III.
Cognitive discourse analysis and applied linguistics

Cognitive discourse analysis: local discourse structure[1]

Andrej A. Kibrik, Institute of Linguistics of the Russian Academy of Sciences

1. Introduction

In this paper I propose a cognitively oriented analysis of Russian spoken discourse. The analysis suggested here builds upon the approach to discourse structure and grammar, developed in the collective monograph Kibrik and Podlesskaya eds. 2009, recently published in Russian. The empirical basis of the monograph is the first systematically transcribed corpus of Russian spoken discourse. The kind of discourse is personal stories – narratives told by children and adolescents about their night dreams; hence the name of the corpus – "Night Dream Stories". One of the main goals of that project was to design such a discourse transcription for the bulk of spoken language that would represent cognitive processes in the speaker. We reconstruct how thought unfolds in the course of online language production, and represent by means of a transcript how it gets converted into speech. Of course, in this short paper I can only address very few of the problems discussed in the mentioned study, so an interested reader is referred to the full text of the monograph.

I set three separate, even though closely related, goals for this paper. First, it is necessary to introduce cognitive discourse analysis as a linguistic discipline, since it is not as entrenched a field as, for example, cognitive semantics. In accordance with this goal, sections 2–4 are of a rather general nature. In section 2 I outline the main concerns of discourse analysis as a linguistic discipline. Section 3 lays out some specifics of linguistic study of spoken language. In section 4 basic assumptions of the cognitive approach to discourse are formulated. The second goal, central to this paper, is to formulate the main issues in local discourse structure, and this is done in section 5, beginning with the concept of elementary discourse unit. The third goal is to discuss more specific aspects of local discourse structure. Sections 6 and 7 treat two such aspects: subclausal discourse units and sentences. Main findings and further directions are discussed in the concluding section 8.

[1] This study has been supported by the Russian Foundation for the Humanities grant #08-04-00165a and by the Russian Foundation for Basic Research grant #09-06-00390a. The approach developed in Kibrik and Podlesskaya 2009 and employed in this paper was a joint venture with a group of colleagues, and I owe a lot to them – in the first place Vera Podlesskaya, as well as Nikolay Korotaev, Alla Litvinenko, Olga Savel'eva-Trofimova and others.

2. Linguistic discourse analysis

Discourse analysis is a huge interdisciplinary field (see Van Dijk ed. 1997, Schiffrin et al. eds. 2001, Renkema 2004, Biber et al. 2007, inter alia). A variety of disciplines, including linguistics, psychology, sociology, anthropology, and many others, contribute to discourse analysis. Here we are interested in *linguistic discourse analysis* – a part of linguistics belonging to the paradigm of constituent-oriented fields, such as phonetics/phonology, morphology, and syntax. Linguistic discourse analysis deals with linguistic constituents of the maximal, unlimited size, that is, whole discourses.

Linguistic discourse analysis has three main issues of concern (Kibrik 2003). The first question, usual in the study of any natural phenomenon, is the question of classification, or *taxonomy*: what types of discourse occur? The second question concerns the internal organization of discourse: what is its *structure*? The third question is: how is discourse related to more local, smaller-scale linguistic phenomena, or, more specifically, how *discourse factors influence such smaller-scale phenomena* (grammatical, phonetic, etc.)? It is useful to briefly overview these three parts of linguistic discourse analysis.

2.1. *Taxonomy of discourses*

There are several ways in which particular discourses can differ from each other. The first major taxonomy is based on the *mode* of discourse, that is, the opposition between spoken and written discourse. (Sometimes one also speaks about the internal mode of discourse (Vygotsky 1934/1994) and about the electronic mode (Herring 1996, Baron 2000), although the latter is actually a submode within the written mode.) A systematic comparison of spoken and written discourse began only in the last several decades, see Zemskaja et al. 1981, Chafe 1982, Miller and Weinert 1998. Written discourse is secondary to the oral use of language in all respects, and thus must be viewed as an adaptation of the basic features of language to the graphic/visual mode of presentation. In discourse studies it is useful to always control for whether data comes from spoken or written language use, as discourse processes may be sensitive to mode. Specifics of spoken discourse analysis are discussed in section 3 below.

The second central taxonomy of discourse is a classification into *genres* (Bakhtin 1953/1986, Swales 1990). Discourse genres are classes of discourses that correspond to certain standard communicative goals, typical of particular discourse communities. Discourse genres crosscut the modes: for examples, the genre of story can appear in the spoken mode and in the written mode, still being the same genre. Genres can be defined in terms of underlying genre schemata – templates that generalize the order of meaningful components, or "moves", in a

token of the given genre. For example, according to Chafe (1994:128), stories told by conversationalists follow the following schema: (a) orientation; (b) complication; (c) climax; (d) denouement; (e) coda.

It has been suggested sometimes that genres can be identified on the basis of their lexico-grammatical peculiarities. As the study by Biber (1989) has revealed, this is unlikely: from the point of view of lexico-grammatical characteristics, discourse of one genre can be very heterogeneous. Much more homogeneous are the so-called *passages* (see e.g. Longacre 1983, Smith 2003) – sections of discourses, such as narrative, descriptive, expository, argumentative, and instructive.

Other differences between kinds of discourse, cross-cutting the ones just discussed, relate to the so-called *functional style* and *degree of formality*. The notion of functional style, developed in Russian linguistics (see e.g. Solganik 2003, Dolinin 2004), is defined in terms of typical social domains, such as lay, official, commercial, political, learned, etc. Degree of formality depends on the kind of social relationship between discourse participants, including their relative status, gender, age, etc., and is closely related to the phenomena often subsumed under the notion of politeness (Brown and Levinson 1987, Scollon and Scollon 2001, Bergel'son 2007). Both functional styles and formality are reflected in many lexical, grammatical, and phonetic choices made by the speaker.

The diversity of discourse types is not exhausted by the distinctive features briefly discussed above. The variation of discourse is vast, and its comprehensive discussion is far beyond the goals of this paper. An overarching term sometimes used to capture all possible discourse types (identified on the basis of any or all of the distinctive features) is *register* – see for example Biber 2006. For a more detailed account of discourse taxonomy see Kibrik 2009.

2.2. *Discourse structure*

The second major issue in linguistic discourse analysis is discourse structure. It is useful to distinguish between the global and the local structure of discourse (van Dijk and Kintsch 1983). Global discourse structure is the segmentation of discourse into its immediate constituents or large chunks, such as *paragraphs* in an article (see e.g. Brown and Yule 1983) or *groups of adjacent and interrelated turns* in a conversation (Schegloff 1973). Local discourse structure is the structure consisting of minimal units that belong to the level of discourse; such *elementary discourse units* are discussed in detail in subsection 5.1 below.

There is of course no firm boundary between global and local discourse structures, these are simply two poles in a continuum. Thinking top down, global discourse structure is gradually broken into smaller and smaller units that eventually lead to the local structure. There are some frameworks that provide a

unified account for discourse structure, without making a strong distinction between global and local structure. One remarkable framework of this kind is *Rhetorical Structure Theory* developed by Mann and Thompson (1988), also see Taboada and Mann 2006, that represents discourse as a hierarchical network of nodes ranging from one clause to a large discourse chunk; nodes are connected by one and the same kind of discourse-semantic ("rhetorical") relations, irrespective of the size of the node.

2.3. *Influence of discourse factors upon smaller linguistic constituents*

Finally, the third central issue in discourse analysis is the influence of discourse factors upon more local, small-scale linguistic constituents: grammatical, lexical, and phonetic. There is a great variety of such discourse-driven, relatively local phenomena, including word order, choice between finite and non-finite verb forms, use of articles, use of connectors and other cohesion devices, discourse markers, location and direction of discoursal pitch accents, location and length of pauses, etc., etc. In addition, there are also non-vocal linguistic devices, in particularly illustrative gestures, that are also largely motivated by discourse context (McNeill 1992).

Influence of discourse factors upon small-scale linguistic phenomena can be described with the help of the theoretical notion of *choice* (Kibrik 2006). When a speaker is using language, grammar cues him/her to particular choices: which word order to use, where to place a discourse marker and which one, etc. Thus grammar actually is a system that guides speaker's choices. Some choices are relatively rule-based, whereas other choices are rather probabilistic. Discourse-related choices mostly belong to the latter kind: a certain option is not strictly required or strictly ruled out, and more than one option is to a certain extent permissible. One of the clearest examples of discourse-driven choice is *referential choice* – the choice of a lexically full vs. a reduced referential device when mentioning a referent in question; see Kibrik in press.

3. Study of spoken discourse

Linguistics is generally biased toward the study of written language (Linell 1982). This bias is due to several factors, including the ready availability of written language to analysis, as well as the cultural prestige of written word. It is obvious, however, that spoken discourse is the primary, fundamental form of language use. Spoken language is original both in philogeny and in ontogeny, many languages remain unwritten, and even in the most literate cultures people speak more that they write. Therefore, the reasonable design of the science of

language must be such that spoken language is studied in the first place, and only thereafter, on the basis of such study, writing is understood as a secondary adaption to the graphic medium. Linguists' knowledge of natural language is doomed to be incomplete and distorted if spoken language is not taken into account.

Scientific research in spoken discourse as a distinct kind of language use began in the 1970s and 1980s (e.g. Ochs 1979, Chafe ed. 1980, Chafe 1982, Biber 1988). There is a fair record of spoken language studies in Russian linguistics, see e.g. Zemskaja ed. 1973, 1983, Zemskaja et al. 1981, Lapteva 1976, Sirotinina 1974, Sirotinina ed. 2003, Miller and Weinert 1998, inter alia. Kibrik and Podlesskaya 2006, Kibrik and Podlesskaya eds. 2009 are cognitively oriented studies of spoken discourse, as it is produced by speakers in real time.

A technical problem immediately arising for anyone interested in spoken language is that, before any analytical study, it must be converted into a certain graphic form, or *transcribed*. An objective graphic rendering of spoken discourse is usually called *discourse transcription* (Du Bois et al. 1992, Edwards 1995, 2001, Makarov 2001 inter alia). There is no single correct kind of discourse transcription; different transcriptional systems vary greatly in terms of the number of phenomena they represent, and this depends primarily on transcribers' research goals. However, apart from the purely segmental, verbal component of talk, the elements typically addressed in discourse transcription include: pausing, prosody, disfluencies, division of the flow of speech into units and other aspects of local discourse structure. The most basic transcription conventions used below are summarized at the end of this paper; for a full presentation of discourse transcription employed here see Kibrik and Podlesskaya eds. 2009. For prior approaches to transcribing Russian speech see Zemskaja and Kapanadze 1978, Svetozarova et al. 1988, Kodzasov 1996b, Odé 2008.

In the remaining part of this paper I only discuss phenomena of spoken language, without mentioning this every time. Of course, this does not imply that written language is less prone to cognitive analysis. Also, of particular interest is a contrastive study of cognitive processes employed in speaking and in writing (see e.g. Chafe 1982, 1994).

4. Cognitive approach in discourse analysis

Cognitive linguistics is the study of how language relates to the human mind. Definitional for this line of research is the so-called *cognitive commitment*, formulated by Lakoff (1990:40). This is the commitment to coordinate linguistic research with what is known about mind and brain from the neighboring sciences also exploring cognition, in particular psychology and neuroscience.

Other important (and early) formulations of similar ideas in modern linguistics belong, inter alia, to Chafe 1974, Kacnel'son 1972, Zvegincev 1996 (written in the 1970s), A. E. Kibrik 1983, van Dijk and Kintsch 1983. Actual work done under the official heading of Cognitive Linguistics does not always live up to the standards of the cognitive commitment, but it seems that having this criterion in mind is extremely important. After all, boundaries between sciences are often accidental, arbitrary, of a historical nature, while the object of study – the mind – is one and undivided.

Language has two major functions and two corresponding modes of existence that can be called, using the computer metaphor, *on-line* and *off-line*. The on-line mode of language is communicative transfer of various kinds of information between individuals. The central phenomenon belonging to this mode is natural discourse, as it unfolds dynamically in real time. The off-line mode of language is information storage. One of the central phenomena characteristic of this mode is the relatively stable system of lexical semantics. Grammar is also often viewed in an off-line way, as a system of mappings between forms and functions.

Cognitive Linguistics, as an established trend of thought in modern science has mostly addressed off-line phenomena. This is true of the well-known work of Lakoff (1987) and Langacker (1987/1991) that is considered foundational for Cognitive Linguistics. Most of the time, the practice of Cognitive Linguistics has ignored natural discourse data and has not been interested in discourse phenomena. Two recent introductions to Cognitive Linguistics (Croft and Cruse 2004, Evans and Green 2006), 355 and 830 pages long respectively, do not mention "discourse" in their subject indexes. (Some exceptions to this tendency have been collected in Goldberg ed. 1996, van Hoek et al. eds. 1999; Németh ed. 2001.)

In turn, those practicing discourse studies quite rarely use explicit cognitive explanations of observed phenomena. For example, in the 851-page-long handbook Schiffrin et al. eds. 2001, terms containing the epithet "cognitive" appear on only 13 pages (according to the handbook's index, see p. 820); among these, cognitive linguistics and cognitive psychology are mentioned once each.

This mutual neglect of cognitive linguists and discourse analysts may suggest that the communicative on-line use of language somehow is "less cognitive" than information storage and conceptualization. But this is obviously false. Discourse is produced in and by a speaker's cognitive system, and a prerequisite for producing it is the speaker's normal assumption that the addressee will properly process it in his/her cognitive system. On-line linguistic phenomena are as cognitive as are off-line phenomena. Excluding discourse processes from the agenda of cognitive linguistics is not justified at all. The adherence of mainstream Cognitive Linguistics, as we know it, to off-line phenomena, is a mere historical accident, due to the genetic connection of its

founders to generative linguistics. Despite such limitation in scope, the crucial role of Cognitive Linguistics has been calling attention to cognitive explanation of linguistic phenomena as the central type of explanation.

In fact, the only way to adequately understand discourse processes is through understanding the underlying elements of the cognitive system, such as memory, attention, consciousness, knowledge representation, categorization, etc. Some remarkable examples of cognitively oriented explorations of discourse are provided by such studies as Chafe 1994 (a consistent account of discourse structure and a number of lexico-grammatical and prosodic phenomena as a reflection of information flow in the speaker's consciousness or working memory) and Tomlin 1995 (an experimental study building an important connection between the choice of grammatical subject and the cognitive process of attention focusing). The cognitive pespective is also characteristic of the work by Teun van Dijk, one of those responsible for the formation of discourse analysis as a discipline, see e.g. van Dijk and Kintsch 1983. Also see Nuyts 2007, Sanders and Spooren 2007 for recent discussions of cognitively-minded analyses of discourse.

In my earlier works (Kibrik 2001, Kibrik 2003) I proposed the research field that can be called *cognitive discourse analysis*. In those studies, as well as in this paper, I aim at demonstrating that cognitive discourse analysis is:

- as legitimate as the cognitive approach in semantics
- useful for both the cognitive linguistic agenda and the theory of discourse
- building new links with related disciplines, including cognitive psychology and cognitive neuroscience
- shedding light on fundamental cognitive phenomena such as memory, knowledge representation, on-line discourse planning, etc.

An interesting recent development, building links between cognitive linguistics, discourse analysis and psycholinguistics is a series of experimental studies by Olga Fedorova and her associates, see for example Fedorova et al. 2010. Studies by Fedorova are based on Russian discourse material and address such issues as referential choice, collaborative creation of understanding, and local discourse structure.

5. Local discourse structure: main issues

Like any natural phenomenon, discourse has a certain structure. Discourse structure is hierarchical and ranges from the level of micro-, or local, structure all the way to macro-, or global structure. In this paper I only concentrate on local discourse structure. The discussion of local discourse structure starts off with the notion of elementary discourse unit – a building block of spoken discourse.

5.1. *Elementary discourse units*

Local discourse structure, our central concern in this paper, consists of those units that can be considered minimal, or elementary, with respect to the level of discourse. Spoken discourse is produced not as a smooth flow, but as a series of *quanta* – or, in alternative wordings, segments, steps, portions, pulses, or spurts. Linearly discourse is organized as a sequence of such quanta. Segmentation into quanta is both a theoretical and a practical issue. Theoretically, it is of interest to understand what is the size of quanta and why it is the way it is, how boundaries between quanta are established, etc. From a practical point of view, criteria are needed allowing a transcriber to represent the quantized local discourse structure with a sufficient level of confidence.

In phonetically-oriented studies, quanta are variously called syntagms, intonational phrases, intonational groups, rhythmic groups, intonation units, prosodic phrases/units, etc. Shcherba 1955; Cruttenden 1986; Svetozarova et al. 1988; Chafe 1994: 57; Chafe 2001; Xitina 2004; Krivnova 2007; Stelma and Cameron 2007. In this paper, the quanta of discourse are termed *elementary discourse units (EDUs)*, after Kibrik 2000, 2001, Litvinenko 2000, Kibrik and Podlesskaya eds.2009; cf. also Carlson et al. 2003. I prefer this term because it emphasizes the constructional role of these unit with respect to discourse and because it provides a general framework for analyzing spoken and written language.

EDUs are identified primarily on prosodic grounds, including the following features (see Bryzgunova 1977, Nikolaeva 1977, Svetozarova et al. 1988: 146-147, Krivnova 1989, Levelt 1989: 308, Chafe 1994: 58-59):

– holistic tonal contour: most often in narrative discourse, beginning at the base fequency level characteristic of a given speaker's voice; rise; fall to the bottom of the speaker's frequency range
– presence of an accentual center: typically, a rhematic accent
– typical loudness pattern: lowering towards the end
– typical tempo pattern: acceleration at the beginning, deceleration towards the end
– typical pausing pattern: breathing/planning pauses at the boundaries, no pauses inside EDUs.

For more details on prosodic identification of EDUs see Kibrik and Podlesskaya eds. 2009: 57ff. Here I will only remark, by way of illustration, on one important feature from the above list: tempo pattern. Consider the following example from story 055z of the Night Dream Stories corpus[2].

[2] EDUs are represented in the corpus and in examples below as individual lines. On the left from the text of a EDU two numbers are indicated: time, in seconds, from the beginning

(1) 055z
5.8 6. ··(0.2) /Вышла с этой \ка-ареты',
7.1 7. ··(0.2) захожу в \ё-олку,

As is shown in Table 1, there is a significant deceleration towards the end of each EDU of this example. The final syllables of EDUs are up to two times longer compared to initial syllables. This effect has long been known to phoneticians and students of speech, see e.g. Bondarko 1977: 165, Zlatoustova 1981, Levelt 1989: 308, Krivnova 2007a inter alia, and it is among the major perceptual cues helping transcribers to identify EDU boundaries.

Table 1. Difference in the length of initial and final syllables in the two EDUs of example (1), in seconds

	First phonetic word	Average syllable length	Last phonetic word	Average syllable length
First EDU	вышла	0.08	кареты	0.17
Second EDU	захожу	0.14	в ёлку	0.25

There exists a remarkable congruence of physiological, cognitive, semantic, grammatical and prosodic aspects of EDU unity. Physiologically, an EDU is typically produced in one exhalation. Cognitively, an EDU is verbalization of one "focus of consciousness", to use the term of Chafe 1994. Semantically, an EDU typically reports about one event or state, and grammatically, typically coincides with a clause (see the next subsection). EDUs most often contain two, three, or four words – these kinds of EDUs comprise 53% of all EDUs in the corpus; EDUs of up to five words constitute 81% of all EDUs.

It appears that the quantized structure of discourse and its specific prosodic aspects have deep neurocognitive, behavioral and evolutionary roots. In interaction with a group of Moscow neuroscientists (led by Konstantin V. Anokhin), we have discovered close similarities between the patterns of speech and the patterns of much more basic, but nevertheless goal-oriented behavior, namely the exploratory movement of rodents in a new environment. This movement is also organized in quanta (spurts), and many features of such quanta are highly resemblant to what is known about speech: they are identified through initial acceleration and final deceleration (cf. the tempo pattern discussed above), they are targeted at an informationally rich goal (analog of rheme in discourse segments), they are separated by periods of freezing (analog of pauses in discourse), they may involve internal haltings, etc. (see e.g. Kafkafi et al. 2001, Mukhina et al. 2003). These facts suggest that this basic neurocognitive

---

of the story to the beginning of the given EDU; number of the EDU within the given story. On other transcription conventions see the list at the end of this paper.

structure is among the factors shaping EDUs as fundamental quanta of linguistic behavior. It is likely that language has evolved around the requirements imposed by the mammals' neurophysiology and basic cognition.

EDUs are the minimal steps in which discourse progresses. They prototypically coincide with clauses (Ford, Holmes 1978, Levelt 1989, Chafe 1994, Pawley and Syder 2000, Thompson and Couper-Kuhlen 2005, Kibrik and Podlesskaya 2006). In this respect discourse can properly be understood as a network of clauses. This is true of both spoken and written discourse. Provided that EDUs have a deep neurocognitive basis, a semantic clause must be about how much the human cognitive system can process in one step. Since external reality can be segmented into units of different size (Zacks and Tversky 2001), it is likely that the semantic extent of clauses adapted to the cognitively and neurophysiologically feasible capacity in the course of language evolution.

5.2. *Canonical and non-canonical EDUs*

A classification of EDUs into more and less canonical has been proposed in Kibrik and Podlesskaya eds. 2009: 367ff. In the following excerpt all eight EDUs are clausal:

(2) 056z
2.9 4. на /бал меня пригласили,
4.1 5. ···(0.5) а у меня нет –\пла-атья,
5.8 6. ···(0.8) значит ···(0.6) \думаю:
7.9 7. «/**Ба-ал** ну всё-таки!
8.6 8. \Как я \/пойду?»
9.4 9. ··(0.4) /\Ну-у /одела там /юбку короткую,
11.2 10. /пришла ,
11.5 11. а они там все в таких вот /юбках там-м,

The fact of correlation between EDUs and clauses has been identified for a variety of languages, including English (Chafe 1994: 65-66; Croft 1995: 845), Japanese (Iwasaki 1993), Mandarin (Tao 1996), Thai (Iwasaki 1996), Sasak (Indonesia; Wouk 2008), among others. In the Night Dream Stories corpus clausal EDUs constitute over two thirds of all standard[3] EDUs.

Among the clausal EDUs, the most numerous is the subset of *canonical* EDUs – those that contain a lexically full finite verbal predicate. They constitute 48.9% of all standard EDUs in the corpus. Clausal, but *non-canonical* EDUs include those with a non-verbal predicate (cf. lines 5, 7, 11 in example (2)),

[3] "Standard" EDUs are those that were produced by the main story teller (that is, not by the interviewer) and did not have any technical defects of recording. There are 3684 standard EDUs in the Night Dream Stories corpus.

those with a verb of being, as well as non-finite clauses. Frequencies of these three subclasses in the corpus are 12.1%, 6.0%, and 0.7%, respectively.

Further away from canonical EDUs are those that are not clausal. These can be divided into two big classes: short and long EDUs. *Short EDUs* are a sizeable (26.0%) and internally heterogenous group comprising the following subclasses:

– subclausal EDUs (13.5%)
– regulatory EDUs (6.4%)
– truncated EDUs (5.1%)
– special illocutions, such as forms of address, sound imitations, etc. (1.0%).

Subclausal EDUs are discussed in greater detail in section 6 below. Regulatory are those EDUs that consist exclusively of discourse markers, the most frequent of which is the particle *вот*, see Kibrik and Podlesskaya eds. 2009: 146ff. Truncated EDUs are primarily false starts, resulting from the cognitive process of speaker's self-monitoring: when a speaker discovers that the EDU s/he is producing turns out infelicitous, s/he drops it without concluding and, typically, rephrases it anew (Podlesskaya and Kibrik 2006). What all short EDUs have in common is that the propositional content they convey is less than what is conveyed by an individual clause.

An opposite deviation from canonical EDUs is found in *long EDUs* – those that convey more propositional content than a typical clause. Long EDUs constitute 6.3% of all standard EDUs in the corpus. Reasons leading to the formation of long EDUs are diverse and include verb serialization, verb reduplication, infinitival constructions, epistemic and quotative constructions, etc.; see chapter 7 of Kibrik and Podlesskaya eds. 2009.

5.3. *Prosody*

There are many aspects of prosody that are immediately relevant to local discourse structure. The first phenomenon that can tentatively be included into the realm of prosody is pausing. *Pauses* are periods of time within speech when no verbalization occurs. There are two major classifications of pauses. According to the first one, there exist boundary and internal pauses. Boundary pauses occur at the beginnings of EDUs; cognitively, these are periods when the given EDU is being planned; see e.g. Goldman-Eisler 1972; Levelt 1989: 257ff. Internal pauses are much less frequent (1222 occurrences in the corpus, as opposed to 2304 boundary pauses) and are due to certain difficulties a speaker experiences in the course of EDU production, usually interpretable as hesitation. The second classification distinguishes absolute pauses from filled pauses. Filled pauses consist of an oral (shwa-type) or nasal (*m*-type) sound, or glottal creak. Filled pauses are generally due to hesitation in speech production. Example (3) demonstrates a canonical structure: absolute boundary pauses, not internal

pauses. Example (4) illustrates a less canonical situation: a filled boundary pause and several internal pauses, both absolute and filled.

(3) 001z
1.9 3. ··(0.4) /Зайчик вот,
3.0 4. ··(0.4) он был в \лесу.
4.6 5. ····(1.2) А /я была у \р-речки.

(4) 101n
44.9 20 ээ(0.3) ’и когда я \хочу ···(0.7) мм(0.2) ’’’(0.6) уже /\нажать
. на кнопку /лифта,

Some words in discourse are pronounced more prominently than others – this phenomenon is known as discourse *accents*; see Shcherba 1955, Ceplitis 1974, Nikolaeva 1982, Kovtunova 1976, Kodzasov 1996c, Janko 2001, 2008, inter alia. For example, in (5) out of six words only two bear accents:

(5) 115n
16.9 13. у нашего /подъезда пожарная \машина стоит.

The use of accents is attributed to the cognitive function of new information in studies such as Chafe 1994 and Kodzasov 1996c; other authors, for example Janko 2008, prefer to connect accents primarily to communicative dynamism (theme vs. rheme) and syntactic factors.

Accents are typically realized in conjunction with pitch, that is, directed tone movement on the accented syllable. For example, in (5) the first accented word bears a rising tone and the second a falling tone. Direction of tone is closely connected to the discourse-semantic category of phase, discussed in the next subsection.

Among the accents present in a given EDU one accent typically has a privileged status. It is located on the word or constituent conveying the most important piece of information. This kind of accent can be called primary. In (5), for example, there are two accents, and the second of them is the primary one, as the communicative goal of this EDU is to introduce that firefighters’ vehicle. In the first approximation, primary accent is associated with what is known as rheme.

Further kinds of prosodic phenomena, related to local discourse structure, include tonal register, accelerated tempo of speech, phoneme lengthening, phonetic reduction and others; see chapter 8 of Kibrik and Podlesskaya eds. 2009.

5.4. *Phase*

Kodzasov (1996a, 2002) introduced the important notion of phase. *Phase* is a discourse semantic category describing a discourse unit's relationship to its environment. Most generally, the meaning of phase can be formulated as 'non-final' vs. 'final'. A given discourse constituent can be either final or non-final, that is, creating an expectation of continuation. Similar notions have been used by other authors, including "transitional continuity" in Du Bois et al. 1992, textual (in)completeness in Bryzgunova 2003: 895, Janko 2006; the status "open" in Cruttenden 1986.

The rather abstract semantic category of phase can be observed at three hierarchical levels. At the highest level of communicative exchange one can think of illocutionary phase. For example, question is a non-final illocutionary act, calling for a continuation, while response is a final illocutionary act. (Cf. the notion of adjacency pair in Conversation Analysis, see e.g. Levinson 1983: 303ff., and the notion of illocutionary coercion in Baranov and Krejdlin 1992.)

The second-level phase distinction is observed within one illocutionary act – it is a relationship between individual EDUs. An EDU can be either non-final or final within an illocutionary act or sentence (see section 7 below).

Finally, elements of one EDU, such as theme and rheme, are also in the phasal non-final vs. final relationship.

The unity of phase as an abstract semantic category at all of these different levels can be seen due to an identical prosodic manifestation: 'final' is typically encoded by means of a falling pitch accent, and 'non-final' by means of a rising pitch accent. The meaning 'non-final' is associated with the rising pitch accent not inherently, but due to the principle of mirror-image anticipatory adaptation: given that a falling accent is anticipated on the forthcoming final element, the non-final element receives a rising accent by way of automatic adaptation.

Particularly important for local discourse structure is the intermediate-level phase, characterizing individual EDUs as final or non-final. Prototypically, rising pitch accent is combined with the EDU's primary accent, even though such combination is not always the case; see Kibrik and Podlesskaya eds. 2009: 161ff.; Janko 2008: 128-170.

Example (6) below contains a typical example of EDU-level phase: the clausal EDU in line 4 is illocution- (or sentence-) final and, accordingly, contains a falling primary accent (the so-called "period intonation"), while clausal EDUs in lines 2 and 3 are non-final and thus contain rising primary accents (prototypical "comma intonation").

(6) 051z
0.5 2. ....(1.0) мм(0.2) ..(0.4) /сплю я,
2.6 3. 'и /вижу,
3.3 4. ..(0.2) как ...(0.8) мм(0.1) ...(0.9) две-е /женщины какие-то
..(0.1) в /складе в каком-то ложатся \спать.

The importance of phase and its relationship to the notion of sentence is further discussed in Section 7.

6. Retrospective subclausal units

As has been mentioned in subsection 5.2, the most common type of short EDUs are *subclausal EDUs*. These are EDUs characterized by the following features:
– they convey propositional information
– they do not constitute a whole clause
– they are semantically and linearly attached to a certain clausal EDU, here called *base clause*.

Subclausal EDUs are highly frequent and discourse, but relatively little attention has been paid to them in the literature. For this reason it make sense to discuss them here in some detail.

There are three subtypes of subclausal EDUs. The first of these result from the phenomenon of *split* — division of a clause into two EDUs due to a foreign EDU wedging between these two parts. For example, in (7) a relative clause wedges between the subject and the predicate of the clause undergoing split:

(7) 108n
80.0 42. ···(0.5) {ЧМОКАНЬЕ 0.1} ··(0.3) *А /потом вот эти /девочки*
— —
82.0 43. которые \стояли’ около \двери,
83.6 44. — ···(0.6) ээ(0.1) /вошли ,

There are 44 instances of split in the corpus, and in each instance two subclausal EDUs emerge.

The second subtype of subclausal EDUs are *prospective* subclausal EDUs, or *topics*. An example can be seen in (3) above: the base clause is found in line 4, and the prospective topic in line 3. Topics are infrequent in the corpus: only 20 occurrences are found in the corpus, constituting 0.5% of all standard EDUs; see Kibrik and Podlesskaya eds.2009:108–114.

Much more common (433 instances, or 11.8% of all standard EDUs) is the third subtype of subclausal EDUs: *retrospective* subclausal EDUs. Contrary to topics, retrospective subclausal EDUs follow the base clausal EDU, for example:

(8) 001z
62.8 34. ··(0.3) и они \спали там.
64.0 35. ···(0.7) На \коврике.

Three kinds of retrospective EDUs can be differentiated: echo, increment, and parcellation. I will consider each of these kinds in turn.

6.1. Echo

Echo is a retrospective *elaboration on a realized constituent* of the base clause, for example:

(9) 007z
13.9 7. И /я <\враз> ··(0.2) /подо-ошёл к нему,
15.9 8. ··(0.4) *ну к этому /дереву*,
17.4 9. у которого /сверкало чего-то,

The base clause in line 7 contains an anaphoric pronoun. After the clause has been produced, the speaker judges the pronoun infelicitous: apparently, the referent is not activated enough to be recoverable for the addressee. For this reason the speaker volunteers a retrospective subclausal EDU in line 8 (with a further elaboration by means of a relative clause) that specifies reference. The phenomenon of echo chiefly results from the cognitive process of self-monitoring that is constantly performed by the speaker (Levelt 1989). However, sometimes a pre-planned echo construction is used, for example in the case of lists following a head word, or in the case of contrast, as in (10):

(10) 119n
113.9 96. «\Поведу,
114.3 97. только сегодня не в /тренажёрный зал,
115.4 98. а в \бассейн.»

A classification of the types of elaboration, provided by echos, was proposed in Savel'eva-Trofimova 2008 and Kibrik and Podlesskaya eds. 2009: 116-119. These types include: specification (providing additional information about the concept in question); anti-specification (opting for a more general description than in the base clause); modification (using a synonym or another analogous concept); contrast (replacing the concept in question by an alternative one, as in (10)); antitopic (providing a lexically full description instead of a reduced referential device, as in (9)).

6.2. Increment

Unlike echo, increment is *addition of a constituent* that was not present in the base clause. In the increment construction, a speaker completes a clausal EDU and subsequently realizes that some necessary semantic element is missing from that clause. S/he then "pretends" that the clause was not actually completed and

supplies such an additional element in the form of a subclausal EDU. One example of increment was already shown in (8) above. Cognitively, increment is possible if two requirements are satisfied. First, the speaker's production program calls for verbalizing a certain semantic element, closely connected to that implemented in the already produced clausal EDU. Second, such additional information can possibly be built in the given clausal structure. The speaker takes advantage of such compatibility and produces an annex to the previously produced clause.

Most often, the added element is an adjunct, as in (8). The second most common kind of increment is an attribute, as in (11):

(11) 054z
16.9 11. ···(0.8) /Потом ··(0.2) нам встретился какой-то /мостик,
19.5 12. ···(0.6) очень ··(0.2) ' /\узенький,

More rarely, an argument is added to a clause – in such cases the predicate's valency structure is reinterpreted. There are also instances of adding a verbal predicate (nominal predicate is then reinterpreted as a subject) or a particle; see Kibrik and Podlesskaya eds. 2009: 121-122.

6.3. Parcellation

Very similar to increment in formal structure, but distinct from it cognitively is the phenomenon of parcellation. Parcellation happens when a speaker has planned a clausal structure that is too complex, especially in terms of the number of new concepts. Chafe (1994: Ch. 9) has formulated the *one new idea constraint*, according to which a normal EDU should not contain more than one element of new (previously non-activated) information. When a clausal structure with two or more new elements has been planned, a speaker can relieve his/her own as well as the addressee's cognitive tasks, spacing the new elements into separate EDUs. This is what happens in (12), where an adjunct is verbalized as a separate parcellated EDU:

(12) 038z
53.1 24. и я \проснулˆся,
54.0 25. на /\самом там-м ··(0.2) интересном –месте.

Increment and parcellation, even though resembling each other in formal structure, result from two different cognitive processes: post-hoc addition of a component vs. planned division of a clause, respectively. There exist several criteria helping to tell increment and parcellation apart. First, prosodic properties of the base EDU often demonstrates that no continuation was originally intended,

especially if that EDU was pronounced with the "period intonation". Second, the length of boundary pause is important: a null pause strongly suggests that the division was a planned one, while a lengthy pause (0.5 second or longer) is a point in favor of increment. Third, a filled hesitation pause at the beginning of the added component witnesses against the planned parcellation interpretation. Fourth, using an extra EDU between the base clause and a retrospective subclausal EDU suggests that we face an instance of increment. These and other criteria, in conjunction helping to distinguish increment from parcellation with a high degree of certainty, are discussed in greater detail in Savel'eva-Trofimova 2008 and Kibrik and Podlesskaya eds.2009:123-125.

The quantitative data on retrospective subclausal EDUs are provided in Table 2.

Table 2. Types of retrospective subclausal EDUs and their frequencies in the Night Dream Stories corpus (after Kibrik and Podlesskaya eds. 2009: 139)

	Number	Percentage of all standard EDUs
Echo	178	4.8
Increment	149	4.0
Parcellation	97	2.6
Unclear instances	9	0.2
TOTAL	433	11.8

Generally, retrospective subclausal EDUs constitute a highly salient feature of Russian spoken discourse. Apparently, cognitive conditions leading to the formation of such EDUs occur regularly in the course of discourse production. Retrospective subclausal EDUs deserve much higher attention than has been given to them both in discourse studies and in Russian grammar.

7. Is the notion of sentence valid in spoken discourse?

The notion of sentence is among the most central notions in linguistics. Typically, it is explicitly or tacitly assumed to be a basic linguistic unit. This is characteristic of many integral theories of language, and this view is usually borrowed by non-linguists speculating about language. However, if looked at critically, the notion of sentence is difficult to identify in spoken language – the primary form of language use. Spoken language does not contain obvious marks of sentence boundaries, such as periods or question marks. So a series of questions emerge: Does sentence exist in spoken language at all? If yes, how it can be identified? If not, how is it possible that sentence has become such a salient phenomenon both in written language and in linguistic theory?

I address these questions in this section; see Kibrik 2008a for more detail. Note that the validity of sentence is discussed here not in general, but only with

respect to one type of discourse: personal stories. Stories are homogeneous in terms of illocutionary function – they are declarative. An intriguing question is whether speakers divide stories into sentence-type units, each of which belongs to the declarative illocutionary function.

As has been pointed out in subsection 5.3, there is a crucial difference between two prosodic patterns: rising and falling primary accents in EDUs. Example (6) provided there illustrates this difference clearly. If stories consisted of sequences such as (6) alone, the notion of sentence in this discourse type would be uncontroversial. It would be natural to propose that every EDU with a falling primary accent concludes a sentence, while EDUs with a rising primary accent are non-final. However, the actual picture is more complex: there are instances of falling primary accent that cannot be judged final.

7.1. *Non-final falling*

As the evidence of the Night Dream Stories corpus demonstrates, speakers systematically contrast two kinds of falling primary accents. Apart from the final falling, as in line 4 of example (6), there are clearly distinct occurrences of non-final falling. Like the rising primary accent, *non-final falling* conveys the discourse-semantic function of non-final phase. Consider an example:

(13) 009z

0.0 1. >>гда-а ··(0.1) ’’(0.1) ··(0.4) ’’(0.1) ’А-аня ··(0.2) забирала меня из детского /с-с<u>а</u>дика,

4.5 2. /мы с= || ехали на \авт<u>о</u>бусew.

6.6 3. ···(0.6) /Я /первая села в \авт<u>о</u>бус.

9.8 4. ···(0.6) А /тогда уже д= || ··(0.1) закрывались \дв<u>е</u>ри,

12.8 5. ··(0.1) и /’Аня не –успела \с<u>е</u>сть.

14.8 6. ···(0.7) Иw мм(0.4) /\когда-а ··(0.2) ’’(0.3) ··(0.4) {ЧМОКАНЬЕ 0.2} ··(0.4) когда я приехала на нашу /остан<u>о</u>вку’,

In this excerpt, lines 1 and 6 are instantiations of the canonical comma intonation – the rising primary accent, while lines 2, 3, and 5 contain the standard period intonation – final falling. Line 4, however, demonstrates an instance of non-final falling; note the comma mark at the end of that line. A speaker of Russian “feels” that the kind of falling in line 4 of (13) is qualitatively different from final falling, it is somehow “less final”.

Non-final falling is frequent in spoken discourse – its frequency is commensurable with that of the canonical comma and period intonations. In the Night Dream Stories corpus, there are 960 instances of the rising primary accent, 748 instances of final falling, and 557 of non-final falling. These facts call the

validity of sentence into question: if one cannot establish sentence boundaries on the basis of the direction of pitch, perhaps this notion becomes ephemeral.

However, in the remaining part of this section I argue that the notion of sentence can still be rescued, at least as a prototype. I first discuss the discourse contexts in which non-final falling occurs and then the prosodic criteria that allow one to distinguish the two kinds of falling.

7.2. *Discourse contexts of non-final falling*

The first, and the most specialized, context of non-final falling can be called *anticipatory adaptive falling*. It is a falling that adapts, in a mirror-image fashion, to the subsequent rising intonation. One example is found in the following:

(14) 064n
7.5 4. ····(1.8) Когда я \ус-слышала,
10.9 5. ···(0.6) что-оо /бомба гремит,
13.0 6. ····(1.8) то \я /побежала к командиру,
16.7 7. и \сказала это.

In this example, line 5, as well as line 6, contains a rising accent, adapting to the final falling in line 7. And the non-final falling in line 4 is a mirror-image adaptation to the rising accent in line 5, as these two lines form a syntactic group – an adverbial clause. Mirror-image adaptive fallings of this kind are a subcase of a more general behavior associated with the notion of phase, see subsection 5.4.

Much more common in the corpus are those instances of non-final falling that are due to the discourse construction that can be called *inset*. Inset is a temporary deviation from the main line of exposition pursued by a speaker. Suppose there is a sequence of EDUs X+Y+Z, such that X and Z a part of the main line, while Y is a specification of X. In such discourse contexts Y typically plays the role of inset. In terms of Rhetorical Structure Theory (Mann and Thompson 1988), X and Z in a story are usually connected by the symmetric relation such as sequence, while Y is attached to Z by an asymmetric relation such as elaboration. Insets vary along a number of parameters, including the size of Y (it can be subclausal, clausal, and multiclausal); see Kibrik, Podlesskaya In press; Kibrik and Podlesskaya eds.2009:140ff. For our current purposes it suffices to say that, most often, insets are prosodically marked as non-final fallings. In example (15) inset in line 2 is a subclausal specification to line 1 that is connected to line 3, belonging, together with it, to the main line of narration:

(15) 032z
0.0 1. /Входит это ···(0.5) /\ма-аль↑чик,
2.1 2. ’ ··(0.1) ’ ··(0.1) /\ну к \другому,

3.5 3. ··(0.1) *и \говорит*:

The following discourse context, in which non-final falling is instantiated, is *stepwise falling*. This is a situation in which a speaker targets a final falling as the goal of the structure s/he is producing, but reaches this goal in two or more steps. If a given EDU is a part of such a sequence but not its last element, non-final falling is observed. Two such instances are found in the following excerpt:

(16) 059z
0.8 2. ····(1.6) /\Озеро ···(0.5) \какое-то,
4.2 3. ··(0.3) (*Или /\речка*,
5.0 4 *или /\озеро*,
5.4 5. *но по-моему \озеро*,
6.2 6. потому что-о ··(0.2) как-тоw ···(0.6) **маленькое** такое,
8.8 7. \небольшое.)
9.7 8. ····(1.0) /\и-ih ···(0.7) через /него ··(0.3) как-то **бревно** какое-то,
13.8 9. типа \моста.

In (16), final fallings are found in lines 7 and 9. In the preceding parts, lines 5–6 and line 8 respectively, the speaker is preparing to this end, using the non-final falling prosody.

Still another type of non-final falling is found in the contexts that can be dubbed *underconfident falling*. This happens when a speaker, while producing an EDU, is planning a final falling, but changes his/her mind at the last moment and opts for a non-final prosody. Several examples of this behavior, particularly evident in lines 6 and 11, can be seen in (17):

(17) 041z
11.1 5. ···(0.9) /Мы встали на большой /плот,
13.3 6. ··(0.4) /и –переехали на другую \сто↑рону,
15.5 7. ····(1.1) /потом ····(1.6) /мы /вышли из \две↑ри,
19.8 8. ···(0.6) (**Там была /дверь*,
21.1 9. ···(0.8) *такая \/жёлтая*,
22.5 10. ···(0.5) мы \откры↑ли её,
24.0 11. ····(1.3) и \вы↑ли,
26.0 12. ····(2.5) и /мы ···(0.5) оказались на-а ··(0.1) /\ярмарке.

In the instances of inset, stepwise falling and underconfident falling, it is impossible to determine whether the sentence is completed relying on semantic or morphosyntactic criteria. So it is necessary to resort to prosodic diagnostics.

7.3. *Prosodic criteria*

There are several prosodic criteria helping to tell final and non-final falling apart. The first of these is *target frequency level*. In final falling, a speaker tends to eventually bring the EDU's tonal curve to the bottom of his/her voice's comfortable tone range. In contrast, in non-final falling the target frequency level is significantly higher – generally 2 to 4 semitones above the bottom level. Good examples of this criterion's application are found in (16) cited above. Fig. 1 shows the oscillogram and the tonogram corresponding to lines 5–9 of that excerpt.

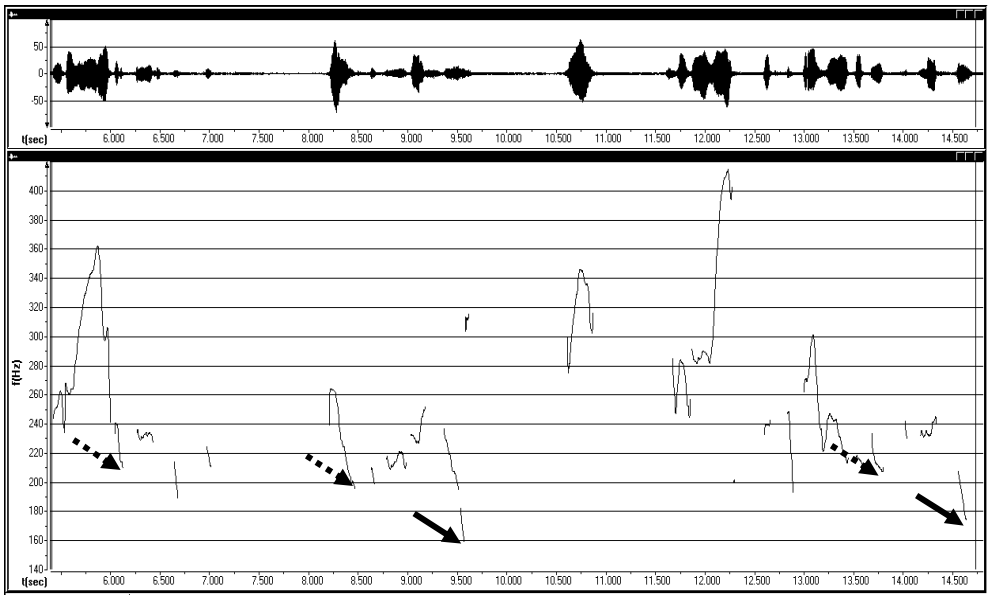

Fig. 1. Target fequency levels of fallings in lines 5–9 of example (16)

As can be seen in Fig. 1, final fallings in lines 7 and 9 are targeted at the level of 200 to 210 Hz, while non-final fallings in lines 5, 6, and 8, to the level between 160 and 170 Hz. In terms of semitones, the distance between these two levels, or bands, is between 2.5 and 4 semitones. In most speakers, target frequency levels corresponding to the two kinds of falling are clearly contrasted and can be identified with a high degree of confidence.

The second most important criterion is that of *post-accent behavior*. Many speakers, when producing a non-final falling, occasionally use the prosodic pattern that can be called V-curve: after the falling on the accented syllable the tonal curve rises and goes several semitones up; several examples of this behavior were found in (17) above. This is contrasted to final falling, in which lowering of the tonal curve steadily continues on post-accent syllables. An example of such contrast can be seen in (18):

(18) 025z
20.4 8. ····(5.7) /домикh ···(0.6) был /около \р<u>е</u>ч↑ки,
28.7 9. ····(3.3) /рядом были \–родник-к<u>и</u>,
33.6 10. ··(0.4) и \–л<u>е-е</u>с.

Acoustic graphs corresponding to (18) are found in Fig. 2.

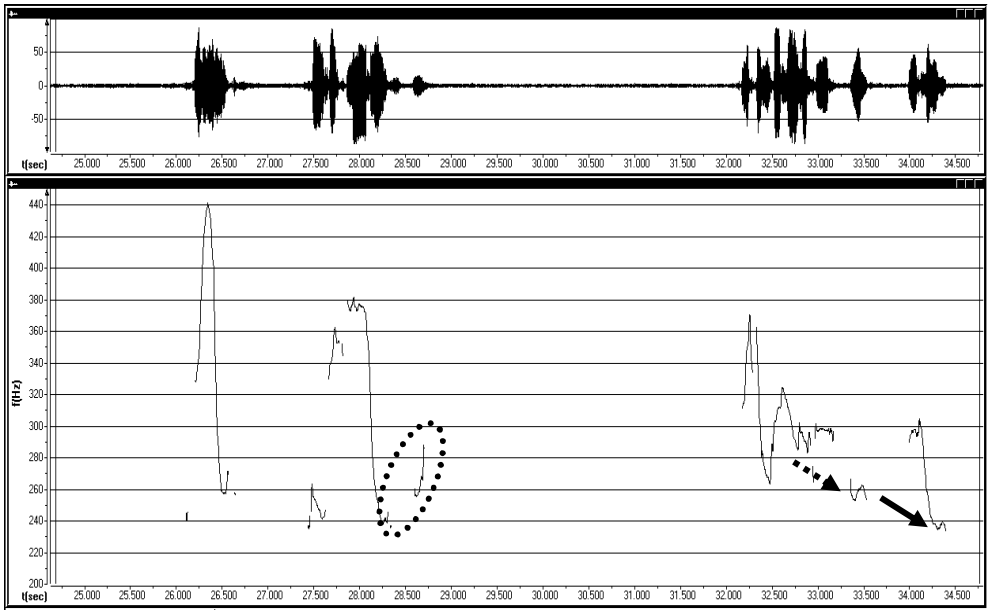

Fig. 2. Three fallings in (18)

In Fig. 2, a final falling to the level of 230 Hz is observed, and two instances of non-final falling: the falling in line 9 is of an already familiar kind – it differs from the final falling in being targeted at a level about 20 Hz higher. The falling in line 8, in contrast, is targeted at the level indistinguishable from that of the final falling, but there is a curve going 50 to 60 Hz up on the post-accent syllable.

These two major criteria help to tell final and non-final falling apart in the vast majority of instances. Sometimes additional criteria must be drafted, including the pausing pattern, tonal reset vs. latching at the beginning of the following EDU, steepness of falling, interval of falling, and the character of pitch accent; see Kibrik 2008a; Kibrik and Podlesskaya eds.2009: 159–160.

Thus a decision on the kind of falling observed in a particular instance must be made on systematic prosodic grounds. A discourse analyst should explore a given speaker's prosodic system (see Kibrik 2008b) and identify, in particular, his/her target frequency level in final fallings.

7.4. *The status of sentence*

Identification of non-final falling as a standard prosodic and discourse-semantic pattern allows one to maintain the validity of the notion of sentence in spoken language, at least in monologic narrative discourse. Speakers "know" when they are completing a sentence and when they are not, even though in both of these situations they can employ the falling intonation.

We can thus conclude that sentence is a viable notion with respect to the spoken form of language use. However, identification of sentence boundaries is possible only on the basis of a complex analytical procedure, involving construction of a given speaker's prosodic "portrait". In addition, between the prototypes of final and non-final fallings there exist intermediate instances, which makes sentencehood a matter of degree. Therefore, sentence, albeit relevant in spoken language, is a rather elusive, intermediate and non-basic linguistic unit.

This conclusion is further corroborated by high variability of sentences in terms of their content (Kibrik and Podlesskaya eds. 2009: 100). The most frequent kind of sentences consist of one EDU, but these constitute only 39% of all sentences in the corpus (442 out of 1128). Frequency of longer sentences monotonously decreases, all the way to the longest sentence consisting of 30 EDUs. Apparently speakers have significant freedom in the length of sentences they produce – much more freedom than the length of EDUs in words. As has been shown by Korotaev and Kibrik (2008), there is also a great variation between speakers in what length of sentences they prefer: some speakers prefer short, one-EDU-long, sentences, while others follow the clause-chaining strategy (Longacre 1983), in which a whole story is produced as a single sentence.

What is the function of sentence, why do speakers need them at all, especially in the kind of discourse that is homogeneous in terms of illocutionary function? Most likely, the main cause is the intention to ease both a speakers' and an addressee's cognitive processing. Sentences are useful as an intermediate node, potentially larger than a single EDU but shorter than a story's episode. This explanation is probably compatible with the hypothesis by Chafe (1994: 148), according to which the cognitive basis of sentence is the "superfocus of consciousness" – a volume of information exceeding the cognitive limits of simultaneous activation but allowing processing in the semiactive state.

8. Conclusions

In the scientific enterprise known as "Cognitive Linguistics" studies of discourse are not particularly salient. This applies to Slavic cognitive linguistics as well. In this paper I have attempted to outline a research agenda for cognitive discourse analysis.

Discourse analysis is a linguistic discipline addressing three major issues: taxonomy of discourses, discourse structure, and discourse factors of more local linguistic phenomena. This paper has dealt with the second of these issues, namely discourse structure. More specifically, local discourse structure has been discussed. Empirical evidence used here is spoken language; this paper is based on the materials of the systematically transcribed corpus of spoken Russian known as Night Dream Stories (Kibrik and Podlesskaya eds.2009). Analyses proposed here are cognitive in nature: observable linguistic phenomena are explained in terms of cognitive processes, such as on-line production, local planning, self-monitoring, etc. I argue that the cognitive approach is just as important and necessary in discourse studies as it is in the research on off-line semantic phenomena.

The most basic notion around which local discourse structure revolves is elementary discourse unit (EDU). EDUs are minimal steps by which speakers push discourse forward. They can be defined at a variety of levels, including physiological, cognitive, semantic, grammatical, and prosodic, and the remarkable convergence of these aspects suggests that EDUs are truly foundational in the organization of language. Moreover, EDUs have evolutionary precursors in animals' non-linguistic goal-directed behavior. It is very likely that the semantic and grammatical phenomenon of clause emerged as a linguistic adaptation to the quantized character of behavior.

Canonical EDUs are clauses with a finite verbal predicate, and they constitute about one half of all EDUs in discourse. Non-canonical EDUs are necessarily heterogeneous. In particular, there are short EDUs (smaller than a clause) and long EDUs (larger than a clause). Special attention has been given to one subclass of short EDUs – the so-called retrospective subclausal EDUs. This kind of EDU is highly frequent in discourse, but not in linguistic analyses. A cognitively motivated classification of retrospective subclausal EDUs has been proposed, including echo, increment, and parcellation.

Increment and parcellation both encode elements that semantically fit within the preceding clausal EDU but are cognitively distinct. Parcellations result from low-level discourse planning and occur when a planned clausal EDU turns out informationally overloaded; this relates to Chafe's (1994) "one new idea constraint". In contrast, increments appear not due to planning but rather to speaker's monitoring of the produced speech: when the speaker assesses the already constructed clause as informationally insufficient, s/he adds, by means of a post-hoc amendment, an additional element of propositional information.

Apart from the division into EDUs, other crucial aspects of local discourse structure include discoursal prosody (pausing, accents, direction of pitch in accent, etc.) and the discourse semantic category of phase. Particularly important is the phasal characterization of EDUs as final or non-final in the discourse configuration currently produced. This relates to the question of the

validity of sentence with respect to spoken discourse. Although canonically there is a prosodic contrast between final (falling primary accent) and non-final (rising primary accent) EDUs, the actual situation is significantly more complex. Instances of non-final falling occur with a high frequency in discourse, and this calls the notion of sentence into question.

Non-final falling occurs in several typical discourse contexts, such as the use of insets or stepwise movement to final falling. In order to identify sentence boundaries in such instances, one need to employ prosodic criteria. It turns out that these criteria, in the first place target frequency level and post-accent behavior, help to discriminate between final and non-final fallings in the great majority of instances. This suggests that the notion of sentence remains valid in spoken language, at least as a prototype, even though prosodic appearance of non-final EDUs may differ strongly.

Still the notion of sentence must be recongnized as a complex and secondary unit. Speakers have a nearly unlimited freedom in the length of sentences they produce, and various speakers employ different strategies in this respect. The underlying function of sentence is to ease cognitive processing in discourse production and comprehension by forming an intermediate hiearchical level between EDUs and more global discourse units.

The most general claim of this paper is that the cognitive approach is a necessary prerequisite for a proper understanding of discourse, as it is produced by a speaker in real time.

Conventions of discourse transcription[4]

Notation	Discourse phenomenon
··(0.1), ····(1.0)	Absolute pauses (length in seconds)
мм(0.3), эээ(0.6), ’’(0.1)	Filled pauses (length in seconds)
/	Rising accent
\	Falling accent
–	Level tone accent
/\, \/, /– etc.	Accent with a complex tone
a	Primary accent of an elementary discourse unit (EDU)
↑	Rising of tone curve after the primary accent of a non-final EDU
.	Declarative, final phase
,	Non-final phase
—	Boundary of a split
в \дер<u>е</u>вне у меня \было так	Lowered tonal register
вокруг	Accelerated tempo
говорит	Reduced pronunciation
{ВЗДОХ}, {ЧМОКАНЬЕ} и т. п.	Non-speech sounds, produced by a speaker

[4] This is a partial list of conventions – only the most frequent ones are included. For the full list refer to Kibrik and Podlesskaya (eds.) 2009.

References

Bakhtin, Mixail M. 1953/1986. Problema rechevyx zhanrov [The problem of speech genres]. In Mixail M. Bakhtin (ed.), *Literaturno-kriticheskie stat'i.* Moscow: Xudozhestvennaja literatura, 428-472.

Baranov, Anatolij N. & Grigorij E. Krejdlin. 1992. Illokutivnoe vynuzhdenie v strukture dialoga [Illocutionary coercion in the structure of dialogue]. *Voprosy jazykoznanija* 1992(2). 84-99.

Baron, Naomi. 2000. *Alphabet to email: How written English evolved and where it's heading.* London: Routledge.

Bergel'son, Mira B. 2007. *Pragmaticheskaja i sociokul'turnaja motivirovannost' jazykovoj formy [Pragmatic and sociocultural motivation of linguistic form].* Moscow: Universitetskaja Kniga.

Biber, Douglas. 1988. *Variation across speech and writing.* Cambridge: Cambridge University Press.

Biber, Douglas. 1989. A typology of English texts. *Linguistics* 27. 3-43.

Biber, Douglas. 2006. *Dimensions of register variation: A cross-linguistic comparison.* Cambridge: Cambridge University Press.

Biber, Douglas, Ulla Connor, & Thomas A. Upton. 2007. *Discourse on the move: Using corpus analysis to describe discourse structure.* Amsterdam: Benjamins.

Bondarko, L.V. 1977. *Zvukovoj stroj sovremmennogo russkogo jazyka [The sound system of modern Russian].* Moscow: Prosveshchenie.

Brown, Gillian & George Yule. 1983. *Discourse analysis.* Cambridge: Cambridge University Press.

Brown, Penelope, & Stephen C. Levinson. 1987. *Politeness: Some universals in language usage.* Cambridge: Cambridge University Press.

Bryzgunova, Elena A. 1977. *Zvuki i intonacija russkoj rechi [Sounds and Russian intonation].* Moscow: Russkij jazyk.

Bryzgunova, Elena A. 2003. Intonacija i sintaksis [Intonation and syntax]. In: V.A.Beloshapkova (ed.) *Sovremennyj russkij jazyk.* Moscow: Azbukovnik, 869-903.

Carlson, Lynn, Daniel Marcu & Mary Ellen Okurowski. 2003. Building a Discourse-Tagged Corpus in the Framework of Rhetorical Structure Theory. In Jan van Kuppevelt & Ronnie Smith (eds.), *Current Directions in Discourse and Dialogue.* Dordrecht: Kluwer, 85-112.

Ceplitis, L. K. 1974. *Analiz rechevoj intonacii [The analysis of speech intonation].* Riga: Zinatne.

Chafe, Wallace. 1974. Language and consciousness. *Language* 50. 111-33.

Chafe, Wallace (ed.). 1980. *The pear stories: Cognitive, cultural, and linguistic aspects of narrative production.* Norwood, NJ: Ablex.

Chafe, Wallace. 1982. Integration and involvement in speaking, writing, and oral literature. In D. Tannen (ed.), *Spoken and written language: Exploring orality and literacy.* Norwood: Ablex, 35-54.

Chafe, Wallace. 1994. *Discourse, consciousness, and time. The flow and displacement of conscious experience in speaking and writing.* Chicago: University of Chicago Press.

Chafe, Wallace. 2001. The analysis of discourse flow. In Deborah Schiffrin, Deborah Tannen & Heidi E. Hamilton (eds.), *The handbook of discourse analysis.* Malden, MA: Blackwell, 673-87.

Croft, William. 1995. Intonation units and grammatical structure. *Linguistics* 33. 839-882.

Croft, William, & D. Alan Cruse. 2004. *Cognitive linguistics.* Cambridge: Cambridge University Press.

Cruttenden, Alan. 1986. *Intonation.* Cambridge: Cambridge University Press.

Dolinin, K. A. 2004. Socialisticheskij realizm v lingvistike (k istorii funkcional'noj stilistiki v SSSR) [Socialist realism in linguistics: toward a history of fucntional stylistics in USSR]. In L. A. Verbickaja (ed.), *Teoreticheskie problemy jazykoznanija.* St. Petersburg: Filfak SPbGU, 607-20.

Du Bois, John W., S. Schuetze-Coburn, S. Cumming & D. Paolino. 1992. *Discourse transcription*. Santa Barbara Papers in Linguistics, 4. Santa Barbara: UCSB.

Edwards, J. A. 1995. Principles and alternative systems in the transcription, coding and mark-up of spoken discourse. In G. Leech, G. Myers & J. Thomas (eds.) *Spoken English on computer: Transcription, mark-up and application*. London: Longman, 19-34.

Edwards, J. A. 2001. The transcription of discourse. In D. Schiffrin et al. (eds.), 321-348.

Evans, Vyvyan, & Melanie Green. 2006. *Cognitive linguistics: An introduction.* Mahwah, NJ: Lawrence Erlbaum.

Fedorova, Olga V., Ekaterina A.Delikishkina, Svetlana A. Malyutina, Anna M. Uspenskaya & Anastasija A. Fejn. 2010. Èksperimental'nyj podxod k issledovaniju referencii v diskurse: interpretacija anaforičeskogo mestoimenija v zavisimosti ot ritoričeskogo rasstojanija do ego antecedenta [Experimental approach to reference in discourse: Effects of rhetorical structure on pronoun intepretation]. Aleksandr E. Kibrik (ed.). Computational Linguistics and Intellectual Technologies. *Papers from the Annual International Conference "Dialogue" (2010)*. Bekasovo, Moscow region. Moscow: Izdatel'stvo RGGU, 525-530.

Ford, M., & V. M. Holmes. 1978. Planning units in sentence production. *Cognition* 6. 35-53.

Goldberg, Adele E. (ed.). 1996. *Conceptual structure, discourse and language.* Stanford: CSLI.

Goldman-Eisler, F. 1972. Pauses, clauses, sentences. *Language and Speech* 15. 103-113.

Herring, Susan C. (ed.). 1996. *Computer-mediated communication: Linguistic, social and cross-cultural perspectives.* Amsterdam: Benjamins.

Iwasaki, Shoichi. 1993. The structure of the intonation unit in Japanese. In Soonja Choi (ed.), *Japanese and Korean Linguistics* 3. Stanford, CA: CSLI, 39-53.

Iwasaki, Sh. 1996. The syntactic and functional structures of intonation unit in Thai. *Pan-Asiatic Linguistics*. Salaya (Thailand): Institute of language and culture for rural development, 750-761.

Janko, Tat'jana E. 2001. *Kommunikativnye strategii russkoj rechi [Communicative strategies of Russian speech]*. Moscow: Jazyki slavjanskix kul'tur.

Janko, Tat'jana E. 2006. Intonacija svjaznogo teksta [Intonation of coherent text]. In: *Komp'juternaja lingvistika i intellektual'nye texnologii. Trudy mezhdunarodnoj konferencii Dialog-2006*, 591-596.

Janko, Tat'jana E. 2008. *Intonacionnye strategii russkoj rechi v sopostavitel'nom aspekte [Intonational strategies of Russian speech from a comparative point of view]*. Moscow: Jazyki slavjanskix kul'tur.

Kacnel'son, Solomon D. 1972. *Tipologija jazyka i rechevoe myshlenie [The typology of language and linguistic cognition]*. Leningrad: Nauka.

Kafkafi, N., C. L. Mayo, D. Drai, D. Golani & G.I. Elmer. 2001. Natural segmentation of the locomotor behavior of drug-induced rats in a photobeam cage. *Journal of Neuroscience Methods* 109. 111-121.

Kibrik, Aleksandr E. 1983. Lingvisticheskie postulaty [Linguistic postulates]. In: *Mexanizmy vyvoda i pererabotki znanij v sistemax ponimanija jazyka. Trudy po iskusstvennomu intellektu.* Uchenye zapiski Tartuskogo universiteta, vyp. 621, 24-39.

Kibrik, Andrej A. 1999. Cognitive inferences from discourse observations: Reference and working memory. In Karen van Hoek et al. (eds.), 29-52.

Kibrik, Andrej A. 2000. *Cognitive discourse analysis: Some results*. Paper presented at the 7th International Pragmatics Conference. Budapest, July 2000.

Kibrik, Andrej A. 2001. Cognitive discourse analysis: Some results. In T. Enikő Németh (ed.), 164-80.

Kibrik, Andrej A. 2003. *Analiz diskursa v kognitivnoj perspektive [Discourse analysis in a cognitive perspective]*. Doctor of Science (habilitation) Dissertation. Moscow: Institute of Linguistics, RAN.

Kibrik, Andrej A. 2006. Multi-factorial choices in speaking. In Boris M. Velichkovsky et al. (eds.), *The Second Biennial Conference on Cognitive Science*, vol. 1. St. Petersburg: SPb State University, Philological Faculty, 86-87.

Kibrik, Andrej A. 2008a. Est' li predlozhenie v ustnoj rechi? [Is there sentence in spoken language?] In A.V.Arkhipov et al. (eds.) *Fonetika i nefonetika. K 70-letiju Sandro V. Kodzasova.* Moscow: Jazyki slavjanskoj kul'tury, 104-115.

Kibrik, Andrej A. 2008b. Prosodicheskij portret govorjashchego kak instrument transkribirovanija ustnogo diskursa [Speaker's prosodic portrait as a tool for transcribing spoken discourse]. In *Komp'juternaja lingvistika i intellektual'nye texnologii. Trudy mezhdunarodnoj konferencii Dialog-2008*, 195-191.

Kibrik, Andrej A. 2009. Modus, zhanr i drugie parametry klassifikacii diskursov [Mode, genre, and other parameters of discourse classification]. *Voprosy Jazykoznanija* 2009(2). 3–21.

Kibrik, Andrej A. In press. *Reference in discourse*. Oxford: Oxford University Press.

Kibrik, Andrej A. & Vera I. Podlesskaya. 2006. Problema segmentacii ustnogo diskursa i kognitivnaja sistema govorjashchego [The problem of spoken discourse segmentation and the speaker's cognitive system]. In Valery D. Solovyev (ed.), *Kognitivnye issledovanija* 1. Moscow: Institut psixologii RAN, 138-58.

Kibrik, Andrej A. & Vera I. Podlesskaya (eds.). 2009. *Rasskazy o snovidenijax: Korpusnoe issledovanie ustnogo russkogo diskursa [Night Dream Stories: A corpus study of spoken Russian discourse]*. Moscow: Jazyki slavjanskix kul'tur.

Kibrik, Andrej A. & Vera I. Podlesskaya. In press. Vstavochnye konstrukcii v ustnom diskurse [Inset constructions in spoken discourse]. In V.Z.Dem'jankov, V.Ja. Porxomovskij. *V prostranstve jazyka i kul'tury: zvuk, znak, smysl*. Moscow: Jazyku slavjanskoj kul'tury.

Kodzasov, Sandro V. 1996a. Kombinatornaja model' frazovoj prosodii [A combinatory model of phrasal prosody]. In: *Prosodicheskij stroj russkoj rechi*. Moscow: IrjA RAN, 85-123.

Kodzasov, Sandro V. 1996b. Foneticheskaja baza dannyx IRJa RAN kak istochnik prosodicheskix svedenij [The phonetic data base of IRJa RAN as a source of prosodic evidence]. In: *Prosodicheskij stroj russkoj rechi*. Moscow: IRJa RAN, 124-141.

Kodzasov, Sandro V. 1996c. Zakony frazovoj akcentuacii [The laws of phrasal accentuation]. In: *Prosodicheskij stroj russkoj rechi*. Moscow: IrjA RAN, 181-204.

Kodzasov, Sandro V. 2002. Fazovaja simvolika tona [Phasal symbolism of tone]. In: N.D.Arutjunova (ed.) *Logicheskij analiz jazyka. Semantika nachala i konca*. Moscow: Indrik.

Korotaev, Nikolay A. & Andrej A. Kibrik. 2008. Illokucija soobshchenija v ustnyx rasskazax [The declarative illocution in spoken stories]. In *Trudy mezhdunarodnoj konferencii "Korpusnaja lingvistika – 2008"*. St. Petersburg: SPbGU, 214-220.

Kovtunova, Irina I. 1976. *Sovremennyj russkij jazyk: porjadok slov i aktual'noe chlenenie [Modern Russian: word order and the theme-rheme articulation]*. Moscow: Prosveshchenie.

Krivnova, Olga F. 1989. Intonacionnoe chlenenie kak sredstvo upravlenija proceduroj smyslovogo raspoznavanija [Intonational segmentation as a tool of managing semantic recognition]. In *Eksperimental'naja fonetika*, 112-124.

Krivnova, Olga F. 2007. *Ritmizacija i intonacionnoe chlenenie teksta (opyt eksperimental'nogo issledovanija). [Rythmization and the intonational segmentation of text: An experimental study]*. Doctor of Science (habilitation) dissertation. Moscow: Moscow State University.

Lakoff, George. 1987. *Women, fire, and dangerous things.* Chicago: University of Chicago Press.

Lakoff, George. 1990. The invariance hypothesis: Is abstract reason based on image-schemas? *Cognitive Linguistics* 1 (1). 39-74.

Langacker, Ronald. 1987/1991. *Foundations of cognitive grammar.* Vol. 1, 2; Stanford: Stanford University Press.

Lapteva, Olga A. 1976. *Russkij razgovornyj sintaksis [Russian colloquial syntax]*. Moscow: Nauka.

Levelt, Willem J. M. 1989. *Speaking. From intention to articulation*. Cambridge, MA: MIT Press.

Levinson, Stephen C. 1983. *Pragmatics*. Cambridge: Cambridge University Press.

Linell, P. 1982. *The written language bias in linguistics.* Linköping, Sweden: University of Linköping.

Litvinenko, Alla O. 2000. *Teorija ritoricheskoj struktury kak universal'nyj instrument opisanija diskursa [Rhetorical Structure Theory as a universal tool of discourse description]*. M.A. thesis. Moscow: Moscow State University.

Longacre, Robert. 1983. *The grammar of discourse.* New York: Plenum Press.

Makarov, Mixail L. 2003. *Osnovy teorii diskursa [Fundamentals of discourse theory]*. Moscow: Gnozis.

Mann, William, & Sandra A. Thompson. 1988. Rhetorical structure theory: toward a functional theory of text organization. *Text* 8 (3). 243-81.

McNeill, David. 1992. *Hand and mind: what gestures reveal about thought.* Chicago: University of Chicago Press.

Miller, Jim, & Regina Weinert. 1998. *Spontaneous spoken language.* Oxford: Clarendon Press.

Mukhina, T. V., A. B. Cherepov & K. V. Anokhin. 2003. *Analysis of animal path trajectories in terms of individual behavioral acts.* Department of Systemogenesis, P. K. Anokhin Institute of Normal Physiology, Russian Academy of Medical Sciences. (Unpublished manuscript)

Németh, T. Enikő (ed.). 2001. *Cognition in language use.* Antwerp: International Pragmatics Association.

Nikolaeva, Tat'jana M. 1977. *Frazovaja intonacija slavjanskix jazykov [Phrasal intonation in Slavic languages]*. Moscow: Nauka.

Nikolaeva, Tat'jana M. 1982. *Semantika akcentnogo vydelenija [The semanitcs of accentual prominence]*. Moscow: Nauka.

Nuyts, Jan. 2007. Cognitive linguistics and functional linguistics. In Dirk Geeraerts & Hubert Cuyckens (eds.), *Handbook of cognitive linguistics.* Oxford: Oxford University Press, 543-65.

Ochs, Elinor. 1979. Transcription as theory. In E. Ochs, B. B. Schieffelin (eds.) *Developmental pragmatics*. N. Y.: Academic Press. 43-72.

Odé, C. 2008. *Transcription of Russian intonation: A free interactive research tool and learning module*. http://www.fon.hum.uva.nl/tori/.

Pawley, A., & F. Syder. 2000. The one clause at a time hypothesis. In H. Riggenbach (ed.) *Perspectives on fluency*. Ann Arbor: University of Michigan Press, 163-191.

Podlesskaya, Vera I., & Andrej A. Kibrik. 2006. Korrekcija v usnoj monologicheskoj rechi po dannym korpusnogo issledovanija [Repair in oral monologic speech: A corpus study. *Russkij jazyk v nauchnom osveshchenii* 12-2. 7-55.

Renkema, Jan. 2004. *Introduction to discourse studies.* Amsterdam: Benjamins.

Sanders, Ted, & Wilbert Spooren. 2007. Discourse and text structure. In Dirk Geeraerts & Hubert Cuyckens (eds.), *Handbook of cognitive linguistics.* Oxford: Oxford University Press, 916-42.

Savel'eva-Trofimova O.A. 2008. *Neklauzal'nye diskursivnye edinicy (na materiale korpusa "Rasskazy o snovidenijax") [Nonclausal discourse units: Evidence from the Night Dream Stories corpus]*. M.A.Thesis. Moscow: Moscow State University.

Schegloff, Emanuel, & Harvey Sacks. 1973. Opening up closings. *Semiotica* 7 (4). 289-327.

Schiffrin, Deborah, Deborah Tannen & Heidi E. Hamilton (eds.). 2001. *The handbook of discourse analysis.* Malden, MA: Blackwell.

Scollon, Ron & S. B. K. Scollon. 2001. *Intercultural communication: A discourse approach.* Malden, MA: Blackwell.

Shcherba, Lev V. 1955. *Fonetika francuzskogo jazyka [French phonetics]*. Moscow: Izdatel'stvo literatury na inostrannyx jazykax.

Sirotinina, Olga B. 1974. *Sovremennaja razgovornaja rech' i ee osobennosti [Modern oral colloquial speech and its peculiarities]*. Moscow: Prosveshchenie.

Sirotinina, Olga B. (ed.) 2003. *Razgovornaja rech' v sisteme funkcional'nyx stilej sovremennogo russkogo literaturnogo jazyka [Colloquial speech in the system of functional styles of modern literary Russian]*. Moscow: URSS.

Smith, Carlota. 2003. *Modes of discourse: The local structure of texts.* Cambridge: Cambridge University Press.

Solganik, Grigorij Ja. 2003. *Stilistika teksta [Text stylistics]*. Moscow: Nauka.

Stelma, J. H. & L. J. Cameron. 2007. Intonation units in spoken interaction: Developing transcription skills. *Text and Talk* 27.3. 361-393.

Svetozarova, N.D., N.B. Vol'skaja, A.V. Pavlova & L.F. Shitova. 1988. Prosodicheskaja organizacija russkoj spontannoj rechi [Prosodic organization of spontaneous Russian speech]. In N.D. Svetozarova (ed.) *Fonetika spontannoj rechi*. Leningrad: Izd-vo Leningradskogo universiteta, 141-182.

Swales, John. 1990. *Genre analysis: English in academic and research settings.* Cambridge: Cambridge University Press.

Taboada, M. & W. C. Mann. 2006. Rhetorical Structure Theory: Looking back and moving ahead. *Discourse Studies* 8. 423-59.

Tao, H.-Y. 1996. *Units in Mandarin conversation*. Amsterdam: John Benjamins.
Thompson, Sandra A., & E. Couper-Kuhlen. 2005. The clause as a locus of grammar and interaction. *Discourse Studies* 7. 481-506.
Tomlin, Russell S. 1995. Focal attention, voice and word order: An experimental cross-linguistic study. In Pamela Downing & Michael Noonan (eds.), *Word order in discourse.* Amsterdam: Benjamins, 517-54.
van Dijk, Teun A., & Walter Kintsch. 1983. *Strategies of discourse comprehension.* New York: Academic Press.
van Dijk, Teun A. (ed.) 1997. *Discourse studies : a multidisciplinary introduction.* Vol. 1, 2; London: Sage Publications.
van Hoek, Karen, Andrej A. Kibrik & Leo Noordman (eds.). 1999. *Discourse studies in cognitive linguistics.* Amsterdam: Benjamins.
Vygotsky, Lev S. 1934/1994. *Thought and language.* Cambridge, MA: MIT Press.
Wouk, F. 2008. The syntax of intonation units in Sasak. *Studies in Language* 32-1. 137-162.
Xitina, M.V. 2004. *Delimitativnye priznaki ustno-rechevogo diskursa [Delimitative features of spoken discourse]*. Moscow: MGLU.
Zacks, Jeffry M., & Barbara Tversky. 2001. Event structure in perception and conception. *Psychological bulletin* 127(1). 3-21.
Zemskaja, Elena A. (ed.) 1973. *Russkaja razgovornaja rech'. [Russian colloquial speech.]* Moscow: Nauka.
Zemskaja, Elena A. (ed.) 1983. *Russkaja razgovornaja rech'. Fonetika. Morfologija. Lexika. Zhest. [Russian colloquial speech. Phonetics. Morphology. Lexicon. Gesture.]* Moscow: Nauka.
Zemskaja, Elena A., M.V. Kitajgorodskaja & E.N. Shirjaev. 1981. *Russkaja razgovornaja rech'. Obshchie voprosy. Slovoobrazovanie. Sintaksis [Russian colloquial speech. General issues. Word formation. Syntax]*. Moscow: Nauka.
Zemskaja, Elena A., & L. A. Kapanadze (eds.) *Russkaja razgovornaja rech'. Teksty [Russian colloquial speech. Texts.]* Moscow: Nauka, 1978.
Zlatoustova, Ljubov' V. 1981. *Foneticheskie edinicy russkoj rechi [Phonetic units of Russian speech]*. Moscow: Izdatel'stvo Moskovskogo universiteta.
Zvegincev, V.A. 1996. *Mysli o lingvistike [Thoughts about linguistics]*. Moscow: Izdatel'stvo MGU.