# Grammar and Information Structure: A novel view based on Russian data

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Abstract:

This paper analyzes word order alternations, stress shifts and intonational contours related to Information Structure (IS). The data come primarily from Russian, a language that is very rich in this respect. I argue that IS-related grammatical phenomena encode relative accessibility (whether A is more or less accessible than B), rather than some categorical accessibility distinctions (e.g. whether A and B are given or new) and contrast (broadly conceived). Topic and focus are not encoded in the grammar, although they closely correlate with certain grammatical phenomena. I show how the proposed approach allows solving some notorious problems in the IS field. Relative accessibility cannot be encoded by means of dedicated IS features like Top or F(oc), which forces the choice of configurational approaches. Most of them view prosodic means of encoding as primary and derive syntactic phenomena from them (movement into or out of the main stress position). I present several arguments for the primacy of syntactic means and develop an IS model relying on syntactic configurations. They are derived using edge features proposed in Phase Theory after certain modifications are introduced in this framework.

Keywords:

Information Structure, relative accessibility, contrast, topic, focus, syntactic configuration, Russian

# 1 Introduction

## *1.1 Structure of the paper*

This paper is dedicated to the study of Information Structure (IS). One must distinguish between the IS represented in the discourse mental model and IS as encoded in the grammar, which indirectly reflects the former (as the tense system of the language indirectly reflects our mental representation of time). To give an example, the Russian 'S V O' sentence in (1a) can be used in the context (2a), where its subject is introduced, while its object is not mentioned, but not in the context (2b) for which the opposite is true. On the contrary, 'O V S' in (1b) can be used after (2b), but not after (2a). Capitals are used to denote the main stress.

(1) a. *Programmist kupil KOFEVARKU.*
programmer.NOM bought [coffee machine].ACC

b. *Kofevarku kupil PROGRAMMIST.*
[coffee machine].ACC bought programmer.NOM

(2) a. *Vskore v novom ofise pojavilis' čajnik, kofevarka i toster.*
'Before long, there were a kettle, a coffee machine and a toaster in the new office.'

b. *Naši sisadmin i programmist rešili obustroit' novyj ofis.*
'Our sysadmin and programmer decided to settle in the new office.'

The difference between (1a) and (1b) is in the way they present, or structure, the information contained in them. These properties of the sentences are revealed when we put them in different contexts and find out that they are felicitous in some of them, but not in the others. On the one hand, IS is a linguistic phenomenon: in (1a-b), it is expressed by means of word order and prosody. On the other, the contexts are not necessarily linguistic, as (3a-b) show. The relevant characteristics of information are defined in the discourse — a cognitive system, which is responsible for processing information independently from its source (visual, linguistic, inferential etc.) during thinking and communication.

(3) a. Situation: In a small company, everybody decided to contribute something for the office. A knows that B is looking for a person who could bring a heater. Seeing that B makes a move towards the IT room, A can utter (1a), but not (1b).

b. Situation: B comes to the office and sees that a printer, which he ordered, and a new coffee machine arrived. Having noticed that B is looking at them, A can utter (1b), but not (1a).

In this paper, two questions are addressed: what information from the discourse IS system gets encoded in the grammatical IS system and by what means? Despite extensive research in this field, they are still unsolved. I analyze IS-related word order alternations, stress shifts and specific intonational contours (e.g. so called topic accents). The data come primarily from Russian, since this language is very rich in this respect.

Subsection 1.2 contains a brief overview of major IS theories highlighting the problems relevant for the paper. In section 2 I argue that IS-related grammatical phenomena encode *relative accessibility* and broadly conceived *contrast*. In other words, these two notions are *necessary and sufficient* to account for these phenomena.

By relative accessibility I mean specifying whether A is *more or less accessible* than B from the discourse context rather than whether A and B are given or D-linked etc., as it was done in the previous models.

Hence I conclude that *theme* and *rheme* or *topic* and *focus*, which form the core of most IS theories, are not encoded in the grammar. This does not deny their importance for semantics and pragmatics or the fact that they closely correlate with certain grammatical phenomena. Section 3 provides arguments in favor of this conclusion and shows how the proposed approach allows solving several notorious problems discussed in the IS literature.

Relative accessibility cannot be encoded by means of dedicated IS features, so in section 4 I propose a model relying on syntactic configurations. They can be derived using edge features proposed in (Chomsky 2008) after certain modifications are introduced in the framework. Section 5 contains conclusions.

### *1.2 Overview of IS theories*

Prague school linguists were the first to study IS (Mathesius 1932). Their approach made a very significant contribution to the field and is still widely adopted in various forms (e.g. Hajičová et al. 1998). However, they never aimed to formalize the means used to encode IS in the grammar and, in general, did not discuss the place of IS in the grammar architecture.

These problems are addressed in the formal IS models. Most of them rely on dedicated IS features like *F* and *Top* (e.g. Bródy 1990, 1995; Laka 1990; Ouhalla 1994; Rizzi 1997; Tsimpli 1995; Tuller 1992; Vilkuna 1995). Let us consider *F* as an example. Like other syntactic features, *F* triggers overt or covert movement to a dedicated syntactic position, the [Spec; FocP] in the left periphery. It is usually spelled out as the main stress (or, in some languages, as a focus morpheme), and the constituent bearing it is interpreted as focused.

According to a different approach to the *F* feature (e.g. Jackendoff 1972; Rooth 1985, 1992), it only attracts stress and does not trigger movement. Indeed, numerous sentences exhibit no overt IS-related movement, and, as I will show below, the presence of covert movement is highly controversial. However, in many other examples from various languages IS-related reorderings are clearly present and belong to the syntax proper, obeying general restrictions on movement etc. This approach offers no means to account for them.

The key argument for covert focus movement in English relies on the contrast between sentences like (4a) and (4b) known since (Chomsky 1976). The ungrammaticality of (4a) is explained by the weak crossover effect resulting from the covert movement of *Mary*. (4c) with the weak crossover created by overt *wh*-movement is added for comparison.

(4) a. * *The man that she$_i$ met liked MARY$_i$.*

b. *The man that she$_i$ met LIKED Mary$_i$.*

c. * *Who$_i$ does the man that she$_i$ met like t$_i$?*

However, Rochemont (1986, p. 316) and Szendrői (2005, p. 314) offered an alternative explanation. (4a) is bad because pronouns normally do not corefer with the focused constituent, which typically introduces new information. Hence, the cases where this contradiction is resolved, i.e. where the focused DP has been previously mentioned,

are expected to be grammatical. As (5c) shows, this prediction is borne out.

(5) a. *A: Sally and the woman John loves are leaving the country today.*

b. *B: I thought that the woman he loves has BETRAYED Sally.*

c. *A: No, the woman he$_i$ loves betrayed JOHN$_i$.*

In another type of IS models, an element should be in a particular configuration to receive a certain interpretation. Let us consider Reinhart and Neeleman's theory as an example (Reinhart 1995, 2006; Neeleman & Reinhart 1998). According to it, any constituent containing the main stress can be interpreted as focused. This explains why (6b) is ambiguous between object, VP and sentence-wide foci, as possible questions in (6a) show (Neeleman & Reinhart 1998, p. 333). The actual focus of the sentence is chosen from the set of possible foci at the syntax-discourse interface.

(6) a. *What is this noise? / What is your neighbor doing? / What is your neighbor building?*

b. *My neighbor is building a DESK.*

(6b) has a neutral stress pattern defined by the Nuclear Stress Rule, or NSR. The NSR was introduced by Chomsky and Halle (1968) and subsequently modified by Cinque (1993). In his formulation, the NSR puts the main stress on the most embedded element in the syntactic tree. Out of two sister elements, the one that does not project counts as more embedded. (7b) shows that the main stress assigned by the NSR can be relocated for IS reasons (Neeleman & Reinhart 1998, p. 334).

(7) a. *Who is building a desk?*

b. *My NEIGHBOR is building a desk.*

According to Neeleman and Reinhart, what is perceived as stress shift in (7b) are in fact two different operations: stress strengthening and destressing. The former adds stress to an element, which is now included in the focus set. The latter removes stress from an element, which is now interpreted as *D-linked*, i.e. linked to an accessible discourse entity. This notion was introduced by Pesetsky (1987) and is wider than *given*, capturing cases like (8b) (Reinhart 1995, p. 74, due to Ladd 1980). *Slaughterhouse Five* in (8a) introduces the concept of books in the discourse context, so in (8b) *books* are D-linked.

(8) a. *Has John read 'Slaughterhouse Five'?*

b. *No, he doesn't READ books.*

Stress strengthening is subject to interface economy: it can be used only if it gives rise to a previously unavailable interpretation. Thus, (7b) cannot be interpreted with the sentence-wide focus because this focus is possible in (6b) without stress shift.

Where English has stress shift, other languages reorder words to achieve the same results. Let us look at object scrambling in Dutch. (9a) exemplifies the canonical word order, while in (9b) the object is scrambled. Scrambled objects are interpreted as D-linked. Neeleman and Reinhart (1998) use their theory to explain why, noting that the object bears the main stress in (9a), but not in (9b).[1]

[1] Why (9a-b) have these stress patterns is another question. In non-antisymmetric models like Neeleman and Reinhart's (1998) they can be derived by Cinque's (1999) NSR. If the antisymmetric approach to syntax is adopted (Kayne, 1994), (9a) becomes problematic because the object is not

(9) a. … *dat Jan langzaam het BOEK las.*
that Jan slowly the book read
'… that Jan slowly read the book.'

b. … *dat Jan het boek langzaam LAS.*
that Jan the book slowly read

The main challenge is to explain how syntactic and prosodic IS phenomena are related. Neeleman and Reinhart (1998) analyze Dutch scrambling as base-generated, but many other IS-related reorderings clearly involve movement. So Szendrői (2001) who extended this approach to other languages and Reinhart (2006) appeal to non-feature-driven movement into and out of the default main stress position.

Thus, while in the majority of feature-based approaches all prosodic effects result from spelling out IS features, configurational models discussed above view prosodic means as primary.[2] This is incompatible with the canonical representation of grammar architecture where prosody is read off from syntax and is not directly visible to the interpretational systems at the C-I interface.

Szendrői (2001) assumes a grammar architecture where syntactic and prosodic structures are two separate levels accessible at the C-I interface. This is not the most parsimonious system. It has two independent hierarchical structures, and deep parallels between them (coinciding boundaries of syntactic and prosodic phrases, the fact that sentential and phrasal stresses normally fall on the most embedded constituent within their domain) have to be explained by a set of specially introduced mapping rules.

However, other models (Reinhart 1995, 2006; Neeleman & Reinhart 1998) do not clarify how this problem is dealt with at all. Neeleman and van de Koot (2008) develop a model of Dutch scrambling based on syntactic configurations: constituents undergoing non-feature-driven A-movement are interpreted as D-linked, while those undergoing A'-movement are interpreted as topics or foci. But they also do not explain how these phenomena interact with IS-related prosodic effects.

Based on the data discussed in section 2, I opt for the configurational approach. Therefore, I also face the syntax-prosody relation problem. My claims about IS notions encoded in the grammar do not depend on it, so in sections 2 and 3, I will mention syntactic and prosodic IS phenomena without trying to deduce the ones from the others. In section 4 I will provide arguments for the primacy of syntactic means of encoding and will develop a model based on syntactic configurations.

## 2 What does the grammatical IS system encode?

In this section, relying primarily on Russian data, I will show that IS-related grammatical phenomena encode relative accessibility and broadly conceived contrast.

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analyzed as the most embedded anymore. A version of the NSR compatible with antisymmetry is proposed in (self-identifying reference).

[2] Some feature-based models are prosody-oriented: e.g. Zubizarreta (1998) combines IS features and prosodically motivated movement.

### *2.1 Relative accessibility*

Relative accessibility has never been introduced in the grammar before, so let me first establish some background by looking at accessibility in our cognitive systems and in the lexicon. From the first studies of IS, the distinction between *given* and *new* information is used in the field. Giveness and newness are traditionally associated with some objective features of the textual context or visual environment, like being or not being mentioned in the preceding text. However, Chafe (1976) suggested switching to different notions to describe IS, which are defined through the focus of speaker's attention.

Chafe distinguished three *activation states* of a concept: active, semi-active and inactive. Active concepts are currently focused on. Semi-active ones have recently been in focus or are connected to active concepts. Chafe assumed that these activation states correspond to three linguistic categories: given, accessible and new, which are used at the lexical selection stage, defining the choice between pronouns and full DPs.

Notably, under this approach there are no intrinsic reasons to distinguish three categories and not more: it can be specified *how recently* this or that concept was in focus or *how closely* it is connected to currently active concepts. Indeed, Givón (1983) divided pronouns and full DPs into nine groups depending on how accessible their referents are. Ariel (1990) used fifteen degrees of accessibility herself and reviewed several other scales suggested by different authors (p. 76-79).

Defining accessibility through the focus of attention eventually leads to the conclusion that it is *gradual* in our cognitive systems.[3] However, the lexicon and the grammar have no means to express gradual notions, like 77.6% accessible, so accessibility continuum must be converted into discrete categories on the way from intention to articulation. In principle, there are two ways to do so. First, one or more thresholds can be introduced dividing items into groups like given and new, or active, semi-active and inactive etc. Second, relative accessibility of different items can be encoded: A is more accessible than B, B is more accessible than C etc. A version of this strategy is to mark e.g. the most accessible item.

At the lexical selection stage, both strategies are used. To give an example, the choice of pronouns depends on how accessible an element currently is *per se* and with respect to other elements. Thus, demonstrative pronouns can code the second most accessible referent in some languages, as in Dutch (10b).

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[3] Many studies of memory and attention in different areas indirectly point to that. E.g. consider psycholinguistic studies of lexical access: how words are retrieved from memory. In the classical experimental paradigm called *lexical decision task*, informants are shown words and pseudowords on a computer screen and asked to distinguish between them by pressing different keys. Before the target item appears, another word, so-called *prime*, can be shown. If the prime is identical to the target, the target is recognized faster than normally. The effect is also obtained with semantically related and some other primes, but is less pronounced. The longer the interval between the prime and the target, the smaller the effect (Meyer & Schvaneveldt 1971 and subsequent work).

These data are often described in terms of activation networks. It is assumed that a word must accumulate a certain amount of activation to be recognized. A word is activated when being mentioned and spreads activation to the items connected to it in the network, thus partially activating semantically related words. The amount of activation decays gradually, finally reaching the resting level. Although producing and comprehending sentences and updating a discourse model on the basis of that is a much more complex task than lexical access, some deep parallels are evident.

(10) a. *Jan$_i$ becritiseerde Bill$_j$.*
'Jan criticized Bill.'

b. *Hij$_{i/j/k}$* / *Deze$_{*i/j/*k}$ was boos.*
he (Jan, Bill or some other highly accessible male referent) this (Bill) was angry

What about the grammar? In some IS models, focus is defined as new information (e.g. Halliday 1966). But many authors opt for different definitions of topic and focus and introduce two-way accessibility distinctions like *given/new, D-linked/non-D-linked, anaphoric/non-anaphoric* in addition to these notions. The last term is used e.g. in (Williams 1997; Schwarzschild 1999) and is roughly analogous to *D-linked*. Based on examples below, I will argue that IS-related grammatical phenomena encode *relative accessibility*.

Let us consider Russian sentences with a direct object (DO) and an indirect one (IO). Corpus studies (e.g. Sirotinina 1965; Shvedova, ed. 1980) show that the neutral word order is 'IO DO' in Russian. The inverse 'DO IO' order is commonly analyzed as resulting from movement, as opposed to double object constructions in many other languages, which are most likely to be base-generated. A detailed crosslinguistic comparison can be found in (Emonds & Whitney 2005). Russian 'DO IO' sentences are traditionally associated with DO giveness and with the narrow focus on IO. In generative literature, this generalization is most extensively discussed in (Junghanns & Zybatow 1995). It can be illustrated by (11b).

(11) a. *I Umka okazalsja zdes' slučajno.*
'And Umka (a bear cub) ended up here by accident.'

b. *Voobšče-to, Sergej Šojgu podaril medvežonka CIRKU.*
generally speaking [S. Sh.].NOM gave [bear cub].ACC circus.DAT
'Generally speaking, Sergey Shoygu (Russian Minister of Emergency Situations) presented the bear cub to the circus.'

However, the notion of giveness or D-linkedness cannot be used to account for many other 'DO IO' cases. In (12b), both DO and IO are new and the whole VP is in focus.

(12) a. *Čto ty delaeš'?*
'What are you doing?'

b. *Pišu pis'mo MAME.*
write.1PERS.SG letter.ACC mom.DAT
'I am writing a letter to my mom.'

The reordering in (12b) can be accounted for if we appreciate that the DO is more accessible than the IO — by virtue of being more predictable from the context. If *pis'mo* 'letter' were replaced e.g. by *kljauza* 'complaint' the example would have 'IO DO' order. Now consider (13a-b).

(13) a. *My pošli tuda s Maškoj i vstretili tam Genu. On vyigral v tire takogo bol'šuščego tigra…*
'We went there with Mashka and met Gena there. He won such a huge (stuffed) tiger in the shooting gallery…'

b. *…i, predstavljaeš', vzjal i podaril ėtogo tigra MAŠKE!*
and imagine took and gave [this tiger].ACC M.DAT
'…and, can you imagine, just gave this tiger to Mashka!'

In (13b), both IO 'Mashka' (an informal diminutive from Maria) and DO 'tiger' are

anaphorically given. But DO is more accessible because it was mentioned more recently, which is sufficient to cause reordering. Notably, if a different continuation is constructed for (13a), where only the girl is mentioned and not the tiger, the girl will count as more accessible than other newly introduced referents. This can be illustrated by (14).

(14) *…i na radostjax predstavil Mašku svoemu luščemu DRUGU.*
and in his joy introduced M.ACC [self's best friend].DAT
'…and in his joy introduced Mashka to his best friend.'

Finally, consider (15b). In such cases, marking giveness or D-linkedness by stress shift or movement becomes impossible because all material in the sentence has been recently mentioned. If we rely on relative accessibility, this is not a problem because there are no accessibility distinctions that need to be marked.

(15) a. *Neuželi on podaril Maške tigra?*
really he gave M.DAT tiger.ACC
'Did he really give Mashka the tiger?'

b. *Da, on podaril Maške TIGRA.*
yes he Gave M.DAT tiger.ACC
'Yes, he gave Mashka the tiger.'

Notably, relative accessibility cannot be encoded by means of IS features. This forces the choice for a configurational approach to IS. Moreover, another continuation of (13a) in (16) illustrates reordering in a different construction, and shows that IS-related movement does not target dedicated syntactic positions.[4] This is a crucial argument against any model relying on IS projections.

(16) *…i Mašku zamučila ZAVIST'.*
and M.ACC tormented envy.NOM
'…and Mashka was tormented by envy.'

Let me summarize the data presented above. If A is more accessible than B, it moves over B. All movements we discussed so far started out from the position where the neutral main stress is assigned, so A also lost the main stress as a result. However, (17)-(18) demonstrate that the same movements can take place without any prosodic effects.

(17) a. *Vse pozdravljali Natašu i Olju.*
'Everybody congratulated Natasha and Olja.'

b. *PAŠA otdal PODAROK NATAŠE ešče UTROM,*
P.NOM gave present.ACC N.DAT already in the morning
*(tak čto teper' emu ostavalos' pozdravit' Olju).*
'Pasha gave his present to Natasha already in the morning, (so now he only had to congratulate Olja).'

(18) a. *Vse pozdravljali Natašu.*
'Everybody congratulated Natasha.'

[4] This argument is also discussed by other authors (e.g. Szendrői 2005; Neeleman & van de Koot 2008) using data from different languages. In addition to that, these authors note that IS features violate Chomsky's (1995) Inclusiveness condition stating that there is nothing in the syntax that does not come from the lexicon. While other features are indeed connected to particular lexical items (e.g. the *wh*-feature is associated with *wh*-words and the C head), whether a word bears an *F* feature cannot be determined in the lexicon.

b. *PAŠA otdal NATAŠE PODAROK ešče UTROM,*
P.NOM gave N.DAT present.ACC already in the morning
*(tak čto teper' stojal v storonke).*
'Pasha gave Natasha his present already in the morning, (so now he was standing aside).'

Clearly, this indicates that IS-related movements we are looking at are not prosodically motivated, i.e. their aim cannot be reduced to taking an element into or out of the main stress position, contrary to the claims of configurational IS theories discussed in subsection 1.2. In subsection 2.1, I will show that it is important not only from where an element moves, but also where it ends up with respect to other elements. This also points towards a syntax-oriented model: syntax can encode relations between elements by c-command and embedding, while prosody cannot. Having made these remarks, let me postpone the discussion how syntactic or prosodic means of encoding IS are related and how they can be formalized until section 4.

### *2.2 Contrast*

Let us start with a problem that needs to be solved. Consider a classical example in (19), which "is to be thought of as the beginning of a joke" (Rooth 1992, p. 80). Small capitals are used to denote phrasal stress.

(19) *An AMERICAN farmer was talking to a CANADIAN farmer.*

According to various diagnostics, including the widely adopted question-answer test, the whole sentence is in focus. Rooth's (1985, 1992) alternative semantics essentially relies on a formalized version of this test. However, in this case Rooth claims that only *American* and *Canadian* are focused because he needs to account for the stress pattern in (19).

Analyzing a similar example in (20), Neeleman and Szendrői (2004, p. 149) opt for nested foci. In (20b), the VP is contrasted with doing homework, while the DP *Superman*, to which the main stress is shifted, implies the contrast with decent books. To accommodate this, as well as the fact that the sentence answers the question in (20a), Neeleman and Szendrői assume that it contains a DP focus inside a VP focus inside an all-focus sentence.

(20) a. Father: *What happened?*

b. Mother: *When I came home, rather than doing his homework, Johnny was reading SUPERMAN to some kid.*

Multiple foci are incompatible with most approaches to focus. If we assume that contrast and not focus is encoded in the grammar, we will not need to introduce them and to compromise Rooth's definition of focus that works well in semantics to account for cases like (19) and (20).

The means of encoding contrast can be preliminarily described as follows. The contrasted constituent must be the most embedded (which means that it will also receive the main stress by default) or the sentential stress must be shifted to it. In case of nested contrasts, contrasted constituents must be embedded one in the other, with the smallest one carrying the main stress: either by virtue of being the deepest in the structure, as in (21b), or because the stress was relocated to it, as in (20b). As we discussed in the previous subsection, the neutral word order is 'IO DO' in

Russian, so I made the IO contrastive in (21b) to show how contrast can be used to explain IS-related movement.

(21) a. *Čto slučilos'?*
'What happened?'

b. *Vmesto togo čtoby delat' uroki, Vanja čital knigi kakomu-to BALBESU!*
instead of doing homework V.NOM read books.ACC [some thickhead].DAT
'Instead of doing his homework, Vanja was reading books to some thickhead!'

In case of paired contrasts, the first constituent obviously cannot be the most embedded or carry the sentential stress. Then a phrasal stress must be shifted to it, as in (19), or it must be made the most embedded within a larger syntactic constituent and receive the phrasal stress by default, as in (22). In this example, an adverb follows the participle it modifies while normally adverbs are preverbal in Russian, both with finite verbs and with non-finite forms (participles, gerunds, infinitives).

(22) *Rabotavšie XOROŠO polučat SPOLNA.*
having worked well will receive in full
'Those who have worked well will be paid in full (implied contrast: I cannot say the same about those who did not work).'

In some sentences, the properties of constituents that become the most embedded or to which the main stress is shifted are subtler than in the cases above. For example, consider (23b).

(23) a. *Nikogda by ne podumal, čto moj načal'nik ljubit životnyx.*
'I would never think that my boss likes animals.'

b. *No segodnja on otdal buterbrod golodnoj DVORNJAGE!*
but today he gave away sandwich.ACC [hungry mongrel].DAT
'But today he gave away a sandwich to a hungry mongrel!'

The sentence implies that, although the speaker did not expect his boss to be kind to any animal, the mongrel seemed especially unlikely to get anything from him. If the canonical 'S V IO DO' word order were used, this connotation would not arise. Intuitively, while the whole VP is new, the IO is additionally emphasized.

Some authors treat emphasis as a special category in their IS models (e.g. Janko 2001), but this seems unnecessary. Emphasis always introduces a scale: when something is presented as especially horrible, beautiful, unexpected etc., the existence of more ordinary possible alternatives is implied, although they usually remain unmentioned. Hence, we can assume that the emphasized constituent is *contrasted* to these alternatives and reduce emphasis to broadly conceived contrast.

Turning to so-called focus fronting constructions, it can be noted that the moved constituent is usually not what focus tests would define as the focus of the sentence, but an additionally contrasted part of it. (24) and (25) can serve as examples.

(24) *KRASIVUJU naši sosedi kupili kvartiru!*
beautiful.ACC [our neighbors].NOM bought apartment.ACC
'What a beautiful apartment our neighbors bought!'

(25) *XOROŠO vremja proletelo!*
well time.NOM flew away
'How nicely the time has passed!'

*Prima facie*, the preliminary generalization about encoding contrast that was

formulated above does not cover these cases: it says nothing about fronting. I will come back to them in detail in subsections 4.1 and 4.2. In brief, I will propose the following explanation. Using reconstruction tests, Neeleman and Titov (2009) showed that the moved constituent passes through the most embedded position in these constructions. I will argue that this serves to mark contrast, as in other sentences above, while fronting serves a different purpose.

Also relevant for encoding contrast are the claims that contrastive foci differ from non-contrastive ones syntactically and intonationally (e.g. Rochemont 1986; Vallduví & Vilkuna 1998; Zubizarreta & Vergnaud 2005). I.e. there are special contrastive focus constructions and a special contrastive stress, which is qualitatively different from the ordinary main stress. My generalization does not incorporate such claims because they are incorrect, as I will show.

Let me start with intonational marking. For Russian, special intonational contours for contrastive and emphatic constituents were most thoroughly discussed in (Janko 2001). Ladd (1996, p. 199-202 and elsewhere) refutes similar claims about English. He demonstrates that in examples like (26), speakers are more and more likely to perceive *francs* as contrastive (i.e. 'five francs, rather than five dollars, five pounds etc.') as the intensity of the main stress increases.

(26) *I gave him five FRANCS.*

However, there is no categorical threshold, and pronouncing this sentence with a 'normal' low-intensity stress does not rule out the contrastive interpretation. Therefore, the phenomenon is paralinguistic rather than linguistic. Similarly, the more one raises one's voice, the more unambiguously one stresses one's anger, but expressing anger this way is absolutely optional: one can be enraged and speak in a low voice. Reorderings and stress shifts presented above are fundamentally different: if they did take place, contrastive interpretation is unavoidable, while otherwise it would not be available.

Now let us turn to special syntactic constructions. Since (King 1995), many formal Russian IS models assume that focused constituents immediately preceding the verb, as in (27), are interpreted as contrastive, emphatic or, in King's own terms, *emotive*.

(27) *Počemu Boris často na RABOTU opazdyval?*
why B.NOM often to work was late
'Why was Boris often late for work?'

This claim was also made by Russian linguists working in the Prague school tradition (e.g. Kovtunova 1976), but was discarded later. For some reason, the relevant observations did not make their way into the formal literature. Numerous studies show that 'OV' orders are very common in colloquial Russian where they are not associated with emphasis or contrast (Bonnot & Fourgeron 1982; Kodzasov 1989; Janko 2001).[5] Colloquial constructions included in the written text tend to be

[5] Russian might be slowly undergoing a VO-to-OV shift — this question is discussed in more detail in (self-identifying reference). Corpus studies of spoken language (e.g. Sirotinina 1965) show that OV orders are more frequent than VO. In (ib), taken from a real dialogue, it is especially clear that OV order does not signal contrast or emphasis in colloquial Russian. (ic) illustrates the word order that would be used in written Russian.

(i) a. A: *Oni v osnovnom byli krestjane?*

perceived as emphatic, which explains many speakers' judgments of (27). Once these sentences are presented in their naturally occurring contexts, this feeling disappears. Arguments against special contrastive focus constructions in other languages are given e.g. in (Szendrői 2001, 2003; Brunetti 2004).

## 3 Why are topics and foci not encoded in the grammar?

In the previous section, I showed that relative accessibility and contrast, broadly conceived, are necessary to explain various IS-related reorderings and stress shifts. This section argues that they are also sufficient. Using them to analyze grammatical phenomena previously accounted for by topic and focus allows us to resolve a number of long-standing problems in the IS field.

As I will show, the ways to express topicality are absolutely heterogeneous, while focus often does not correspond to a syntactic constituent. Both properties are incompatible with grammatical encoding. This does not deny the importance of topicality and focusing for semantics and pragmatics. Moreover, under the proposed approach their definitions that work well in these areas do not need to be stretched and compromised to account for grammatical phenomena.

The last subsection discusses languages with IS-related morphemes. They are often mentioned as an important argument for the existence of topic and focus features. I will demonstrate on several examples that what these morphemes encode cannot be topic and focus.

### *3.1 Topics*

The main problem for encoding topics in the grammar is an extreme diversity of formal means associated with them. To give an example, there is a syntactic operation of topicalization, illustrated by Russian (28a). There are different views on the position targeted by the object topic, but it is definitely in the C domain, above the subject in [Spec; TP]. However, subject topics are standardly assumed to remain in [Spec; TP], as in (28b).

(28) a. *Knigu Vanja pročel.*
book.ACC V.NOM read
'The book, Vanja read.'

b. *Vanja pročel knigu.*
V.NOM read book.ACC
'Vanja read the book.'

Personal pronouns are typical topics, but very often do not undergo topicalization, as (29b-c) show. The translations of (28)-(29) illustrate that English is similar to Russian in this respect.

(29) a. *Čto slučilos' s Petej?*

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'Were they mainly peasants?'

b. B: *Da… Esče oni DAČI sdavali.*
yes also they [summer houses].ACC rented out

c. B: *Da… Esče oni sdavali DAČI.*
yes also they rented out [summer houses].ACC

'What happened to Petja?'

b. *Vanja ego UDARIL.*
V.NOM him hit
'Vanja HIT him.'

c. *Vanja UDARIL ego.*
V.NOM Hit him
'Vanja HIT him.'

Based on such examples, as well as on other considerations, authors coming from various frameworks have already suggested that topics are not encoded in the grammar (e.g. Lambrecht 1994; Reinhart 2004). By offering an alternative explanation for syntactic and prosodic phenomena traditionally associated with topicality, I take this claim to its logical end. My approach to topicalization relies on relative accessibility.

As is well known, being highly accessible does not make an entity topical. According to Reinhart (1982, 2004) and other authors, not being highly accessible does not prevent that either. However, the following generalization can be made: topics are *the most accessible* (Lambrecht 1994).

This gives us a new perspective on (28a-b). Instead of saying that object and subject topics undergo different operations and sit in different positions, we can say that less accessible constituents must be below more accessible ones in the syntactic hierarchy and analyze topicalization as moving more accessible constituents over less accessible ones. Crucially, we have arrived to the same generalization in subsection 2.1, where different constructions were discussed. So we will not even need to introduce new rules here.

When objects are the most accessible, they need to move because they need to cross subjects and other elements in the sentence, while subjects can usually remain in the [Spec; TP] — unless they also have to cross something, as in (30b). Notably, using the notion of topic there is no way to explain the difference between (28a) and (30b): both fronted elements are topics in these cases, and still the word order is different.

(30) a. *Sledujuščee sobranie naznačili na vtronik, i Anna Dmitrievna special'no napomnila ob etom Olegu.*
'The next meeting was scheduled for Tuesday, and Anna Dmitrievna specifically reminded Oleg about that.'

b. *Oleg ėti sobranija obyčno propuskal.*
O.NOM [these meetings].ACC usually missed
'Oleg usually missed these meetings.'

Pronouns need not topicalize because they get on top of the accessibility hierarchy anyway — it is part of their meaning that their referents are the most accessible. However, it is not specified in the lexicon whether they are contrasted. So, except for the rare cases like (31) when they are, pronouns obligatorily move out of the most embedded position or loose the main stress as a result of stress shift, as in (29b-c).

(31) *Vanja always wondered why Masha chose HIM (and not Petja).*

Are topicalized constituents always the most accessible? When we turn to a new topic, we normally introduce it first in a separate sentence. Lambrecht (1994, p. 176ff) discusses this in great detail, and (32a-b) can serve as an example.

(32) a. *U menja est' staroe kol'co s rubinom.*
at me is [old ring].NOM with ruby
'I have an old ring with a ruby.'

b. *Ėto kol'co mne podarila moja babuška.*
[this ring].ACC to me gave [my granny].NOM
'This ring was given to me by my granny.'

Sometimes this introduction step is skipped, as in (33a). This sentence is the beginning of a pastry recipe. However, in this case the addressee has to accommodate this step. What does the word order in (33a) imply? Unlike (33b) without PP topicalization, his sentence signals the addressee that at the moment when she is reading this sentence she must have a deep bowl in front of her and in the focus of her attention. Thus, the topicalized PP is still interpreted as the most accessible, although by accommodation.

(33) a. *V glubokuju misku sleduet vlit' odin stakan kislogo moloka.*
in deep bowl should.IMPERS pour [one glass].ACC [sour milk].GEN
'In a deep bowl, one glass of sour milk should be poured.'

b. *Sleduet vlit' odin stakan kislogo moloka v glubokuju misku.*
should.IMPERS pour [one glass].ACC [sour milk].GEN in deep bowl
'One glass of sour milk should be poured in a deep bowl.'

Büring (1997) discusses various cases where topicalized constituents are *prima facie* not the most accessible, and this explanation can be applied to all of them. In particular, he analyzes many examples with contrastive topics. In these sentences, the addressee is invited to turn her attention to one entity and then to another one that is compared to it, as in (34b).

(34) a. *Ne soveršivšij ni odnoj avarii možet v sledujuščem godu rasschityvat' na skidku.*
'The one who had no accidents can expect a discount the next year.'

b. *S tex, kto pobyval v DTP, kompanija možet vzjat' podorože.*
from those who was in a traffic accident company.NOM can take more expensively
'From those who have been in a traffic accident the (insurance) company can take more.'

Notably, topicalized constituents never appear out of the blue in these cases, so it is easy to switch attention to them and to accommodate them as the most accessible. E.g. in (34), although the drivers who had no traffic accidents were not mentioned before, the accidents themselves were.

In the beginning of this subsection, we noted that not all topics undergo topicalization. The reverse is also true: topicalized constituents are not always topics. Russian normally marks scope overtly (e.g. Ionin 2001), and topicalization can be used in an all-new context for this purpose, as in (35b).

(35) a. *Spisok literatury byl očen' dlinnym,*
'The reading list was very long…'

b. *…no dve knigi pročel kazdyj student.*
but [two books].ACC read [every student].NOM
'…but there were two books that every student read.'

Now let us turn to so-called 'topic accent' — rising intonational contour traditionally associated with topicality. According to my observations, in Russian it can be used

not only with topics, but with any constituent in the [Spec; TP] or in the C domain.[6] Thus, high adverbs, scene-setting PPs, as in (36), and non-specific subjects that arguably cannot be topical, as in (37), bear it.

(36) *Na sledujuščij den' v Sankt-Peterburge gej-parad prošel bez incidentov.*
on the next day in Saint-Petersburg [gay parade].NOM passed without incidents
On the next day in Saint-Petersburg, the gay parade passed without any incidents.

(37) *Kakoj-nibud'*[7] *očen' ser'eznyj turist-inostranec objazatel'no podaet v mestnyj sud žalobu…*
[some very serious foreign tourist].NOM necessarily gives to local court complaint.ACC
'A very serious foreign tourist always lodges a complaint to the local court' (the text discusses what allegedly happens during the Carnival in Germany).

I conclude that this intonational contour is assigned to constituents by virtue of being in particular syntactic positions rather than by virtue of being topics. The number of such 'topic accents' per sentence depends on prosodic phrasing. E.g. (23a) can be pronounced as one phrase without such accents, while in (36), there can be three of them.

Finally, let us look at the definition of topic. The majority of linguists coming from various frameworks define topic as the thing that the proposition expressed by the sentence is about (e.g. Strawson, 1964; Kuno, 1972; Gundel, 1974; Chomsky, 1976; Dik, 1978; Reinhart, 1982; Lambrecht, 1994). Summarizing earlier work and his own observations, Lambrecht (1994, p. 119) makes the following comment on this definition, showing that it is absolutely incompatible with grammatical encoding:

> "If the topic is seen as the matter of current interest which a statement is about and with respect to which a proposition is to be interpreted as relevant, it is clear that one cannot always point to a particular element in a proposition, let alone to a particular constituent of a sentence, and determine that this element and nothing else is the topic of the sentence. As there are degrees of relevance, there are degrees to which elements of propositions qualify as topics. It is this fact, I believe, which accounts for the absence of unambiguous formal marking of the topic relation in many languages. And, as a corollary, it accounts for the fact that in those languages which do have formal topic marking this marking reflects only imperfectly the relative degrees of topicality of given referents."

If topicality is encoded in the grammar, this constitutes a serious problem. If it is not, its definition need not satisfy the stringent grammatical criteria. Moreover, it becomes more straightforward to apply this notion in the discourse domain. Consider the fragment in (38) that was discussed by Reinhart (1982) and then reanalyzed by Lambrecht (1994). It comes from a recorded conversation (Ochs 1979, p. 63): a grandfather complains that his grandson rejected very good oatmeal.

(38) *And it's uh got ta good taste, it's good. And the cereal – grandma e don't like cereal but she finished to the last (dish) and I enjoy – I like it too. It's tasty! And I uh (pause) He didn't want the cereal, doesn't eat. I said, "Todd, it wouldn't kill ya, taste it!"…*

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[6] This generalization does not apply to the constructions that have specific intonational contours of their own (e.g. 'focus fronting' sentences, as in (24) and (25), various types of questions etc.).

[7] Russian has specific and non-specific indefinite pronouns (*kakoj-to* vs. *kakoj-nibud'* etc.).

Reinhart (1982, p. 19) claims that in all sentences before the pause, the topic is the cereal and after the pause the topic is the grandson. Lambrecht (1994, p. 150) disagrees:

> "It seems clear that the cereal is more salient in the first part of the text and that the grandson is more salient in the second part. […] But it is not clear on what grounds topic status of e.g. the pronoun *it* in *it wouldn't kill ya* can be excluded. By the same token, there does not seem to be any principled reason besides pragmatic salience to exclude the NPs *grandma* and *I* from topic status in the sentences *grandma e don't like cereal but she finished* and *I like it too*."

One way to reflect Lambrecht's insight is to say that the cereal and the grandson are higher-level topics, while other topics he mentions are lower-level ones. The question how (38) should be analyzed and, more generally, whether various degrees of topicality need be introduced is outside the scope of this paper. My goal is to show that this can be decided in the discourse studies without looking back at the grammar.

### *3.2 Foci*

The definition of topic based on aboutness is widely accepted, although, as we could see in the previous subsection, this does not preclude disagreement when concrete examples are analyzed. The definition of focus is much more controversial (nevertheless, most linguists agree that the question-answer test can be used to identify foci, at least, in the majority of cases). Lambrecht (1994) presents a discussion of various approaches, and I find his arguments for the following definition convincing: "the focus of a sentence, or, more precisely, the focus of the proposition expressed by a sentence in a given utterance context, is seen as the element of information whereby the presupposition and the assertion differ from each other" (p. 207).

Lambrecht stresses that under this definition focus cannot be encoded in the grammar. In this subsection, I will argue for the same conclusion, but from a different perspective, and will take it to its logical end by offering an alternative explanation for grammatical phenomena traditionally associated with focusing. The key argument is that that there are sentences in which focus does not correspond to a syntactic constituent. Thus, (39b) has a discontinuous focus, while (40b) has two foci (many such examples are analyzed in (Krifka 1991)).

(39) a. *What did John do with the TV set?*

b. *He turned it OFF.*

(40) a. *Who did John introduce to whom?*

b. *He introduced BILL to SUE.*

If we drop the assumption that focus is grammatically encoded, it does not need to correspond to a single constituent, so the problem disappears. Focus has been called for to explain various syntactic reorderings and stress shifts, but in section 2 I demonstrated that it is more advantageous to use to relative accessibility and contrast to account for these phenomena. As a result, in (39b) nothing needs to be explained (the sentence does not exhibit any IS-related movements or stress shifts).

(40b) can be accounted for as the sentence in (41) (Rooth 1992, p. 80), repeated from subsection 2.2: both examples contain a pair of contrasted constituents, so the first receives a phrasal stress and the second the main stress.

(41) *An AMERICAN farmer was talking to a CANADIAN farmer.*

In (42), another sentence analyzed in subsection 2.2 is repeated (Neeleman & Szendrői 2004, p. 149). This example contains nested contrasts.

(42) *When I came home, rather than doing his homework, Johnny was reading SUPERMAN to some kid.*

Let me remind that to account for stress patterns in these sentences, Rooth argued that only *American* and *Canadian* are focused in (41), while Neeleman and Szendrői introduced nested foci in (42). However, according to the question-answer test both (41) and (42) have sentence-wide foci. If stress shifts in (41)-(42) and reorderings in other examples from subsection 2.2 encode contrast and not focus proper, the definition of focus need not be compromised to account for them.

Another problem related to focus concerns operators like *only* or *even*. It is widely assumed that they associate with the focus of the sentence — they are even called *focus particles*. Although this is true in most cases, as (43a-b) show, there are some exceptions — consider (44b) (Partee 1991, p. 165) or the fact that (43b) can also have a sentence-wide focus, being a felicitous answer to (45).

(43) a. *Who can afford buying cars?*

b. *Only MAX can afford buying cars.*

(44) a. *Eve only gave Xerox copies to the graduate STUDENTS.*

b. *No, PETER only gave Xerox copies to the graduate students.*

(45) *Why are you crying?*

These exceptions can be easily explained if we rely on the notion of contrast rather than focus. Focus particles give rise to particular implicatures. E.g. (43b) implies that nobody except Max from the contextually relevant set of individuals can afford buying cars. *Even* introduces a scalar implicature, suggesting that its associate was less likely than other possible alternatives to do something or to have a particular property etc. Therefore, associates of focus particles can be treated as contrastive: they are always (implicitly) compared to other individuals, objects or properties. This explains why they usually bear the main stress. However, in (44b) *Peter* is also contrasted. The associate of *only* has been previously mentioned and thus is more accessible, so the main stress goes to *Peter*.

### *3.3 IS-related morphemes*

Some languages are claimed to mark topic and focus by special morphemes. Does this mean that these notions are grammatically encoded at least in these languages? In this short subsection I will demonstrate that this claim is incorrect. No language has been identified so far where some morpheme is systematically attached to all topics and foci. A very illustrative discussion of IS-related morphemes in Somali can be found in (Szendrői, 2005, p. 311-314), and I will look at examples from Gungbe (the Gbe group in the Kwa branch of the Niger-Congo languages) and Tagalog.

(46a-b) from Gungbe are due to Enoch Aboh who extensively studied IS phenomena in Gbe languages (e.g. Aboh 2004; Aboh et al. (eds.) 2007). The gloss NR denotes a suprasegmental nominalizing morpheme used in progressive.

(46) a. *Súrù tò àklà cè zé ɖù`.*
S. PROG cookie 1SG.POSS take eat.NR
'Suru is taking my cookie to eat.'

b. *Àklà cè wɛ̀ Súrù tò zízé ɖù`.*
cookie 1SG.POSS FM S. PROG take take eat.NR
'It is my cookie that Suru is taking to eat.'

The object to which *wɛ̀* is attached obligatorily moves to the left periphery of the clause, as predicted by the Rizzian approach. The problem is that this morpheme is used only in a small number of sentences, and otherwise focus is unmarked. In this respect *wɛ̀* can be compared to focus particles in European languages. It also remains unclear why the use of this morpheme triggers verb reduplication

In Tagalog, IS-related morphemes are used in every sentence, but what they mark does not coincide with topics or foci. In brief, Tagalog uses different verb affixes depending on what argument is the topic (or the most accessible): agent, or theme, or benefactor etc. This argument always bears Absolutive case. In (47a-d) taken from Wikipedia (http://en.wikipedia.org/wiki/tagalog_grammar) it is underlined. In other words, these affixes belong to the Theta system rather than to IS. Verb pairs like *buy* and *sell* can be compared to them in European languages.

(47) a. *Binilí ng lalaki <u>ang saging</u> sa tindahan para sa unggóy.*
bought man banana at store for monkey

b. *Bumilí ng saging <u>ang lalaki</u> sa tindahan para sa unggóy.*
bought banana man at store for monkey

c. *Binilhán ng lalaki ng saging <u>ang tindahan</u>.*
bought man banana at store

d. *Ibinilí ng lalaki ng saging <u>ang unggóy</u>.*
bought man banana for monkey

## 4 How are IS notions encoded in the grammar?

IS features are not well suited for encoding nested contrasts and are not suited at all for encoding relative accessibility, so in this section I develop a configurational IS model. The main challenge for such models is explaining how syntactic and prosodic IS phenomena are related. Subsection 4.1 contains several arguments for the primacy of syntactic means of encoding. Hence, in subsection 4.2 I propose a model that relies on syntactic configurations based on Chomsky's (2008) edge features.

### *4.1 Relations between syntactic and prosodic IS phenomena*

As I showed in subsection 1.2, configurational IS models either do not explain how syntactic and prosodic IS phenomena are related (e.g. Neeleman & van de Koot 2008) or view prosodic means of encoding as primary (e.g. Neeleman & Reinhart 1998; Reinhart 2006; Szendrői 2001). In the latter case, for example, D-linking is associated with destressing, which can be achieved either by shifting the main stress from a constituent or by moving this constituent out of the position where the main

stress is assigned by default.

First of all, if this approach is correct, all IS-related movements are expected to have prosodic consequences. However, as I showed at the end subsection 2.1, this is not always the case. Second, Neeleman and Titov (2009) who study Russian focus fronting constructions show that the fronted constituent passes through the most embedded position. (48a-b) (ibid., p. 518) demonstrate that it reconstructs into this position for scope.

(48) a. *Každuju DEVOČKU*$_1$ *ja xoču čtoby odin mal'čik ljubil* t$_1$ *(a ne*
[every girl].ACC I want that [one boy].NOM loved and not
*každuju babušku).*
[every grandma].ACC
'I want one boy to love every girl.' ∃ > ∀; *∀ > ∃

b. *Každomu STUDENTU ja xoču čtoby ty predstavil odnogo učitelja* t$_1$ *(a ne*
[every student].DAT I want that you introduced [one teacher].ACC and not
*každomu professoru).*
[every professor].DAT
'I want you to introduce one teacher to every student.' ∃ > ∀; *∀ > ∃

Neeleman and Titov (2009) conclude that these data present a problem for the theories that view IS-related reorderings as prosodically motivated. If movement into or out of the most embedded position were driven by the fact that the neutral main stress is assigned there, these constituents would not pass through this position just to be fronted later. (49a-c) illustrate the fact that Russian normally has surface scope.

(49) a. *Odin mal'čik ljubit každuju DEVOČKU.* ∃ > ∀; *∀ > ∃
[one boy].NOM loves [every girl].ACC

b. *Odnu devočku ljubit každyj MAL'ČIK.* ∃ > ∀; *∀ > ∃
[one girl].ACC loves [every boy].NOM

c. *Každuju devočku ljubit odin MAL'ČIK.* ∀ > ∃; *∃ > ∀
[every girl].ACC loves [one boy].NOM

In (49b-c) the inverse scope is possible (the subject c-commands the object at some point), but very difficult to obtain. As it was mentioned in section 3.1, the object in such constructions can be moved across the subject either for scope or for IS reasons. When such sentences are uttered out of the blue, it is natural to interpret this movement as marking scope. In (50), the subject is contrasted, so object movement can be explained by that and the inverse scope becomes available.

(50) *(Sperva na scene pojavilas' každaja devočka)*
first every girl appeared on stage
*a potom odnu pesnju ispolnil každyj MAL'ČIK.*
and then [one song].ACC performed [every boy].NOM
'First every girl appeared on stage, and then every boy performed one song.'

In subsection 3.1, when I discussed how topicalization can be explained using relative accessibility, I stressed that it is always important where an element moves with respect to other elements, and not only whether it moves into or out of the main stress position. Finally, various prosodic phenomena that are not related to IS clearly depend on syntax. For example, prosodic phrases correspond to syntactic constituents, the main stress normally falls on the most embedded constituent and

so on.

Needless to say, prosodic structures are also shaped by the requirements of our sensory-motor apparatus (e.g. prosodic phrases cannot be too long because we need to breathe while speaking). These observations are reflected in the canonical generative grammar architecture, where prosody belongs to the phonological interface preparing syntactic structures for pronunciation. Prosodically motivated movement does not fit into this picture, which is yet another reason to call it into question. Based on these arguments and general considerations, I will aim at developing an IS model based on syntactic configurations.

### *4.2 A syntactic configurational IS model relying on edge features*

The configurational IS models discussed in subsection 1.2 rely on non-feature-driven movement and do not specify how exactly it happens, as they leave technical details aside. I will show that edge features (EFs) and free internal Merge (IM) introduced in the last version of Phase theory (Chomsky 2008) become perfectly suited for creating IS configurations after several important modifications are introduced.

The essence of EFs and free IM is the absence of feature matching and agreement. Hence, any constituent can be attracted by EFs if it is not prohibited for independent reasons. The final interpretation of the moved element depends on the position where it eventually ends up. Chomsky demonstrates how EFs can be used to analyze topicalization. He notes that 'some special mark' on the topicalized DP, i.e. a topic feature, is "superfluous even if feasible… What is raised is identified as a topic by the final position it reaches" (Chomsky 2008, p. 151).

First of all, what is the 'right position' for a certain IS interpretation? For Chomsky, it is a particular specifier in the C domain — in his discussion of topicalization, he refers to Rizzi's (1997) view on the left periphery. To be able to encode relative accessibility and contrast and to account for examples presented in previous sections, I will take a different stance: the 'right position' is a particular position with respect to other elements.

Secondly, Chomsky (2008) argues that only phase heads (C and *v**) and the heads selected by them (T and V) can trigger IM. Since the probing features that T and V inherit from the phase heads are φ-features, all IS-related movement is expected to target the specifiers of C and *v**. However, Russian definitely exhibits IS-related reorderings of internal arguments inside VP (examples were discussed in section 2) and reorderings with respect to lower adverbs merged between *v* and T, as in (51).

(51) *Vanja čitaet knigi medlenno.*
V.NOM reads books.ACC slowly
'Vanya reads books slowly.'

Although Chomsky (2001, 2008) treats all adverbs as adjuncts, various arguments point to the necessity of labels and positions inside their sequences. To give an example, lower adverbs can be *wh*-moved and moved for IS reasons with subsequent reconstruction, as in (52). This is an argument against late insertion.

(52) *Medlenno Vanja knigi ne čitaet!*
slowly V.NOM books.ACC NEG reads
'Slowly, Vanja does not read books this way.'
Not 'Vanya is slow in not reading books.'

Constituents containing all, or some, or none of the adverbs can undergo remnant topicalization, as (53) shows. This is an argument for labels. There is non-IS-related movement (clustering) in this domain in some languages, e.g. in Norwegian (Nilsen 2003). This is an argument for positions.

(53) *(Medlenno) čitat' knigi Vanja možet (m edlenno).*
slowly to read books.ACC V.NOM can slowly
'As for (slowly) reading books, Vanja can do that (slowly).'

The nature of the relevant projections is hotly debated: Cinque (1999) relies on a long sequence of FPs, Nilsen (2003) suggests AdvPs etc. A serious discussion of this problem is outside the scope of this paper. So I will limit myself to the remark that the list of heads with EFs that can be targeted by IS-related movement has to be widened.

Thirdly, departing from the earlier model (Chomsky 1995) where agreement was a prerequisite for movement, Chomsky (2008) aims to dissociate them. Leaving a systematic analysis for further research, he discusses two examples. He claims that *wh*-movement happens without *wh*-feature matching and that EPP-driven movement in the T domain is separate from agreement. As I show in detail in (self-identifying reference), both claims appear problematic.

Unlike with topics, Chomsky's new approach to *wh*-movement does not allow him to get rid of *wh*-features, does not clarify why IM to a particular position is crucial for the interpretation of *wh*-phrases and does not explain how they can be interpreted *in situ*. As for EPP-driven movement, Chomsky refers to the model of the Russian EPP requirement in the Tense domain by Lavine and Freidin (2002) that indeed involves no agreement. Lavine and Freidin, as well as several other authors (e.g. Babyonyshev, 1996; Bailyn, 2003a, 2003b, 2004) argue that a wide variety of XPs, and not just Nominative subjects can satisfy this requirement in Russian. However, a careful analysis of Russian data does not support these theories and points to an agreement-based model instead.

Consequently, I assume that free IM can be used only for IS and for scope taking. These are two domains where no specialized features can be introduced and therefore agreement is impossible. For scope, this assumption has never been called into question: in all frameworks scope taking depends on the relative positions of two elements, rather than on some 'scope features'. Once relative accessibility is introduced in the grammar, IS-related movement is expected to have similar properties.

The interface rule used to interpret free IM is formulated in (54). Importantly, this rule does not apply to obligatory raising caused by the EPP requirement, to *wh*-movement and the like (in my view, all these cases can be distinguished because the probe and the target undergo feature-matching).

(54) If a constituent A moved over a constituent B,
- A scopes over B, and/or
- A is more accessible than B, and/or
- B is contrasted.

(54) reflects the fact that free IM can be used both to mark scope and to encode relative accessibility and contrast. Analyzing examples (49)-(50), I showed how the choice between different available interpretations can be made. Evidently, scope

taking and expressing IS-related distinctions is also possible in the absence of free IM. In this case, the most embedded constituents can be interpreted as contrastive, and, if A is above B and the notions of scope and accessibility are applicable to these elements, A is at least as accessible as B and scopes over B.

Some apparent exceptions to the rule in (54) were accounted for in sections 2 and 3, when preliminary generalizations about encoding relative accessibility and contrast were formulated. Here I will discuss the constructions traditionally analyzed as focus fronting. (55b) shows that the fronted constituent does not need to correspond to focus in these sentences. However, it must be contrastive.

(55) a. *Čego ty ogorčaešsja?*
'What are you fretting about?'

b. *Kakim-to IDIOTAM oni otdali priz (a ne tem, kto zasluzil)!*
[some idiots].DAT they gave away prize.ACC
'They gave the prize to some idiots (and not to those who deserved it)!'

Neeleman and Titov (2009), whose data were presented in subsection 4.1, demonstrated that the fronted constituent passes through the most embedded position in such constructions. I conclude that this first movement step encodes contrast, exactly as predicted by the rule in (54). (56b), compared to (56a) with the canonical word order, shows that this movement is necessary and sufficient for the contrastive interpretation.

(56) a. * *Oni otdali kakim-to idiotam PRIZ (a ne tem, kto zasluzil)!*
they gave away [some idiots].DAT prize.ACC

b. *Oni otdali priz kakim-to IDIOTAM (a ne tem, kto zasluzil)!*
they gave away prize.ACC [some idiots].DAT

So what is the contribution of the second movement step, fronting of the contrasted constituent? As it seems to me, it is simply rhetoric: starting the sentence with the most prominent part of the assertion. Notably, unlike IS-related reorderings discussed throughout this paper, this movement appears to target a dedicated position in the left periphery. There can be only one such constituent per sentence, and a special intonational contour is characteristic for such constructions.

So here I agree with the Rizzian approach — I just do not agree that this movement serves to mark focus or any other IS-related property. I am hesitant to say how this movement is triggered, but any approach faces this problem given that this movement cannot be explained by IS.

The ultimate challenge for any syntax-oriented configurational IS model is to derive stress shift. I will offer the following hypothesis. Compare English (57a), Dutch (57b) and Russian (57c).

(57) a. *My NEIGHBOR is building this house.*

b. *Dit huis bouwt mijn BUURMAN.*
this house builds my neighbor

c. *Ėtot dom stroit moj SOSED.*
[this house].ACC builds [my neighbor].NOM

Although the structure of Russian 'O V S' sentences is a matter of debate, no author

assumes that it is the same as in the V2 Dutch language.[8] Thus, both in (57b) and in (57c) the subject is the most embedded, is interpreted as the least accessible and/or contrasted and receives the main stress by default. But Dutch and Russian have different ways to derive this configuration because IS-related IM is superimposed on other movements, which may differ from language to language. E.g. Dutch has V-to-C movement and Russian does not.

Why cannot English also use some sequence of IS-related reorderings to derive the necessary configuration? If adverb-final sentences involve movement, as it was argued above, English does use IS-related IM rather than stress shift in other cases. In fact, the object and the verb *can* be moved over the subject in English. However, as (58) shows, when no overt material follows T, it gets obligatorily spelled out, and as a result T, and not the subject becomes the most embedded constituent and receives the main stress.

(58) *Eat the candies the children DID.*

Based on these facts I propose that (57a) involves IS-related movements making the subject the most embedded, just as (57b) and (57c) do, but then lower copies of the verb and the object are pronounced to prevent T from being spelled out. This is not visible at the C-I interface, so the subject is interpreted as the least accessible and/or contrasted. When prosodic structures are built, only the highest copies are taken into account. This is why the subject receives the main stress, as expected, and the verb and the object are unstressed (it is widely recognized that the material following the shifted main stress is devoid of phrasal stresses, unlike the material preceding it).

## 5 Conclusions

This paper analyzes IS-related grammatical phenomena relying primarily on Russian data. In section 2, I argue that they encode relative accessibility and broadly conceived contrast (in other words, that these two notions are necessary and sufficient to account for them). By relative accessibility I mean specifying whether A is more or less accessible than B from the discourse context rather than whether A and B are given or D-linked etc., as it was done in the previous models. I go over various examples where A moves over B or the main stress is shifted when both A and B are given, but A was mentioned more recently, or when both A and B are new, but A is more predictable based on the world knowledge etc.

The notion of contrast subsumes emphasis, which can be shown to introduce a contrastive set by presenting something as (much) less expected, more exciting, appealing or dreadful etc. than some other possible alternatives. I analyze examples of movement or stress shifts associated with contrast inside the constituent identified as the focus of the sentence. Finally, I present several arguments against treating contrast as a property of some foci, i.e. against dividing foci into contrastive and non-contrastive.

In section 3, I take the proposal from section 2 to its logical end: I argue that topic

[8] For example, Bailyn (2003, 2004) argues that the object in (57c) is in the [Spec, IP], the verb raises to I and the subject remains *in situ*. In (self-identifying reference), I claim that the subject is in the [Spec; TP], while the object and the remnant *v*P containing the verb are in higher positions in the C domain. According to the standard analysis of (57b), it contains V-to-C movement, the object in the C domain and the subject in [Spec; TP].

and focus are not encoded in the grammar, although they closely correlate with certain grammatical phenomena and are very important for semantics and pragmatics. This is a welcome conclusion because encoding topic and focus has always been problematic. The main problem for topics is an extreme diversity of formal means associated with them, the main problem for foci is that they do not correspond to a syntactic constituent in some sentences. I demonstrate how grammatical phenomena traditionally associated with topic and focus (topic accents, association with operators like *only* or *even* etc.) can receive independent explanations.

Relative accessibility cannot be encoded by means of dedicated IS features like Top or F(oc), so in section 4 I opt for configurational IS models. Most of them view prosodic means of encoding as primary and derive syntactic phenomena from them, postulating movement into or out of the main stress position. I present several arguments for the primacy of syntactic means and develop an IS model relying on syntactic configurations. They are derived using edge features proposed in (Chomsky 2008) after certain modifications are introduced in this framework.

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