent and the word order is the same as the basic word order derived by the narrow syntax component. This means that output candidates are not expected to have violations of Align-Topic. Furthermore, all constituents in thetic sentences are assigned the focus feature and, consequently, are required to stay at the right edge of the structure. This means that all word orders will have two violations of the Align-Focus constraint. As a result, the low-ranking Linearity-IO determines the winner, which should have the same word order as in the input, i.e. SVO. The work of the constraints is illustrated in Tableau 7.

Tableau 7. Transitive thetic sentences

<table>
<thead>
<tr>
<th>Input: /SVO/</th>
<th>Max-IO</th>
<th>Align-Topic</th>
<th>Align-Focus</th>
<th>Linearity-IO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. SO</td>
<td>*!</td>
<td></td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>b. ♫ SVO</td>
<td></td>
<td></td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>c. VSO</td>
<td></td>
<td>**</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>d. OVS</td>
<td></td>
<td>**</td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>e. VOS</td>
<td></td>
<td>**</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>f. SOV</td>
<td></td>
<td>**</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>g. OSV</td>
<td></td>
<td>**</td>
<td>***</td>
<td></td>
</tr>
</tbody>
</table>
Tableau 7 shows that candidate (a) is ruled out as violating a high-ranked Max-
IO; however, all other word orders have two violations of Align-Focus and are equal in
the number of violations of the constraints above the cut-off. The difference between
them is only in the number of violations of the low ranking Linearity-IO. Candidate (b)
with the basic SVO is significantly better than the rest of the candidates. Yet, all other
candidates cannot be considered as ungrammatical forms since they violate a constraint
below the cut-off. This means that all other forms are predicted to be possible forms,
which may appear with very low frequency.

The question about the status of all other forms in thetic sentences in Russian is
an interesting issue which requires further investigation. However, I would like to outline
some evidence supporting this prediction. The evidence comes from the child acquisition
data (Kallestinova 2006) showing that three-year-old children produce all six word orders
in transitive thetic sentences. The predominant word order in their production is SVO
(67.3%), however, all other word orders also appear in the data with different frequency.
Thus, the second most used word order by children is SOV (22.6%) and the third – OVS
(4.8%). The other three (VSO, VOS and OSV) appear with very low frequency, which is
below 2%. By the age of six, children’s word order production in transitive thetic
sentences changes and becomes more adult-like. The summary of the word order
production by three-year-old children, six-year children and adults is given in Table 20.

The data in Table 20 show that SVO is the word order most produced in all age
groups. Moreover, the two word orders with the three violations of Linearity-IO, such as
VOS and OSV, appear with the lowest frequency in all age groups. The variation occurs
in the word orders with two violations of Linearity-IO: 3-year-old children produce them
significantly more frequently in transitive thetic contexts than 6-year-olds and adults. The
language acquisition data in Table 20 suggest that the six word orders might, in fact, be
possible word orders in thetic contexts, but they appear in the production with very low
frequency.
Table 20. The distribution of word orders in speakers’ transitive thetic sentences.

<table>
<thead>
<tr>
<th>WO</th>
<th>SVO</th>
<th>VSO</th>
<th>SOV</th>
<th>OVS</th>
<th>VOS</th>
<th>OSV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of violations of Linearity-IO</td>
<td>0</td>
<td>**</td>
<td>**</td>
<td>**</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>3-year-old children</td>
<td>140</td>
<td>3</td>
<td>47</td>
<td>10</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>67.3%</td>
<td>1.4%</td>
<td>22.6%</td>
<td>4.8%</td>
<td>1.9%</td>
<td>1.9%</td>
</tr>
<tr>
<td>6-year-old children</td>
<td>201</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>97.1%</td>
<td>0.5%</td>
<td>1.4%</td>
<td>1.0%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>adults</td>
<td>273</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>98.9%</td>
<td>0.7%</td>
<td>0.4%</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

In brief, it has been shown that the ranking Max-IO >> Align-Topic, Align-Focus >> Linearity-IO allows us to account for the non-emotive word orders in transitive sentences and to predict variation in grammaticality of some word orders compared to others. Now I will show that the Rank-Ordering Model of OT approach correctly accounts for the word order in intransitive sentences as well.

5.3.2.3 Word Orders in Intransitive Sentences

As shown earlier in this chapter, the narrow syntax component Spells Out unergative sentences with SV (PP) word order and unaccusative sentences with SV (PP) and (PP) VS word orders. In thetic intransitive sentences, where all constituents are in focus scope, the word order is expected to be determined by the low ranking Linearity-IO. This is shown in Tableau 8.

In Tableau 8, the output is the same as the input. In unergative sentences, where the input is restricted to SV, the most frequent output is SV. In unaccusative sentences, on the contrary, where the input is predicted to be either SV or VS, the output is also predicted to be SV or VS, respectively. Thus, unergative and unaccusative sentences surface with different word orders.
Tableau 8. Intransitive thetic sentences

<table>
<thead>
<tr>
<th>Input: /SV/</th>
<th>Max-IO</th>
<th>Align-Topic</th>
<th>Align-Focus</th>
<th>Linearity-IO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ♫ SV</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>b. ♬ VS</td>
<td></td>
<td></td>
<td>*</td>
<td>**</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Input: /VS/</th>
<th>Max-IO</th>
<th>Align-Topic</th>
<th>Align-Focus</th>
<th>Linearity-IO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ♫ SV</td>
<td></td>
<td></td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>b. ♬ VS</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

However, unaccusative vs. unergative distinction is obliterated in subject and verb focus sentences where the word order is determined by the discourse functions of topic and focus. In subject focus sentences, the speakers produce non-emotive VS word order in both unaccusative and unergative sentences. Likewise, in object focus sentences, the speakers produce non-emotive SV in both unaccusative and unergative sentences. This is illustrated in Tableaux 9 and 10, respectively.

Tableaux 9 and 10 reveal that regardless of the input, the word order in subject focus sentences surfaces as VS and in object focus sentences as SV. Hence, the universal constraints and their ranking predict the grammaticality status of different word orders in intransitive sentences in Russian.

Tableau 9. Intransitive subject focus sentences

<table>
<thead>
<tr>
<th>Input: /SV/</th>
<th>Max-IO</th>
<th>Align-Topic</th>
<th>Align-Focus</th>
<th>Linearity-IO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. SV</td>
<td></td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>b. ♬ VS</td>
<td></td>
<td></td>
<td>*</td>
<td>**</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Input: /VS/</th>
<th>Max-IO</th>
<th>Align-Topic</th>
<th>Align-Focus</th>
<th>Linearity-IO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. SV</td>
<td></td>
<td>*</td>
<td>*</td>
<td>**</td>
</tr>
<tr>
<td>b. ♬ VS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In the next section, I will also show that the analysis correctly accounts for sentences with discourse-neutral information.

5.3.2.4 Sentences with Discourse-Neutral Information

The sentences discussed so far were mostly examples with the topic and focus structure. In this section I will discuss sentences which contain discourse-neutral information, as in (47).

47. a. Kto gryzjot kapustu?
   Who bites-3sg. cabbage-Acc.
   ‘Who is biting cabbage?’

   b. Kapustu gryzjot v kustax zajac.
   Cabbage bites-3sg. in bush rabbit-Nom.
   ‘Rabbit-Foc. is biting cabbage in the bush?’

The data in (47) illustrate that the object and the verb are topics, while the subject is focus. The PP is neither D-linked nor in the scope of current interest for the hearer since the question does not ask about where the action was performed. According to the model of grammar outlined earlier, discourse-neutral constituents are not assigned topic or focus features and, therefore, are predicted to appear in the sentence-medial position, as illustrated in Tableau 11.
Tableau 11. Sentences with discourse-neutral information.

<table>
<thead>
<tr>
<th>Input: /SVO Instr/</th>
<th>Max-IO</th>
<th>Align-Topic</th>
<th>Align-Focus</th>
<th>Linearity-IO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. SVO PP</td>
<td>**!</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. SV PP O</td>
<td>**!</td>
<td>*</td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>c. S PP VO</td>
<td>**!</td>
<td>*</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>d. PP SVO</td>
<td>**!</td>
<td>*</td>
<td>****</td>
<td></td>
</tr>
<tr>
<td>e. VSO PP</td>
<td>*</td>
<td>*!</td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>f. VS PP O</td>
<td>*</td>
<td>*!</td>
<td>****</td>
<td></td>
</tr>
<tr>
<td>g. V PP SO</td>
<td>*</td>
<td>*!</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>h. PP VSO</td>
<td>**!</td>
<td>*</td>
<td>****</td>
<td></td>
</tr>
<tr>
<td>i. OVS PP</td>
<td>*</td>
<td>*!</td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>j. ♫ OV PP S</td>
<td>*</td>
<td></td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>k. ♬ O PP VS</td>
<td>*</td>
<td></td>
<td>****</td>
<td></td>
</tr>
<tr>
<td>l. PP OVS</td>
<td>**!</td>
<td></td>
<td>****</td>
<td></td>
</tr>
<tr>
<td>m. VOS PP</td>
<td>*</td>
<td>*!</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>n. ♫ VO PP S</td>
<td>*</td>
<td></td>
<td>****</td>
<td></td>
</tr>
<tr>
<td>o. ♬ V PP OS</td>
<td>*</td>
<td></td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>p. PP VOS</td>
<td>**!</td>
<td></td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>q. SOV PP</td>
<td>**!</td>
<td>*</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>r. SO PP V</td>
<td>**!</td>
<td>*</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>s. S PP OV</td>
<td>**!</td>
<td>*</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>t. PP SOV</td>
<td>**!</td>
<td>*</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>u. OSV PP</td>
<td>*</td>
<td>*!</td>
<td>***</td>
<td></td>
</tr>
<tr>
<td>v. OS PP V</td>
<td>*</td>
<td>*!</td>
<td>****</td>
<td></td>
</tr>
<tr>
<td>w. O PP SV</td>
<td>*</td>
<td>*!</td>
<td>****</td>
<td></td>
</tr>
<tr>
<td>x. PP OSV</td>
<td>**!</td>
<td>*</td>
<td>****</td>
<td></td>
</tr>
</tbody>
</table>

Tableau 11 demonstrates that (j), (k), (n) and (o) are the best candidates because they have only one violation of Align-Topic and do not have violations of Align-Focus. Thus, discourse-neutral information is predicted to appear in the sentence-medial position in those word orders where topic constituents are aligned to the left edge and focus.
constituents are aligned to the right edge of the sentence. Moreover, Linearity-IO predicts that candidate (j) with OV PP S order is preferred over candidate (k) with O PP VS order. Similarly, candidate (o) with V PP OS order is predicted to be better than candidate (n) with VO PP S order. The sentences that were predicted by the model as the most felicitous were tested with native speakers. The results are given in (48).4

48. a. Kto razbil vazu?
   Who broke vase.Acc.
   ‘Who broke the vase?’

   b. Vazu razbila molotkom Olja. (acceptability 4.7 out of 5)
      vase.Acc. broke hammer-PP. Olya-Nom.
      ‘Olya-Foc. broke the vase with a hammer.’

   c. Vazu molotkom razbila Olja. (acceptability 3.7 out of 5)
   d. Razbila vazu molotkom Olja. (acceptability 3.3 out of 5)
   e. Razbila molotkom vazu Olja. (acceptability 4.0 out of 5)

   The data reveal that the speakers’ intuitions are very close to the predictions of the model. Thus, (48b) with O PP VS order is correctly predicted to be degraded compared to (48a) with OV PP S; similarly, (48d) with VO PP S order is correctly predicted to be worse than (48d) with V PP OS order. Hence, the proposed model of grammar and the OT constraints allow us to account for the data with discourse-neutral information.

   Before I conclude, I would also like to show that the OT approach to the word order makes a correct prediction regarding the status of post-verbal adverbs in Russian and in English discussed in chapter 3.

---

4 The acceptability of the sentences in (47) is based on testing 7 native speakers of Russian (3 males and 4 females) who were asked to rate the answers to the question on a 5-point scale (5 is fully acceptable; 1 is unacceptable). The acceptability in the brackets is calculated as an average for the seven speakers.
5.3.2.5 Adverb Position in Russian

It was shown that although the verb does not move out of vP in Russian, similar to English, the two languages differ with respect to the grammaticality of the postverbal adverbs, as shown in (49).

49. a. I think that John often kisses Mary.
   b. *I think that John kisses often Mary.
   c. Ja dumaju chto Ivan často celuet Mašu.
      ‘I think that Ivan often kisses Masha.’
   d. ?Ja dumaju chto Ivan celuet často Mašu.
      ‘I think that Ivan kisses often Masha.’

Based on the experimental evidence, it was shown in chapter 2 that preverbal adverbs are equally grammatical in both languages, as shown in (49a) and (49c). However, the two languages differ in the grammaticality of postverbal adverbs where in English postverbal adverbs are ungrammatical and in Russian they have a degraded status, as in (49b) and (49d), respectively.

This apparent problem could be solved if a Rank-Ordering Model of the OT approach is assumed. I propose that the markedness constraints Align-Topic and Align-Focus together with the faithfulness constraints Max-IO and Linearity-IO can account for the variation in grammaticality of postverbal adverbs in Russian and English. In particular, what differentiates Russian from English is the ranking order of the Linearity-IO constraint. While this constraint is ranked low in Russian, it is ranked high in English, as demonstrated in Tableaux 12-14 with English object focus, subject focus and verb-focus sentences, respectively.
Tableau 12. Object focus non-emotive sentences in English.

<table>
<thead>
<tr>
<th>Input: /SVO/</th>
<th>Max-IO</th>
<th>Linearity-IO</th>
<th>Align-Topic</th>
<th>Align-Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. SO</td>
<td>*!</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. SVO</td>
<td>*!</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. VSO</td>
<td><em>!</em></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. OVS</td>
<td><em>!</em></td>
<td>**</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>e. VOS</td>
<td><em>!</em>*</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>f. SOV</td>
<td><em>!</em></td>
<td>*</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>g. OSV</td>
<td><em>!</em>*</td>
<td>**</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

Tableau 13. Subject focus non-emotive sentences in English.

<table>
<thead>
<tr>
<th>Input: /SVO/</th>
<th>Max-IO</th>
<th>Linearity-IO</th>
<th>Align-Topic</th>
<th>Align-Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. SO</td>
<td>*!</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. SVO</td>
<td>*!</td>
<td>**</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>c. VSO</td>
<td><em>!</em></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d. OVS</td>
<td><em>!</em></td>
<td>**</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>e. VOS</td>
<td><em>!</em>*</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. SOV</td>
<td><em>!</em></td>
<td>**</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>g. OSV</td>
<td><em>!</em>*</td>
<td>*</td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>

Tableau 14. Verb focus non-emotive sentences in English.

<table>
<thead>
<tr>
<th>Input: /SVO/</th>
<th>Max-IO</th>
<th>Linearity-IO</th>
<th>Align-Topic</th>
<th>Align-Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. SO</td>
<td>*!</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. SVO</td>
<td>*!</td>
<td></td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>c. VSO</td>
<td><em>!</em></td>
<td>**</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>d. OVS</td>
<td><em>!</em></td>
<td>**</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>e. VOS</td>
<td><em>!</em>*</td>
<td>**</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>f. SOV</td>
<td><em>!</em></td>
<td></td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>g. OSV</td>
<td><em>!</em>*</td>
<td>*</td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>
Tableaux 12-14 illustrate that Max-IO and Linearity-IO, ranked higher than the two markedness constraints, rule out all possible candidates except for the candidate with the SVO word order in (b). Given that Linearity-IO is high ranked in English and low ranked in Russian, the difference in the grammaticality of the postverbal adverb follows, as shown in Tableaux 15-16.

Tableau 15. Adverb position in Russian

<table>
<thead>
<tr>
<th>Input: /SAdvVO/</th>
<th>Max-IO</th>
<th>Align-Topic</th>
<th>Align-Focus</th>
<th>Linearity-IO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ♫ S Adv V O</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. ♪ S V Adv O</td>
<td></td>
<td>*</td>
<td>**</td>
<td></td>
</tr>
</tbody>
</table>

Tableau 16. Adverb position in English

<table>
<thead>
<tr>
<th>Input: /SAdvVO/</th>
<th>Max-IO</th>
<th>Linearity-IO</th>
<th>Align-Topic</th>
<th>Align-Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. ♫ S Adv V O</td>
<td></td>
<td></td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>b. ♪ S V Adv O</td>
<td></td>
<td>*!</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

Tableaux 15-16 show that in Russian the candidate with the postverbal adverb incurs only a violation of a low ranking constraint below the cut-off and could be considered as an acceptable sentence with a degraded status in grammaticality. In English, on the contrary, the same candidate incurs a violation of a high ranking constraint above the cut-off and, as a result, receives the status of an ungrammatical word order.

5.3.2.6 Summarizing Notes on the Word Orders in Russian

I have shown that the two markedness constraints, Align-Topic and Align-Focus, and two faithfulness constraints, Max-IO and Linerarity-IO, can correctly account for the optimal non-emotive word orders in each type of the sentences in Russian. Furthermore,
the tableaux reveal that the constraints should be ranked in a specific order in Russian where a high ranking constraint Max-IO dominates the two markedness constraints and a low ranking Linearity-IO, as in (50).

50. Max-IO >> Align-Topic, Align-Focus >> Linearity-IO

In addition, it was demonstrated that the constraints and their ranking may account not only for the grammaticality and ungrammaticality of word orders in different discourse structure, but also explain the degraded status of some word orders. Specifically, the Rank-Ordering Model of the OT approach predicts that in each of the discourse-dependent transitive sentences (subject focus, object focus and verb-focus sentences) two word orders are the best since they incur only violations of a low ranking Linearity-IO constraint. However, out of the two in each discourse structure, one has a higher number of violations and, consequently, has a degraded status in grammaticality. Hence, the OT approach has significant advantages over the existing approaches in explaining the acceptability gradience in the output candidates.

Finally, it was shown that the language-specific ranking of the universal constraints may account for the cross-linguistic variation in word orders. Specifically, it was shown that the faithfulness constraint Linearity-IO is low-ranking in Russian, but is high-ranking in English. As a result, this difference provides an account of the acceptability status of postverbal adverbs in these two languages.

5.4 Conclusion

In this chapter, I attempted to resolve the issue about the discourse-dependent word orders in Russian. These word orders are determined by pragmatic functions of topic and focus. As shown in chapter 4, it is very difficult to account for the word orders by assuming a feature-driven approach in Russian. In this chapter, I demonstrated that the word order permutations may be accounted for if a separate pragmatic component of grammar is assumed. I discussed three analyses (by Pereltsvaig 2004, Erteschik-Shir &
Strahov 2004 and Zubizarreta 1998) that introduce the idea of a separate post-syntactic component responsible for topic and focus structure in the grammar. However, the discussion of these analyses proved that none of the three models could account for the word order permutations in Russian. It was stated that the best model of grammar was expected to generate both thetic and discourse-dependent sentences. It should be able to account for the optionality of emotive and non-emotive sentences and to predict the grammaticality status of various word orders.

As a result, I suggested a modified model of grammar which attempts to meet the listed requirements. It was proposed that narrow syntax can generate only basic word order sentences in Russian. The constituents transferred to the pragmatic component after multiple narrow syntax Spell Outs are assigned topic and focus features and build the pragmatic component structure. The LF structure is derived based on the linear pragmatic component structure.

Depending on the speaker’s intentions, the model predicts that the linear structure may either enter the PF component directly and receive Emotive/Contrastive stress and emotive intonation or go through the word order permutations mechanism, which encodes the topic and focus functions into the word order. Thus, the optionality between emotive and non-emotive sentences was attributed to the speakers choice in transferring the linear structure to PF or leaving it in the pragmatic component within the word order permutations mechanism.

The word order mechanism is based on the Rank-Ordering Model within the OT approach where the word order permutations are optimal candidates with the least number of violations of low-raking constraints. Although the constraints are universal, their ranking is language specific. It was argued that the word order permutations in thetic and discourse-dependent transitive and intransitive sentences can be accounted for with two markedness constrains, such as Align-Topic and Align-Focus, and two faithfulness constraints, such as Max-IO and Linearity-IO. Furthermore, the contrast
between the violations of high ranking and low ranking constraints predicts the grammaticality status of a particular word order. At the same time, the number of violations of the low ranking constraints accounts for the degraded acceptability status of some felicitous word orders.

After the optimal non-emotive word orders are derived, they are transferred to the PF component. There, the nuclear stress rules and the intonation rules apply to the structure deriving the surface non-emotive sentences from them. Hence, it was demonstrated that the proposed model of grammar derives both emotive and non-emotive sentences with different types of discourse structure and predicts their acceptability status.
CONCLUSION

The main question addressed in this dissertation is how the word orders in Russian should be analyzed. At first sight, the system of Russian word orders may appear very complicated. On the one hand, Russian has the basic SV(O) word order which is used in thetic sentences. On the other hand, Russian allows multiple word order permutations, which are used in discourse-dependent sentences. In addition, speakers use emotive and non-emotive sentences to express the same idea. Nevertheless, there are certain principles that determine the choice of word order in each particular discourse structure. My goal was to determine those principles and to understand the mechanism of generation of different word orders in Russian.

First of all, I built a solid experimental basis for my analysis, discussed in chapter 2. I carried out a psycholinguistic study with forty-seven monolingual native speakers of Russian to elicit the word order data in different types of discourse structure (thetatic sentences, subject-focus sentences, object focus sentences, verb-focus sentences) with different types of verbs (intransitive, transitive, ditransitive). This study allowed me to draw a complete picture of what word orders native speakers use in each type of discourse structure. The results in thetic and discourse-dependent sentences are summarized in Tables 21-24.

Table 21. Elicitation experiment results: thetic sentences

<table>
<thead>
<tr>
<th>Transitive</th>
<th>Ditransitive</th>
<th>Unergative</th>
<th>Unaccusative</th>
</tr>
</thead>
<tbody>
<tr>
<td>SVO (98.9%)</td>
<td>SV IO DO (48.9%)</td>
<td>SV (92.2%)</td>
<td>SV (63.5%)</td>
</tr>
<tr>
<td>SOV (0.4%)</td>
<td>SV DO IO (46.4%)</td>
<td>VS (7.8%)</td>
<td>VS (36.5%)</td>
</tr>
<tr>
<td>VSO (0.7%)</td>
<td>S IO V DO (3.9%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>VS DO IO (0.7%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 21 shows that in thetic contexts speakers use SVO and SV IO DO/ SV DO IO in transitive and ditransitive sentences, respectively. In unergative thetic sentences, they use SV (PP) word order and in unaccusative thetic sentences they use SV (PP) / (PP) VS word orders.

In discourse-dependent sentences, the word order is constrained by the discourse structure with topic-discourse-neutral information-focus in non-emotive sentences and fronted focus in emotive sentences. In object focus sentences, the speakers produce mostly non-emotive sentences with basic SVO or SV IO DO/SV DO IO, as in Table 22.

### Table 22. Elicitation experiment results: object focus sentences

<table>
<thead>
<tr>
<th></th>
<th>Transitive</th>
<th>Ditransitive</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>O-Focus</strong></td>
<td>SVO (96.8%)</td>
<td>SV IO DO (71.2%)</td>
</tr>
<tr>
<td></td>
<td>SOV (0.4%)</td>
<td>S DO V IO (5.4%)</td>
</tr>
<tr>
<td><strong>V-O-Focus</strong></td>
<td>SVO (97.0%)</td>
<td>S IO V DO (16.9%)</td>
</tr>
<tr>
<td></td>
<td>SOV (0.4%)</td>
<td>IO SV DO (1.1%)</td>
</tr>
<tr>
<td><strong>D-O-Focus</strong></td>
<td>SVO (97.0%)</td>
<td>IO VS DO (1.1%)</td>
</tr>
<tr>
<td></td>
<td>SVO (97.0%)</td>
<td>S DO V IO (5.4%)</td>
</tr>
<tr>
<td><strong>I-O-Focus</strong></td>
<td>SVO (97.0%)</td>
<td>S IO V DO (16.9%)</td>
</tr>
<tr>
<td></td>
<td>SVO (97.0%)</td>
<td>IO SV DO (1.1%)</td>
</tr>
<tr>
<td></td>
<td>SVO (97.0%)</td>
<td>IO VS DO (1.1%)</td>
</tr>
<tr>
<td><strong>Emotive</strong></td>
<td>Emotive (3.2%)</td>
<td>Emotive (9.7%)</td>
</tr>
<tr>
<td><strong>Emotive</strong></td>
<td>Emotive (2.6%)</td>
<td>Emotive (12.6%)</td>
</tr>
</tbody>
</table>

The data on object focus sentences reveal that speakers do not produce or produce with very low frequency the non-basic word orders which have the same discourse structure as the basic one. For example, in transitive object focus sentences, the speakers produce only SVO, but do not produce VSO which has the same discourse structure as the basic one. Similarly in ditransitive sentences, the speakers consistently do not produce verb-initial word orders with the same discourse structure as the basic ones.

In subject focus sentences, the speakers also reveal a significant preference to basic word orders by using emotive sentences with focal stress on the subject. The summary on production of subject focus sentences is given in Table 23.
Table 23 shows that in transitive sentences speakers produce only non-emotive OVS and emotive SVO, but they produce almost no non-emotive VOS (0.3%), which has the same discourse structure as OVS. In ditransitive and intransitive sentences, the speakers also reveal a biased behavior toward the basic word orders by producing emotive sentences.

Finally, in verb focus sentences, transitive sentences reveal a similar pattern with subject focus sentences, and intransitive sentences reveal the same pattern as object focus sentences. The results are summarized in Table 24.
Table 24 shows that in transitive verb focus sentences, the speakers produce either non-emotive SOV or emotive basic SVO. However, OSV is almost never produced. In unergative and unaccusative verb focus sentences, the speakers use mostly SV (PP) order.

Therefore, the elicitation experiment revealed a strong preference for the basic word orders and for certain non-basic word orders. The speakers produce only three out of the six possible permutations in transitive sentences (SVO, OVS and SOV); the other three (VSO, VOS and OSV) are not produced. The same is true for ditransitive sentences where out of the 18 tested felicitous word orders only 7 appeared with high frequency. The other 11 either did not appear in the data (verb initial word orders) or appeared with a frequency of 3% or less. However, it is not clear from the experiment what the reason for the biased production is. On the one hand, they may be acceptable word orders which are just not produced for some other reasons. In this case, it would be important to determine the reasons for the consistent lack of them in the data. On the other hand, they may be unacceptable sentences. In order to evaluate the appropriateness of the word orders not produced by native speakers, a perception experiment was designed and carried out.

Seventy-eight adult native speakers were tested in the perception experiment in the Central Area of Russian (Moscow, St. Petersburg, Yaroslavl’, Saratov, Samara) and in Iowa City, USA. During this experiment the speakers rated the acceptability of transitive word orders in different discourse-dependent situations. The individual and group results of the perception experiment showed that in each type of discourse structure (object focus, subject focus and verb focus) speakers distinguished two non-emotive word orders with the appropriate discourse structure as highly acceptable. For example, in object focus sentences, they distinguished SVO and VSO; in subject focus sentences, they differentiated OVS and VOS from other word orders. In this respect, the group results showed that native speakers consider word orders they did not produce as acceptable. However, the status of non-produced felicitous word orders was significantly
degraded compared to the felicitous word orders. The mean values of word orders in each type of discourse structure are summarized in Table 25.

Table 25. Mean values of word orders (out of 5) in the perception experiment.

<table>
<thead>
<tr>
<th></th>
<th>SVO</th>
<th>VSO</th>
<th>OVS</th>
<th>VOS</th>
<th>SOV</th>
<th>OSV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Object Focus</td>
<td>5.0</td>
<td>3.2</td>
<td>1.7</td>
<td>1.4</td>
<td>1.5</td>
<td>1.3</td>
</tr>
<tr>
<td>Subject Focus</td>
<td>2.7</td>
<td>1.4</td>
<td>4.4</td>
<td>3.4</td>
<td>1.6</td>
<td>1.3</td>
</tr>
<tr>
<td>Verb Focus</td>
<td>3.3</td>
<td>1.9</td>
<td>1.4</td>
<td>1.5</td>
<td>4.3</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Note: the grey shading marks the word orders that are significantly different from other word orders for each type of discourse structure.

Table 25 illustrates that in object focus sentences speakers distinguish two acceptable word orders: one with high acceptability rate, and the other with somewhat degraded acceptability. In subject and verb focus sentences speakers distinguish three acceptable word orders: one with high acceptability rate, and the other two with a degraded acceptability. Interestingly, the speakers biased behavior towards the basic SVO order was demonstrated in this experiment as well. The speakers assigned significantly higher rates to SVO than to other word orders in all discourse situations, even in those where SVO was not expected (as in subject focus and verb focus sentences).

In sum, the two experiments revealed that the production and perception of word orders is not categorical. All speakers produce and accept word orders determined by the discourse structure, but within each discourse structure they reveal certain preferences for particular word orders. The theoretical question raised by the experiment is what motivates this preference and biased behavior.

Another important and controversial issue is the structural position of the verb in Russian. Since the adverb placement test is a good indicator of the verb position, a third experimental study was performed to determine the acceptability of adverbs in different
positions. One hundred and twelve Russian speakers and thirty American speakers, as a control group, participated in this experiment. The individual and group results of the experiment showed that Russian is similar to English in that the preverbal position is evaluated as the most natural and grammatical for adverbs in these two languages. However, the two languages differ in the status of the postverbal adverbs. The summary of the results in given in Table 26.

Table 26. Grammaticality of adverbs in immediate preverbal and immediate postverbal positions in Russian and in English.

<table>
<thead>
<tr>
<th></th>
<th>Preverbal position</th>
<th>Postverbal position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Manner Frequency</td>
<td>Manner Frequency</td>
</tr>
<tr>
<td>Russian</td>
<td>SVO 4.8 4.9</td>
<td>2.9 2.9</td>
</tr>
<tr>
<td></td>
<td>OVS 4.7 4.8</td>
<td>3.5 3.7</td>
</tr>
<tr>
<td></td>
<td>SOV 3.9 4.0</td>
<td>2.3 2.1</td>
</tr>
<tr>
<td>English</td>
<td>SVO 4.4 4.6</td>
<td>1.4 1.3</td>
</tr>
</tbody>
</table>

Table 26 reveals that Russian and English do not differ in the status of preverbal adverbs. However, the two languages reveal a significant difference in the status of postverbal adverbs. In English, postverbal adverbs are completely ungrammatical, while in Russian they have a degraded rather than ungrammatical status.

The results of the three experiments provided a solid basis for the syntactic analysis of the word orders in Russian, which I elaborated on in chapters 3, 4 and 5. I analyzed the data in Russian within a version of the Minimalist Approach, the Derivation by Phase (Chomsky 2000, 2001). Using the Derivation by Phase framework, I investigated the major syntactic features required for the derivation of word orders in Russian.
I showed in chapter 3 that the accusative and nominative cases are valued through the operation Agree between the uninterpretable $\phi$-features of the probe, $v$ and $T$, respectively, and the matching interpretable features of the goal. The verb makes a short verb movement to $v$ to check the verb feature on $v$, but the verb feature on $T$ does not require movement of the verb to $T$ and is valued through Agree. Furthermore, I argued that Spec TP has dual $A/A'$ status. The EPP in Russian is category neutral and is checked by any XP in Spec TP through the operation Move. Finally, in order to account for the rich aspectual morphology in Russian, I use aspectual features, which are checked in AspP located between $vP$ and $VP$.

The features discussed in chapter 3 allowed me derive the basic word orders in transitive, ditransitive and intransitive sentences in Russian. The derivation of each type of verb is discussed in chapter 4.

In transitive, ditransitive and unergative sentences, the same $vP$ structure is projected with the only variation in the number of arguments merging in the structure, as in (1).

1. $vP$
   - Subj
   - $v$
   - $v'$
   - $AspP$
     - Spec
     - Asp$'$
       - Asp
       - $VP$
         - DO
         - $V'$
           - $V$
           - IO

The structure in (1) shows that the direct object in ditransitive verbs merges in higher than the indirect object. Furthermore, I propose that Asp has an uninterpretable $D$-feature, which requires movement of the matching goal to Spec AspP. Since DO and IO
are in the same minimal domain, either of them can check the feature. This results in optionality of SV IO DO and SV DO IO in ditransitive word orders in Russian.

Unaccusative predicates differ from all other types of predicates by the deficient nature of \( v \), which has no external \( \theta \)-role and, as a result, has a non-causal, non-agentive semantic meaning, as in (2).

2. 

\[
\begin{align*}
  &vP \\
  &\quad v \\
  &\quad \text{AspP} \\
  &\quad \text{Spec} \quad \text{Asp'} \\
  &\quad \text{Asp} \quad \text{VP} \\
  &\quad \text{NP} \quad \text{V'} \\
  &\quad \text{V} \quad \text{PP}
\end{align*}
\]

The structure in (2) shows that a PP merges in as an obligatory overt or covert argument in unaccusative verbs, which is located in the same minimal domain as the internal object. As a consequence, the optionality of SV(PP) and (PP) VS as basic unaccusative word orders is predicted. Moreover, because of the defective \( \varphi \)-incomplete \( v \), the derivation of unaccusative verbs is a one-phase derivation. This can be compared to the derivation of unergative verbs with \( \varphi \)-complete \( v \), which is a two-phase derivation.

Although the derivations of basic word orders in Russian are easy to account for within the Derivation by Phase approach, the discourse-dependent word orders raise a problem. Since the word orders in Russian are determined by discourse functions of topic and focus, the notions of topic and focus should be encoded into the grammar to predict the felicitous outcome. It might be suggested that the access is made during the narrow syntax component where each of the lexical items in the numeration receives a certain pragmatic function. In this case, the syntactic derivation must check these features within the narrow syntax component for the derivation to converge. This approach is entertained
in the second part of chapter 4. In particular, I consider a feature-driven approach, where focus and topic are encoded into narrow syntax as [+Focus] and/or [+Topic] features. Furthermore, I consider a p(rosodically motivated)-movement by Zubizarreta (1998) where discourse-dependent word orders are analyzed as a final stage of narrow syntax derivation. However, my conclusion is that the analysis assuming [+Focus] and [+Topic] syntactic features is problematic in Russian since it requires numerous theory internal stipulations. Moreover, it does not allow us to generate the word orders with various degrees of grammaticality. What is more, the process of generating all discourse-dependent word orders would significantly overload the narrow syntax component.

An alternative solution to the problem of discourse-dependent word orders is presented in chapter 5 where I propose a separate component of grammar, the pragmatic component, which accounts for the non-emotive word orders in discourse-dependent sentences in Russian. Similar to Assertion Structure in Zubizarreta 1998, P-syntax in Erteschik-Shir & Strahov 2004, and the Information component in Pereltsvaig 2004, the pragmatic component of grammar is a separate post-syntactic component responsible for encoding pragmatic notions of topic and focus into the structure and the derivation of the non-emotive word orders. The schematic representation of the grammar components is given in (3).

![Diagram of grammar components](image)
I propose that narrow syntax generates basic word order sentences in Russian. These sentences are input to the pragmatic component where the pragmatic functions of topic and focus are assigned to the constituents of the linear structure. The pragmatic functions are assigned based on the process of D-linking and the notion of current interest to the hearer. D-linked constituents receive the topic feature. Non-D-linked constituents that are of current interest to the hearer receive the focus feature. Non-D-linked constituents that are of no interest to the hearer do not receive any feature and receive the status of discourse-neutral information.

After the discourse functions of constituents are determined, the LF structure is derived. At this stage, the model predicts that the linear structure may either enter the PF component directly and receive Emotive/Contrastive stress and emotive intonation or go through the word order permutations mechanism. The choice between the two options is attributed to the speaker’s desire to be emotive or non-emotive. If the speaker chooses to use an emotive sentence, then the linear structure with topic and focus features is transferred to PF directly. The PF will encode the discourse features by prosodic means such as intonation and stress rules. Alternatively, if the speaker chooses to use a non-emotive sentence, then the topic and focus functions are encoded through the word order mechanism.

The word order mechanism is based on the Rank-Ordering Model within the OT approach (Coetzee 2006). Here the universal constraints are ordered in a language-specific way. Two markedness constraints (Align-Topic, Align-Focus) and two faithfulness constraints (Max-IO, Linearity-IO) ranked, as in (4), allow generating transitive and intransitive word orders with different types of discourse structure.

4. Max-IO >> Align-Topic, Align-Focus >> Linearity-IO

The contrast between the violations of high ranking and low ranking constraints predicts the grammaticality status of a particular word order. At the same time, the number of violations of the low ranking constraints accounts for the degraded
acceptability status of some felicitous word orders. After the optimal non-emotive word orders are derived, they are transferred to the PF component. There, the nuclear stress rules and the intonation rules apply to the structure deriving the surface non-emotive sentences from them.

To conclude my dissertation, I have attempted to propose a model of grammar which allows us to account for word orders in ‘free’ word order languages like Russian. The proposed model of grammar is strongly based on the Derivation by Phase model, but adds a pragmatic component responsible for word order permutations. The underlying assumption of this model is that this component is present in all languages. However, the language-specific ranking of the constraints in this component results in word order variations. I have considered the constraints that allow the derivation of non-emotive word order permutations in Russian. The re-ranking of the same constraints allows us to account for the lack of word order permutations in English. The constraints and their ranking, which would allow the derivation of word orders in other languages, are left for further research.

The syntactic analysis proposed in my dissertation raises an under-investigated issue about the acquisition of Russian word orders by children. In particular, there are several questions that should be addressed. First, the model predicts that basic word orders and discourse-dependent word order permutations are encoded in different components of grammar. Specifically, the basic word orders are encoded in the syntactic component of grammar, while discourse-dependent word orders are an output of the pragmatic component where topic and focus features are encoded via phonological rules (in emotive sentences) or word order permutations (in non-emotive sentences). Thus, the child acquisition data can shed light on the acquisition pattern of basic word orders and discourse-dependent word orders in Russian.

Second, the idea that the basic word orders and discourse-dependent word order are products of two different components leads to the question of how early children
acquire basic and discourse-dependent word orders in Russian. The preliminary study (Kallestinova 2006) has shown that by the age of three Russian children are able to generate all word order permutations in Russian. However, 3-year-old children reveal significant problems in thetic sentences where they produce all six possible word orders permutations instead of expected basic SVO sentences. This contrasts with six-year-old children who are very accurate and adult-like in their selection of the word order in all focus sentences.

At last, but not least, the child acquisition data can explain to what extent the analysis of adult word order carries over to child Russian and how the limitations of the child sentences could be accounted for. This means that the analysis of the adult grammar can be used as control for the children acquisition data. Hence, this dissertation has numerous applications for further research in child language acquisition.

Another area of application of the data and the theoretical questions raised in this dissertation is the second language acquisition. One of the directions is the acquisition of Russian word order by adult learners of other languages, especially languages with fixed word orders, for example, the acquisition of Russian by English native speakers. Another interesting issue is how Russian speakers, who have flexible word order in their native language, acquire languages with fixed word orders such as English or French.

All these and many other issues must await future research.
APPENDIX A
TYPES OF PICTURES, QUESTION SAMPLES AND EXPECTED ANSWERS IN THE ELICITATION EXPERIMENT

Type 1. Transitive sentences

Question to Picture 1: Čto proisxodit na kartinke?
‘What happens on the picture?’
Expected answer: Devočka est kašu. Thetic
Girl-Nom. eats-3sg. cereal-Acc.
‘A girl is eating cereal.’

Question to Picture 2: Čto delajet zajac?
‘What is the rabbit doing?’
Expected answer: Zajac gryzjot kapustu. VO focus
Rabbit-Nom. bites-3sg. cabbage-Acc.
‘A rabbit is biting cabbage.’

Question to Picture 2: Kto gryzjot kapustu?
‘Who is biting cabbage?’
Expected answer: Kapustu gryzjot zayac. Subject focus
Cabbage-Acc. bites-3sg. rabbit-Nom.
‘A rabbit-Foc. is biting cabbage.’

Question to Picture 3: Kogo kormit devočka?
‘Whom is the girl feeding?’

Expected answer: Devočka kormit mišku. Object focus
Girl-Nom. feeds-3sg. bear-Acc.
‘The girl is feeding a bear.’

Question to Picture 3: Čto delajet devočka s miškoj?
‘What is the girl doing with the bear?’

Expected answer: Devočka mišku kormit. Verb focus
Girl-Nom. bear-Acc. feeds-3sg.
‘The girl is feeding the bear.’

Type 2. Ditransitive sentences

Picture 4.

Question to Picture 4: Čto proisxodit na kartinke?
‘What happens on the picture?’

Possible answer: Ljagušonok nalivaet vodu murav’iške.
Froggy-Nom. pours-3sg. water-Acc. ant-Dat.
‘A froggy is pouring water to an ant.’
Question to Picture 4:  Komu nalivaet vodu ljagušonok?

‘Whom is the froggy pouring water?’

Possible answer:   Ljagušonok   nalivaet   vodu   murav’iške.

Froggy-Nom. pours-3sg. water-Acc. ant-Dat.

‘A froggy is pouring water to an ant.’

Question to Picture 5:  Čto daet koza osliku?

‘What is the goat giving to donkey?’

Possible answer:   Koza   dajot   osliku   kuvšin.

Goat-Nom. gives-3sg. donkey-Dat. jar-Acc.

‘A goat is giving a donkey a jar.’

Question to Picture 5:  Kto daet osliku kuvšin?

‘Whom is the goat giving a jar?’

Expected answer:   Osliku   dajot   kuvšin   koza.

Donkey-Dat. gives-3sg. jar-Acc. goat-Nom.

‘It is a goat who is giving a jar to a donkey.’
Type 3. Intransitive unergative sentences

Question to Picture 6: Čto proisxodit na kartinke?
‘What happens on the picture?’

Expected answer: Devočka spit. Thetic
Girl-Nom. sleeps-3sg.
‘A girl is sleeping.’

Question to Picture 7: Kto spit?
‘Who is sleeping?’

Expected answer: Spit sova. Subject focus
Sleeps-3sg. owl-Nom.
‘An owl is sleeping.’

Question to Picture 7: Čto delaet sova?
‘What is the owl doing?’

Expected answer: Sova spit. Verb focus
Owl-Nom. sleeps-3sg.
‘The owl is sleeping.’
Type 4. Intransitive unaccusative sentences

Picture 8.

Introduction of picture 8: Čto izobraženo na verxnej kartinke?
‘What is depicted on the upper picture?’

Expected answer: Slon naduvaet puzyri. Thetic
Elephant-Nom. blows-3sg. bubbles-Acc.
‘An elephant is blowing bubbles.’

Question to Picture 8: Čto slučilos’ s puzyrjom?
‘What happened to the bubble?’

Expected answer: Puzyr’ lopnul. Verb focus
Bubble-Nom. burst-past.masc.sg.
‘A bubble burst.’

Question to picture 9: Kto vylupilsja?
‘Who hatched?’

Expected answer: Vylupilsja cypljonok. Subject focus
Hatched-past.masc.sg. chicken-Nom.
‘A chicken-Foc. hatched.’
APPENDIX B
LIST OF UNACCUSATIVE AND UNERGATIVE VERBS IN THE ELICITATION EXPERIMENT

Table B1. List of unaccusative verbs included in counts in the elicitation experiment.

<table>
<thead>
<tr>
<th>Russian Verb (Context)</th>
<th>English Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plavat', kupat'sja (ob utkax)</td>
<td>Float (about ducks)</td>
</tr>
<tr>
<td>Vylupit'sja, rodit'sja (ob utjonke)</td>
<td>Hatch (about ducklings)</td>
</tr>
<tr>
<td>Razbit'sja, slomat'sja (o yajce, o snegovike)</td>
<td>Break (about an egg, a snowman)</td>
</tr>
<tr>
<td>Slučit'sja, proizojt'i (o vzryve)</td>
<td>Happen (about an explosion)</td>
</tr>
<tr>
<td>Vstat', vyjti, podnjat'sja (o solnyške)</td>
<td>Rise (about the sun)</td>
</tr>
<tr>
<td>Sadit'sja, zaxodit', pryatat'sya (o solnyške)</td>
<td>Set (about the sun)</td>
</tr>
<tr>
<td>Svetit' (o solnyške)</td>
<td>Shine (about the sun)</td>
</tr>
<tr>
<td>Lopnut', vzorvat'sja (o šarike, puzyre)</td>
<td>Burst, explode (about a balloon)</td>
</tr>
<tr>
<td>Tait’, rastait’, rassypat'sja, razvalit'sja, (o snegovike)</td>
<td>Melt, fall apart (about a snowman)</td>
</tr>
<tr>
<td>Upast' (o yabločke)</td>
<td>Fall (about an apple)</td>
</tr>
<tr>
<td>Zabludit'sja (o zajčike)</td>
<td>Get lost (about a rabbit)</td>
</tr>
<tr>
<td>Tonut', utonut' (ob utjonke)</td>
<td>Drown (about a duckling)</td>
</tr>
<tr>
<td>Sorvat'sja s krjučka, uskol'znut', upast' (o rybke)</td>
<td>Escape from being caught on a hook (about fish)</td>
</tr>
<tr>
<td>Veselit'sja, radovat'sja (o miške)</td>
<td>Be happy, be merry (about a bear)</td>
</tr>
</tbody>
</table>
Table B2. List of unergative verbs included in counts in the elicitation experiment.

| Pet', govorit' (o jožike) | Sing, speak (about a hedgehog) |
| Prygat', skakat', (ob olene, beločke, miške) | Jump (about a deer, a squirrel, a bear) |
| Begat', ubegat' (ob olene, lise, miške) | Run (about a deer, a fox, a bear) |
| Letat', uletat' (o pčolax, gusjax, miške) | Fly (about bees, geese, a bear) |
| Tancevat', pljasat' (o mishke, jožike) | Dance (about a bear, a hedgehog) |
| Igrat' (o mal'čike, jožike) | Play (about a boy, a hedgehog) |
| Guljat' (o mal'čike, jožike) | Go for a walk (about a boy, a hedgehog) |
| Plakat' (o zajčike) | Cry (about a rabbit) |
| Spat' (o sove, devočke, mal'čike) | Sleep (about an owl, a girl, a boy) |
| Smeyat'sja, ulybat'sja (o solnyške) | Laugh, smile (about the sun) |
| Gremet' (o pogremuške) | Make a rattling noise (about a rattle) |
APPENDIX C
SAMPLE SITUATIONS FROM PERCEPTION EXPERIMENT

Kto ests kašu?
Who eat-3sg. cereal-Acc.
‘Who is eating cereal?’

Est kašu devočka. VOS
Eats-3sg. cereal-Acc girl-Nom.
‘A girl-Foc. is eating cereal.’

Čto gryzjot zajac?
What bites-3sg. rabbit-Nom.
‘What is the rabbit biting?’

Gryzjot zajac kapustu. VSO
Bites-3sg. rabbit-Nom. cabbage-Acc.
‘A girl is eating cereal.’

Čto delajet devočka s miškoj?
What does-3sg. girl-Nom. with bear
‘What is the girl doing with the bear?’

Mišku devočka kormit. OSV
Bear-Acc. girl-Nom. feeds-3sg.
‘The girl is feeding the bear.’

1 2 3 4 5
unacceptable answer acceptable answer
APPENDIX D

EVIDENCE FROM A FEMALE SPEAKER PRODUCTION AGAINST RE-SYLLABIFICATION OF /V/ ANALYSIS

Figure D1. A spectrogram of *slonov Vane* in the sentence ‘Boris pokazal slonov Vane’.

Figure D2. A spectrogram of *slonov Ane* in the sentence ‘Boris pokazal slonov Anne.’
Figure D3. A spectrogram of sloNOV Anne in the sentence ‘Boris pokazal SLONOV Anne.’
REFERENCES


