Aspectual Clusters of Russian Sound Verbs*

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Abstract: This article explores whether the aspectual cluster model proposed by Janda (2007, 2008) can reflect the differences in the lexical semantics of Russian verbs denoting sound. A corpus of fifty sound verbs, including both sounds emitted by inanimate objects and those produced by animate beings, are divided into two groups: (i) paired verbs marking linguistic action, and (ii) paired verbs marking directional motion. Aspectual clusters for each verb were determined, and the clusters of various groups of verbs compared. Each of these groups was found to be characterized by a specific subset of aspectual cluster types.

1. Introduction

1.1. Aspectual Cluster Model

This study is based on Laura Janda's (2007, 2008) aspectual cluster model, which is an extension of the traditional pair model. According to the pair model, most Russian verbs exist in pairs consisting of an Imperfective (*impf*) and its Perfective (*pf*) partner.[1] In contrast, the

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[1] The abbreviation *impf* stands for Imperfective; *pf,* for Perfective. The abbreviation in citations after the author's name indicates the web corpus, site, or search engine: G—Google; RNC—Russian National Corpus; Y—Yandex. The superscript "p" is used to identify perfective verbs and the superscript "i", imperfective verbs; the subscript "det" is used for Determined and "non-det" for Non-determined (motion verbs); "ing" for Ingressive; "inch" for Inchoative; *semelf* stands for Semelfactive; and IH for Implicational Hierarchy. Cluster elements are indicated as follows:

A—base Activity (*dergat'*^{i} 'pull', *guljat'*^{i} 'stroll', *kolot'*^{i} 'prick'); $\mathbf{A}_{DI}$—Derived Imperfective (*zadergivat'*^{i} 'draw', *progulivat'*^{i} 'play truant'); **NP**—Natural Perfective (*napisat'*^{p} 'write' correlated with *pisat'*^{i} 'write'); **SP**—Specialized Perfective (*zapisat'*^{p} 'write down',

cluster model aims to capture the actual complexity of aspectual relations among verbs in Russian. It presents each verbal stem within a cluster, in which *impf* verbs that describe an Activity[2] (A), such as *glotat'*^{i} 'swallow' or *igrat'*^{i} 'play', can have five types of *pf* partners or elements:

(i) Natural Perfectives (NP), which express "an internal limit set to the action" (Vinogradov 1947: 497), "describe the logical completion of the corresponding Imperfective Activity" (Janda 2007: 609), and are *pf* partners in the pair model (*proglotit'*^{p} 'swallow', *sygrat'*^{p} 'play');

(ii) Specialized Perfectives (SP), which provide new semantic content (*sglotat'*^{p} 'eat up quickly, avidly', *vyigrat'*^{p} 'win') and motivate the corresponding Derived Imperfectives (*sglatyvat'*^{i} 'swallow down', *vyigryvat'*^{i} 'win');

(iii) Complex Act Perfectives (CA), which consist of an Activity combined with a limit on its beginning (*zaglotat'*^{p} 'begin to swallow', *zaigrat'*^{p} 'begin to play'), ending (*otygrat'*^{p} 'cease to play'), or duration (*poglotat'*^{p} 'swallow for a while', *poigrat'*^{p} 'play for a while');

(iv) Single Act Perfectives (SA), "which isolate a single cycle of a repeated Activity" (Janda 2007: 609) (*glotnut'*^{p} 'swallow once', *igranut'*^{p} 'play once');

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podpisat'^{p} 'sign'); **CA**—Complex Act Perfective (*zapet'*^{p} 'begin to sing', *pobežat'*^{p} 'start running', *posidet'*^{p} 'sit for some time', *prosidet'*^{p} *noč'* 'sit for the entire night'); **SA**—Single Act Perfective (*mignut'*^{p} 'wink once', *kivnut'*^{p} 'nod once'); **SSA**—Specialized Single Act Perfective (*vzmaxnut'*^{p} 'wave', *podmignut'*^{p} 'wink'); $\mathbf{NP}_{SP}$—Natural Perfective related to Specialized Perfective (*napisat'*^{p} 'write', *raskolot'*^{p} 'split'); $\mathbf{NP}_{CA}$—Natural Perfective related to Complex Act Perfective (*pogovorit'*^{p} 'talk for some time', *vskipet'*^{p} 'come to a boil'); $\mathbf{NP}_{SA}$—Natural Perfective related to Single Act Perfective (*bul'knut'*^{p} 'gurgle once'); $\mathbf{SP}_{NP}$—Specialized Perfective motivating Derived Imperfective (*vybrit'*^{p} 'shave' / *vybrivat'*^{i} 'shave'); $\mathbf{CA}_{NP}$—Complex Act Perfective motivating Derived Imperfective (*zagovorit'*^{p} 'start talking' / *zagovarivat'*^{i} 'start talking').

[2] The term 'Activity' is understood in a broad sense since it may be applied to states (*znat'*^{i} 'know') and processes (*groxotat'*^{i} 'bang'). The base of the cluster can be a *pf* verb—perfectiva tantum (*xlynut'*^{p} 'gush', *grjanut'*^{p} 'burst out'). The element A is a simplex or an unprefixed, non-derived verb (Feldstein 2007) used to motivate all the other verbs in the cluster.

(v) Specialized Single Act Perfectives (SSA), which combine properties of Specialized and Single Act Perfectives (*otglotnut'*^{p} 'take a gulp'; *sygranut'*^{p} 'play once') (Makarova and Janda 2009).

The different types of Perfective will be discussed in more detail in the following sections.

1.2. Research Objectives, Object of Study, Materials

1.2.1. Objectives

Each verb has a specific aspectual cluster. Since the clusters of different verbs vary, a question arises as to whether there is a correspondence between the lexical semantics of verbs of a thematic class and their aspectual behavior in terms of preferred types of aspectual clusters. This question has not been addressed in work on the cluster model so far, since only one thematic group of verbs (motion verbs) has been examined (Janda 2006). The goal of Janda's study was not to seek specificity in the cluster types of these verbs but "to provide a model for Russian aspectual relationships that can account for both the verbs of motion and the rest of the verbal lexicon" (Janda 2006: 183). Janda studied the aspectual clusters of two subgroups consisting of fourteen Determined and Non-determined motion verbs. Each of the clusters adhered to the expected cluster types for Determined and Non-determined motion verbs. She found that "the structure of verb clusters based on motion verb simplexes conforms to the patterns of verb clusters in the rest of the verbal lexicon" (Janda 2006: 191).

There have, however, been no subsequent attempts to determine the cluster structures associated with verbs of a thematic class. The present study investigates further the problem of the correspondence between the lexical semantics of verbs and their cluster types by examining two small verb classes. The first class is composed of verbs for sounds emitted by inanimate objects, and the second is composed of verbs for sounds of animate beings.[3]

[3] Henceforth, I will refer to these two lexical semantic classes of verbs as verbs of inanimate sounds and of animate, respectively.

1.2.2. Procedures of Material Selection and Analysis

1.2.2.1. Base Verbs and Their Derived Verbs

This study was restricted to fifty base sound verbs. They were culled from two sections of the reference dictionary *Lexico-semantic groups of Russian verbs* (Matveeva 1988: 62–63) in the following way. First, all verbs listed in section 1.9.2, which contains verbs of inanimate sounds, were selected, except for the derived verb *zavyvat'*. The remaining nineteen verbs were sampled from section 1.9.1, which lists verbs of sounds emitted by living beings. Next, derived verbs for the fifty selected base simplexes were culled from Tixonov 1978 and other dictionaries.

1.2.2.2. Two Databases

The research was conducted on two databases: a conservative database and an extended one. The conservative database includes only verbs recorded in dictionaries, which are known to contain only the most frequent words, usually those attested in fiction. This database was extended with "potential" words, meaning those "which are produced but have not been fixed by tradition of usage, or can be produced according to the pattern of words of high productive word-formation types" (Zemskaja 1973: 218). These were obtained from Internet sources (the Russian National Corpus (RNC) as well as various websites and search engines, such as Google and Yandex), provided they satisfied the minimum requirement of no less than five different occurrences. Therefore, the extended database included the materials of the conservative database and also examples of non-conventional words (i.e., words not recorded in dictionaries).[4]

1.2.2.3. Two Levels of Analysis

The aspectual behavior of a verb is characterized by its cluster type. However, the way a cluster element is expressed is also of great im-

[4] There were some restrictions in the selection of material. Thus, derived verbs in *-sja* were excluded from consideration because the interaction between *-sja* reflexives and aspect is too complex to be resolved in this paper.

portance. Therefore, the description of the aspectual behavior of verbs will be conducted on two levels: first, on the level of cluster types and, second, on the level of the expression of cluster elements. In this way, some data on the form-meaning correspondences can be obtained.

1.2.3. Types of Aspectual Pairs

Aspectual pairs can be of two types. Type I includes those pairs in which both partners are prefixed; the *impf* partner is usually derived from its *pf* correlate by suffixation (adding the suffixes *-yva/-iva/-va*), for example, *vyigrat'*^{p} / *vyigryvat'*^{i} 'win'. Type II includes those pairs in which the base (unprefixed) *impf* partner is associated with a prefixed *pf* correlate, as in *krasit'*^{i} / *pokrasit'*^{p} 'paint' and *pisat'*^{i} / *napisat'*^{p} 'write'. Because semantic identity is a requirement for aspectual pairs, pairs of Type I have genuinely identical lexical meanings.[5] In contrast, pairs of Type II is a subject of disagreement among scholars. According to some (Vinogradov 1947, Tixonov 1964, and Šeljakin 1983, among others), such pairs have identical lexical meanings. According to others (Karcevski 2004, Maslov 2004, and Isačenko 1960), their lexical meanings are not quite identical.[6]

There is no consensus on the meaning of *pf* partners, and the identification of Natural Perfectives (NP) involves problems of both a practi-

[5] In certain cases, prefixed Perfectives do not form pairs with the corresponding A_{DI}, either because specific partners do not exist or because certain Aktionsarten exclude or restrict imperfectivation. Thus, according to Zemskaja (1955: 13) and Avilova (1976: 283), Ingressives never have paired Imperfectives. According to Pols (1993: 296), "Delimitatives in *po-* are unpaired since their senses in Perfective and Imperfective vary; cf.*: pogladit'*^{p} 'run one's hand lightly over some surface' and *poglaživat'*^{i} 'stroke slightly or from time to time'". According to Zaliznjak and Šmelev (2000: 123), both *pf* Delimitatives with *po-* and *impf* verbs with *po-* of Interruptive Attenuative Aktionsart (*preryvisto-smjagčitel'nyj sposob dejstvija*) are unpaired. Thus, *pogulivat'*^{i} 'walk slowly back and forth' cannot mean *poguljat'*^{p} 'take a walk many times'. Restrictions of imperfectivation have been noted for verbs with *za-* in Vinogradov 1947 (531) and Zemskaja 1955 (11–12), among others. Scholars use two different terms—inchoative and ingressive—for Russian *za*-prefixed verbs with inceptive meaning. I will call them ingressive, following Avilova (1976: 373), who thinks that ingressive stems express single definite actions whose initiation and continuation make one whole action. The *za-* verbs in this study conform to such a definition.

[6] On the disagreement among linguists about identifying *pf* partners of simplex *impf* verbs, see Isačenko 1960: 160–61.

cal and a theoretical nature. One practical problem is that explanatory dictionaries give contradictory data on the aspectual partnership of verbs. For example, the verb *brjakat'*^{i} 'clatter' is paired with *brjaknut'*^{p} 'clatter, clatter once', which is marked as its *pf* partner in Ushak and BAS, *pf* and *semelf* in MAS, and only *semelf* in OžegŠv. Similarly, *buxat'*^{i} 'thump' is paired with *buxnut'*^{p} 'thump, thump once', which is treated as its *pf* correlate in Ushak, *semelf* and *pf* in MAS, and only *pf* in BAS and OžegŠv. In another example, according to Ushak, *xlopat'*^{i} (1) 'tap' and *xlopat'*^{i} (2) 'clap' are both paired with *poxlopat'*^{p} 'tap, clap for a while'. MAS and OžegŠv pair *xlopat'*^{i} (in some senses) with *xlopnut'*^{p} 'tap, clap once' but not with *poxlopat'*^{p}. There are many examples of contradictions of this kind. Since dictionaries disagree with each other in their treatment of aspectual correlates, one cannot rely on them as sources of information about the aspectual pairhood of sound verbs.

A theoretical problem arises with the issue of purely aspectual prefixes. Evidence against the theory of "empty" prefixes is the availability of subtle differences in the lexical meanings of pairs like *pisat'*^{i} 'write' / *napisat'*^{p} 'write' (Maslov 2004: 447), demonstrating the fact that even prefixes with "clearly aspectual meanings" still retain traces of their lexical shades of meaning (Isačenko 1960: 159, Spagis 1968: 40–41).

The remainder of the paper is structured as follows. Section 1.2.4 considers some dissimilarities in the application of the cluster model. Section 2 dwells on aspectual pairhood. Sound verbs in the sense of linguistic action are described in sections 3–4, and those in the sense of directional motion, in section 5. A summary of findings is presented in the conclusion in section 6.

1.2.4. Dissimilarities in the Application of the Cluster Model

This section discusses some dissimilarities related to (i) cluster elements and their notation, (ii) the principle of uniqueness of aspectual correlates and its consequences, and (iii) the Natural Perfective "by appointment."

1.2.4.1. Cluster Elements: Derived Imperfectives

The cluster model extensively uses the notion of secondary or Derived Imperfective Activities, whose (non-)availability characterizes all the five types of Perfectives. Natural Perfectives and Complex Act Perfec-

tives, as well as Single Act Perfectives, do not normally have secondary Imperfectives. In contrast, Specialized Perfectives usually motivate the derivation of a secondary Imperfective (Janda and Kobra 2008: 254). In the online pedagogical database listing the cluster structures of 266 verbs (http://hum.uit.no/lajanda/clusterfrontpage.html), a special column was provided for Derived Imperfectives (A_{DI}s), which were included in the clusters of each verb. However, they were not given a separate heading in the cluster model. I, however, treat A_{DI}s as a cluster element and include them (where applicable) in the cluster's structure. My decision is motivated by a number of reasons, including the following:

(i) Certain groups of A_{DI}s lack *pf* prefixed partners, such as verbs in *pri-* and *pod-*, having continuous commutative meaning (*pri-pljasyvat'*^{i} 'jig up and down, be jumping around' / **pripljasat'*^{p}) and verbs with *raz-* with continuous distributive meaning (*rasxažívat'*^{i} 'strut about' / **rasxodit'*^{p}) (Vinogradov 1947: 511–12);

(ii) Sometimes, there are differences in the meaning of the prefixed verb and its *impf* derived verb (*uxodit'*^{p} 'exhaust; tire out' / *uxažívat'*^{i} 'court', *zabludit'sja*^{p} 'lose one's way'/ *zabluždat'sja*^{i} 'be mistaken');

(iii) The mere lack of A_{DI}s can be treated as a distinctive feature of some thematic groups and senses (such as sound verbs in the senses of linguistic action and motion; see sections 4.7 and 5.2).

These reasons motivate recording A_{DI}s as a cluster element.

1.2.4.2. Complex Act Perfective (CA)

The definition of a Complex Act Perfective underwent changes as the cluster model developed. At first, Complex Acts were defined as consisting "of an Activity combined with a limit, forming verbs that describe temporally limited actions" (Janda 2007: 609). "This type of Perfective combines an Activity with a limit on its beginning, ending, or duration" (Janda and Korba 2008: 254) and cannot derive a secondary Imperfective. The following prefixes were listed as the ones most commonly used to build Complex Acts: inceptive *za-* 'begin' (*zaulybat'sja* 'begin to smile'), terminative *ot-* 'stop' (*otljubit'* 'cease to love'), delimitative *po-* (*poigrat'* 'play (for a while)'), and perdurative *pro-* (*pro-*

rabotat' (ves' den') 'work (the entire day)'). Later, other prefixes were added, such as distributive *raz-* (*razdat' podarki* 'give out presents') and cumulative *na-* (*nakupit' knig* 'buy a lot of books'). Since Complex Acts describe verbs with a temporal limit on the action, completive *do-* (*dokurit' sigaretu* 'finish (smoking) a cigarette') should also be included, as should Perfectives that set a quantitative limit on the action.

Some scholars (Svenonius, Ramchand, among others) call such prefixes "superlexical" because the contribution of these prefixes is more on a par with an adverbial and thus such prefixes are external and high in the tree of dependencies. Tatevosov (2000) calls them external prefixes. Complex Act Perfectives express what is termed in Russian *sposob dejstvija* 'manner of action' (Zaliznjak and Šmelev 2000: 104) and is often called Aktionsart. Janda considers CA as a way of categorizing actionality (quantification via imposition of a boundary, which is exemplified by verbs that express a phase, duration, or quantity of an action). Since Complex Acts impose both temporal and quantitative limits on an action, two claims can be formulated with a list of the Aktionsarten involved:

(i) Complex Act Perfectives combine an Activity with temporal limits including: Inceptives, *za-* (*zapet'*), *po-* (*pobežat'*), *vz-* (*vzvyt'*); Finitives, *ot-* (*otsidet' srok* 'do time in prison', *otrabotat' svoe* 'work one's own length of time'); Delimitatives, *po-* (*posidet'*, *pogovorit'*); Perduratives, *pro-* (*prosidet' vsju noč* 'sit through the entire night'); and Completives, *do-* (*dosidet' sobranie* 'stay until the end of the meeting').

(ii) Complex Act Perfectives also combine an Activity with quantitative limits including: Cumulatives *na-* (*nabrat' gribov* 'collect a large quantity of mushrooms'); Distributive *po-* (*pobrosat' vešči na pol* 'throw things to the floor (one after another)', *pere-* (*perelovit' vsex prestupnikov* 'catch all criminals (one after another)'); and Attenuative *pri-* (*prizakryt' dver'* 'partially close the door') and *pod-* (*podzabyt' imena'* 'forget some of the names').

1.2.4.3. Specialized Perfectives (SPs)

In Janda 2007 (609), Specialized Perfectives are defined as the verbs that "provide enough new semantic content to motivate the further derivation of corresponding Imperfectives, as illustrated by *perepisat'*^{p} and the

derived Imperfective *perepisivat'*^{i}." In Janda and Korba 2008, SPs are described as prefixed verbs in which "a prefix adds new information, usually motivating the derivation of a secondary Imperfective, as we see with *vyigrat'*^{p} / *vyigryvat* ^{i} 'win' and *pererabotat'*^{p} / *pererabatyvat'*^{i} 'revise'. When we say that a cluster contains a Specialized Perfective, we mean that there may be one or more Specialized Perfectives, along with any secondary Imperfectives and Complex Act Perfectives derivable from the secondary Imperfective(s)" (2008: 254).

Svenonius (2004) and Ramchand (2004) refer to prefixes in this role as "lexical prefixes."

If we accept the treatment of CAs as described above, then the cluster element Specialized Perfective will include all Perfectives that are not pair correlates (NPs), Complex Act Perfectives (CAs), Semelfactives (SAs), and prefixed Semelfactives (SSAs). Therefore, they will include *pf* verbs of motion (*pod'exat'* 'drive up', *pribežat'* 'come running') and a number of Aktionsarten that are not CAs, such as Intensives in *vy-* (*vylečit'* 'cure'), in *za-* (*zapotet'* 'mist over'), in *iz-* (*iskolot'* 'prick all over'), and some others.

The property of SPs being subject to Secondary Imperfective derivation can be accepted only with reservations since not all SPs possess it.

1.2.4.4. Notation for Elements with Dual Functions

The cluster model admits multiple cluster elements, such as NPs, SPs, and CAs. However, elements with dual functions have not been described or provided with a notation (with the exception of Specialized Single Act Perfectives (SSAP); see Makarova and Janda 2009: 84). The present study distinguishes and provides a separate notation for elements with dual functions, such as NP_{SP} (Natural Perfective with some meaning of Specialized Perfective), NP_{CA} (Natural Perfective with some meaning of Complex Act Perfective), etc. (see fn. 1). This study treats Type I aspectual pairs differently than the cluster model does. In the pairs *pererabotat'*^{p} / *pererabatyvat'*^{i} 'revise' and *vzvyt'*^{p} / *vzvyvat'*^{i} 'begin to howl', the *pf* partners are treated as NP_{SP} and NP_{CA} accordingly and their correlates as A_{DI}. The cluster model treats both *pf* partners together with their *impf* correlates as SPs (see Janda and Korba 2008b: 254, 256). Introducing new cluster elements will certainly make the cluster structure more cumbersome and less elegant. But these more

detailed results can always be transformed into simpler but less informative results.

1.2.4.5. Implicational Hierarchy

A cluster is not a chaotic heap of disconnected elements but an ordered set, an interconnected system in which the presence of each element can predict the presence or absence of other elements. Thus, the presence of Derived Imperfectives predicts the availability of SP or SSA in the cluster. It also demonstrates compliance with the *implicational hierarchy* (IH) proposed by Janda (2007: 634). This rule regulates the combination of Perfectives in clusters and states that the presence of a Semelfactive in the cluster predicts the presence of a Complex Act. In the present study, this hierarchy is extended to state that the presence of a confix (SSA) in a cluster requires the presence of Single and Complex Acts:

(Natural / Specialized) > Complex Act > Single Act > Specialized Single Act

Janda later claimed that there are deviations from that rule—clusters in which we find Single Act Perfectives in the absence of Complex Acts (Makarova and Janda 2009: 82–83). Four alleged counterexamples to this rule are cited, in clusters with the verbs *smorkat'sja* 'blow one's nose', *xapat'* 'grab', *tormozit'* 'brake', and *užasat'* 'frighten'. However, evidence from dictionaries and real usage shows that the alleged violations from this rule are somewhat exaggerated.[7]

[7] The following facts support the validity of the IH rule: (i) the Inceptive *zasmorkat'sja* is recorded in BAS 4: 931. It is also recorded in Efrem-1 in the sense 'begin to blow one's nose'. A Google search revealed 1,740 examples with this verb, and the RNC provides 18 examples. The Delimitative *posmorkat'sja* is recorded in the RNC 15 times. The infinitive *otsmorkat'sja* in the sense 'finish blowing one's nose' is recorded in Ušak 2: 987; in Kuznec: 761; and in Efrem-1. Google provides 5,200 examples and the RNC, 3. The cumulative *naxapat'* is recorded in Efrem-1 in the sense 'get hold of a lot of something avidly'. Google cites 91,500 examples with this verb, and the RNC records 38 examples. Google also records 1,570 examples with the Delimitative *poxapat'*; (ii) the Inceptive *zatormozit'* with the sense 'begin to brake' is recorded in Ushak 1: 1055. The RNC gives 43 examples with this verb. This verb with the same meaning is also recorded in other dictionaries: BAS 4: 393; MAS 1: 585; Efrem-1: 780.

1.2.4.6. Natural Perfective "By Appointment"

Sound verbs are generally considered to be mono-aspectual (Avilova 1976: 95, 113). But in certain senses (describing directional motion or introducing direct speech; see section 3), sound verbs can mark heterogeneous situations. According to Mehlig (2006: 240–41), heterogeneous situations underlie aspectual pairs, which suggests a need for a *pf* correlate for these verbs. But in the case of sound verbs, such a correlate is not readily available, since they are mono-aspectual in the primary senses. Therefore, when the need arises, such a correlate can be selected from a number of eligible candidates. In order to determine aspectual partners for verbs marking heterogeneous situations when such partners are not readily available, I adopt a special procedure. Basically, it consists of considering all prefixed Perfectives as potential candidates for paired correlates and selecting the most eligible as a paired correlate "by appointment." This procedure was applied in this study (see section 3.1).

1.2.4.7. Principle of Uniqueness of Aspectual Correlates

In the cluster model, there is no restriction on the number of *pf* correlates. Thus, three Natural Perfectives are listed for the *impf kolot'* 'chop, slab': *zakolot'*^{p}, *raskolot'*^{p}, and *ukolot'*^{p} (Makarova and Janda 2009: 81).

Since I share the opinion that purely aspectual prefixes do not occur, I am inclined to see semantic differences in all such NPs and the uniqueness of aspectual correlates (Zaliznjak and Šmelev 2000: 50). Thus, according to OžegŠv, *vyčistit'*^{p} is a *pf* correlate to *čistit'*^{i} in its first and third senses, *očistit'*, in its first, third, and fifth senses, and *počistit'* in its first, second, and third senses. Therefore, it is obvious that these NPs are not completely synonymous and correlates are related to

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Thus, the verbs *smorkat'sja*, *xapat'*, and *tormozit'* are recorded in Ušak, BAS, MAS, Kuznec, and Efrem-1 in Inceptive, Finitive, Delimitative, and Cumulative senses, which are all included in the Complex Act. Google cites thousands of examples for the CA uses of these verbs. For the Ingressive *zatormozit'* 'begin to brake', Google cites 269,000 examples. This does not mean that there are no exceptions to this rule. There are, but they are all systemic. In the clusters *spat'* 'sleep' and *lgat'* 'lie', SSAs are used without SAs, probably for phonetic reasons: *zasnut'* but not **snut'*, *prilgnut'* but not **lgnut'*. The attested exceptions also include verbs perfectiva tantum, bi-aspectuals, and de-etymologized verbs (*oproščenija*).

specific senses. When there is a need to indicate the best correlate, its productivity should be taken into account. In this case, their frequencies are also different. According to ČSRJa, their frequencies are: *vyčistit'*^{p} 5, *počistit'*^{p} 7, and *očistit'*^{p} 13. Occurrences cited in the RNC are: *vyčistit'*^{p} 126; *počistit'*^{p} 266; *očistit'*^{p} 1,180. Considering these data, the most eligible candidate for the NP is *očistit'*^{p}. Distribution is another reason to consider it as the NP. In the sense 'free from something that has accumulated and makes dirty', only *očistit'*^{p} combines with an *ot* phrase: *očistit' / *počistit' / ?vyčistit'*^{p} *sad ot sornjakov, ot snega* 'clear the garden of weeds, of snow'. The three NPs for *kolot'* are not interchangeable either; they have different senses depending on context. Compare: *raskolot' poleno/*svin'ju* 'split a log'/*a hog'; *zakolot' svin'ju / *poleno* 'slaughter a hog/*a log'; *ukolot' palec/*poleno* 'prick a finger/*a log'.

2. Aspectual Pairhood

2.1. Criteria for Aspectual Pairhood, Maslov Criteria, Situation Types

There are criteria by which paired verbs could be distinguished from unpaired ones. One criterion, the Maslov criterion, consists of checking the grammaticality of two types of transformations. If a sentence with a *pf* verb (1a, c) can be replaced by a sentence with an *impf* verb describing an iterative event (1b), or with an *impf* verb describing an event in *praesens historicum* (1d), then these *pf* and *impf* verbs are aspectual correlates.

(1) a. On podošel^{p} k dveri i pozvonil^{p} v zvonok.
'He came up to the door and rang the bell.'

b. On obyčno podxodit^{i} k dveri i zvonit^{i} v zvonok.
'He usually comes up to the door and rings the bell.'

c. On podošel^{p} k dveri i postučal^{p} tri raza.
'He came up to the door and knocked three times.'

d. I vot on opjat' podxodit^{i} k dveri i stučit^{i} tri raza.
'Here he comes up to the door again and knocks three times.'

So, according to this criterion, *pozvonit'*^{p} and *postučat'*^{p} are *pf* correlates to *zvonit'*^{i} and *stučat'*^{i}.

In attempts to establish the semantic identity of NPs with their *impf* partners, more attention has been focused on the semantics of the prefixes than on the *impf* Activities themselves. However, Mehlig's (2006) analysis of homogeneous and heterogeneous situations permits us to approach the problem of pairhood from another angle: by identifying the situation described by a particular *impf* Activity as either homogeneous or heterogeneous. The initial and final states of heterogeneous situations are not identical, and the change can consist of a change in the position of the participants, in their initiation or destruction, or in their appearance, quantity, etc. (Mehlig 2006: 240–41). Such situations underlie aspectual pairs. Homogeneous situations, which admit arbitrary division into identical parts, underlie *imperfectiva tantum* verbs, but they can be perfectivized by aspectual Aktionsarten: Perdurative, Delimitative, etc. (Mehlig 2006: 244–46). For example, the verb *govorit'*^{i} 'speak, say, tell' can describe both heterogeneous and homogeneous situations. In the sense of 'let know' marking a heterogeneous situation (a change in the extent of being informed), it can be perfectivized by a suppletive *pf* partner but not by a Delimitative, such as in (2a). But in the sense of having a subject for discussion, it can be perfectivized by a Delimitative, as in (2b), or a Perdurative, as in (2c) (both Complex Acts in our terminology), rather than its *pf* partner:

(2) a. My govorili^{i} / skazali^{p} (*pogovorili^{p}) emu o našej vstreče.
'We told him about our meeting.'

b. My pogovorili^{p} (*skazali^{p}) s nim i razošlis'.
'We spoke with him and parted.'

c. My progovorili^{p} (*skazali^{p}) s nim dva časa.
'We spoke with him for two hours.'

The ability to participate in the former in (2a) rather than the latter transformations in (2b–c) can be used as another test for the identification of NPs.

2.2. Paired and Unpaired Senses of Sound Verbs

An attempt was made to identify Natural Perfectives in the set of regular senses of sound verbs. Sound verbs in their primary senses

usually mark homogeneous situations. They are unpaired and denote processes and activities that can be classed as *imperfectiva tantum* (Avilova 1976: 95, 113; Paducheva 1996: 142–43). Most sound verbs denote sound emission or production (*gremet'*^{i} 'thunder', *šelestet'*^{i} 'rustle', etc.), including vocalizations of animate beings (*vorkovat'*^{i} 'coo', *žužžat'*^{i} 'buzz', *kričat'*^{i} 'yell', etc.). All fifty verbs under investigation can mark homogeneous situations in unpaired senses designated as Situation 1. Thus, *brjacat'*^{i} is illustrated below in the unpaired sense of sound emission in (3a) and sound production in (3b):

(3) a. Brjacaet^{i} posuda.
'The dishes clink.' (A. Isaev/G)

b. Oficery brjacali^{i} sabljami.
'The officers clanged their sabers.' (F. Mering/G).

However, sound verbs in certain derivative senses can mark heterogeneous situations and enter into aspectual pairhood relationships. In particular, four heterogeneous situations (2–5) were found to be expressed by the verbs studied in the derivative senses (see Table 1 on the next page).

These situations are exemplified below:

Situation 2. Change in the extent of being informed (linguistic action)

(4) a. "Otec vernulsja!" —brjakaet^{i}/ brjaknul^{p} Petja.
'"Father is back!" blurts / blurted out Petja.'

b. "Volčišče, volčišče!" —strekotala^{i}/ prostrekotala^{p} ženščina.
'"Huge wolf, huge wolf!" the woman was chattering /chattered.'

Situation 3. Change of location in space (motion)

(5) a. Ključ brjakaet^{i} / brjaknul^{p} na pol.
'The key clatters/clattered to the floor.'

b. Po mostovoj gremela^{i} / progremela^{p} telega.
'A cart was clattering / clattered along the road.'

Table 1. Heterogeneous Situations Expressed by Sound Verbs

Situation #	Sound Type	Sound Verbs	Quantity
2.	inanimate	*brenčat'* 'jingle', *brjacat'* 'clang', *brjakat'* 'blurt out', *bul'kat'* 'gurgle', *buxat'* 'blurt out', *gremet'* 'thunder', *gromyxat'* 'rumble', *groxotat'* 'thunder', *gudet'* 'buzz', *drebezžat'* 'tinkle', *žurčat'* 'babble', *zvenet'* 'ring', *rokotat'* 'roar', *skrežetat'* 'grind', *skripet'* 'squeak', *taraxtet'* 'rattle', *trezvonit'* 'trumpet', *treščat'* 'chatter', *určat'* 'rumble', *xljupat'* 'snivel', *xrustet'* 'crunch', *šelestet'* 'rustle', *šumet'* 'talk a lot', *šuršat'* 'rustle' (24 verbs, 77%)	43 86%
	animate	*blejat'* 'bleat', *vorkovat'* 'coo', *žužžat'* 'buzz', *karkat'* 'croak', *kvakat'* 'croak', *klekotat'* 'scream', *krjakat'* 'grunt', *kudaxtat'* 'cackle', *kukarekat'* 'crow', *kukovat'* 'cuckoo', *lajat'* 'bark', *murlykat'* 'hum', *myčat'* 'mumble', *mjaukat'* 'mew', *ržat'* 'guffaw', *strekotat'* 'chirr', *xrjukat'* 'grunt', *čirikat'* 'chirp', *ščebetat'* 'chatter' (19 verbs, 100%)	
3.	inanimate	*brjakat'* 'bang down', *bul'kat'* 'gurgle', *buxat'* 'thud', *gremet'* 'thunder', *gromyxat'* 'rumble', *groxotat'* 'rumble', *gudet'* 'buzz', *drebezžat'* 'tinkle', *pleskat'* 'splash', *skrežetat'* 'grind', *skripet'* 'squeak', *taraxtet'* 'rumble', *xljupat'* 'squelch', *xrupat'* 'crunch', *xrustet'* 'crunch', *cokat'* 'clatter', *šelestet'* 'rustle, *šuršat'* 'rustle' (18 verbs, 58%)	20 40%
	animate	*žužžat'* 'buzz', *strekotat'* 'chirr' (2 verbs, 11%)	
4.	inanimate	*brenčat'* 'ring', *gudet'* 'hoot', *zvenet'* 'ring', *zvonit'* 'ring', *zvjakat'* 'ring up'	5 16%
5.	inanimate	*xlopat'* 'drink at a gulp', *xrupat'* 'munch on', *xrustet'* 'crunch'	3 10%

(5) c. Puli žužžali^{i} / prožužžali^{p} u nego nad uxom.
'Bullets buzzed close to his ear.'

Situation 4. Change in the extent of being informed (semiotic sound)

(6) On zvonil^{i} / pozvonil^{p} materi.
'He called his mother.'

Situation 5. Incremental change of location (consumption: eating, drinking)

(7) On xlopal^{i} / xlopnul^{p} vodku.
'He drank the vodka at a gulp.'

Verbs listed in the four paired senses of Table 1 cover 49 (98%) of the verbs studied.[8] Paired senses were not attested for the verb *tikat'* 'tick'. Table 1 demonstrates that two situations (2 and 3) predominate. Situation 2 (speaking) was attested for twenty-four of thirty-one (77%) of the inanimate and for nineteen (100%) of the animate sound verbs studied. Situation 3 (motion) was attested for 58% of the inanimate and 11% of the animate sound verbs studied. Since the proportions of the other senses are much smaller, the two paired senses (speaking and motion) were chosen for identification and analysis in the conservative and extended databases.

3. Linguistic Action

By a linguistic action I mean the linguistic vocal production of an individual. Such production can take the form of direct speech (the exact vocal production uttered by the speaker or transmitted by another person), indirect speech (the reporting of one person's production by another person in his/her own way), or a summary of the content of the message (Dirven et al. 1982: 3). This sense can appear in sound verbs

[8] Quantitative data (raw numbers, proportions, etc.) here and henceforth do not have strict statistical significance. They are used in this study only for comparing occurrences of related linguistic phenomena (words, word groups, etc.) and estimating their relative productivity.

only in certain constructions (Goldberg 1995). Such constructions introduced by verbs of emotion are described in Iordanskaia and Mel'čuk 1981. The structure of this construction expressed in a direct speech sentence includes a direct speech clause and a direct speech introductory clause. Usually, direct speech occurs as a complement to verbs of speaking and other linguistic acts[9] or vocal emissions: *X skazal / voskliknul / prošeptal: "On priexal."* 'X said/ exclaimed/whispered, "He's arrived."' The complementation can be either vocal (when the verb denoting the vocal emission is complemented with direct speech) or quasi-vocal (when such a verb denotes imaginary vocalizations of animals and inanimate objects).

Direct speech can be used as a complement to verbs of sounds produced by inanimate objects or animate beings, in which case the latter substitutes for the verb of speaking and acquires the sense of speaking in a certain manner, as in (8a). Such a verb also acquires the syntactic property of admitting the construction for indirect speech, as in (8b):

(8) a. —Ne mogu-u…, —problejal ja.
'"I can't…" I bleated.' (S. Lungin/RNC)

b. Ja problejal, čto ne mogu.
'I bleated that I couldn't.'

The inability of the sound verb to admit the construction with indirect speech, as in (9b), is a sign that the direct-speech sentence it represents in (9a) is a special "quotative" surface-syntactic relation (Iordanskaia and Mel'čuk 1981: 58).

(9) a. —Podruga, a ty lučše ne rassiživajsja, —xrustnul šeej Logmir.
'"My friend, you'd better not sit here too long," Logmir said cracking his neck.' (A. Rudzasov/G)

b. *Logmir xrustnul šeej, čto podruga lučše ne rassiživalas'.
*'Logmir cracked his neck that his friend had better not sit there too long.'

[9] Glovinskaja (1993: 158) excludes from speech acts all verbs characterizing the external, phonetic aspect of oral speech, such as various extents of loudness, distinctness, speed, timbre and pitch of voice, its emotional coloring, etc. Such speech characteristics, however, cannot be ignored in the present study.

3.1. In Search of the NP

In the Activities mentioned above, linguistic actions can express both homogeneous and heterogeneous situations. However, though dictionaries record the sense of speaking for certain sound verbs (such senses are recorded in MAS for 24 verbs of the 50 under analysis), they treat such verbs as unpaired; thus, we cannot find *pf* partners for paired verbs there. But since the verbs marking heterogeneous situations are paired, they need an NP as a partner for the simplex Activity. Avilova (1976: 110–12) states the opinion that although the semantics of telic (*predel'nyx*) verbs can favor aspectual pairhood, such verbs can remain unpaired because they have no *pf* partners with totally desemanticized prefixes, and thus Russian has no eligible candidates for such partners. However, if we accept the idea that there are no purely aspectual prefixes anyway, we must, as a practical matter, attempt to determine the *pf* partners of telic verbs.[10]

The procedure of identifying *pf* correlates (which I called "NP by Appointment"—cf. 1.2.4.6) includes three steps. First, determine syntactic positions for verbs marking heterogeneous situations. Next identify the candidates for the *pf* correlate. Finally, select the partner.

Paired verbs marking linguistic actions were distinguished according to their syntactic position, as compared to the main speaking verb *govorit'*^{i} 'speak' / *pogovorit'*^{p} 'speak (for a while)', etc.[11] In particular, verbs of speaking and comparable senses of other verbs are treated as paired when they are complemented with direct speech uttered by the speaker in (10a–b); with an object clause marking the essence of an utterance in (11); or with a direct object marking the summary of the message, its estimation, or its indefiniteness as seen by the reporter in (12).

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[10] Compare Lehmann's (1988) view of "functional aspectual partners", or Šmelev's (2010: 4) view of "obligatory imperfectivation" in which even if the needed sense is expressed by a *pf* verb, the speaker must find its *impf* correlate, or create one if such a verb is unavailable.

[11] The verbs *govorit'*^{i} 'speak, say' and *skazat'*^{p} 'speak, say' are treated as unpaired in BAS and MAS. Ushak marks two out of eight senses of *govorit'*^{i} as paired. OžegŠv records three paired senses of *govorit'*^{i} out of eight senses.

(10) a. —Vaxtennyj pomošnik!!! —gremit^{i} komandir.
'"Mate-on-duty!" the commander thunders.' (M. Veller/RNC)

b. —Nu, xorošo, —dal'še kvakaet^{i} Lunc.
'"Well, good," Lunc croaks.' (V. Bukovskij/G)

(11) Kto vam karkaet^{i}, čto propali my?
'Who is croaking that we are lost?' (MAS)

(12) Romanov blejal^{i} čepuxu.
'Romanov bleated nonsense.' (A. Arkaeva/G)

After we determine the heterogeneous situations, we must determine *pf* correlates for the *impf* simplexes. In order to determine such correlates, we first consider the Perfectives for the senses of speaking according to their frequencies (number of derived verbs). Various kinds of Perfectives of sound verbs of speaking are given in Table 2 on the next page, which shows that four types of Perfectives marking speaking prevail: SPs with the prefix *pro-*, as in (13); CAs with the prefix *za-*, as in (14), and those with *na-*, as in (15); and SAs with the suffix *-nu-*, as in (16).

(13) —Ja vot tut sižu, sižu, progudel^{p} Goša.
'"I am just sitting (and) sitting here," Goša droned.' (A.Volos/RNC)

(14) —Ètogo ešče nedostavalo! —zadrebezžal^{p} on.
'"That's all we needed," he said, voice trembling.' (Chekhov/RNC)

(15) Sergej…nagremel^{p} na menja —"Počemu srazu ne skazal?"
'Sergej thundered at me: "Why didn't you tell me right away?"' (Issad/G)

Table 2. Perfectives of Sound Verbs in the Sense of Linguistic Action

Kinds of Perfectives (Verbs with prefixes:)	Inanimate Verbs			Animate Verbs			Total Extended Database	
	Conserv. Database	Extend. Database	%%	Conserv. Database	Extend. Database	%%	Quantity	%%
pro-	20	24	100%	18	19	100%	43	86%
za-	23	24	100%	19	19	100%	43	86%
na-	10	16	67%	7	17	71%	33	66%
-nu	11	12	50%	14	15	79%	27	54%
Verbs with confixes (prefix + *-nu-*)	2	8	33%	3	12	63%	20	47%
po-	3	9	38%	4	5	26%	14	28%
vz-	2	5	21%	1	6	32%	11	22%
vy-	–	2	8%	1	8	42%	10	20%
raz-	2	7	29%	–	3	16%	10	20%
do-	–	1	4%	1	5	26%	6	12%
ot-	–	1	4%	–	3	–	4	8%
pod-	–	1	4%	–	–	–	1	2%
pri-	–	1	4%	–	–	–	1	2%

(16) Ja vdrug brjaknul^{p}, čto budu učit'sja v universitete.
'Suddenly I blurted out that I would study at the university.' (V. Astaf'ev/RNC)

Let us consider these forms as possible *pf* partners of paired verbs in the sense of speaking.

3.1.1. Verbs with the Prefix *na-*

Verbs with the prefix *na-* can be used in a number of "speaking" senses, including cumulation, as in (17), conveying information about somebody aimed at inflicting harm on that person, as in (18), and conveying aggression in speech, as in (19) (Krongauz 1998: 222).

(17) Priezžala Xrjukova…i naxrjukala^{p} nam kuču zamečanij.
'Xrjukova arrived, and she grunted a lot of remarks to us.' (Ju. Kavaguti/G)

(18) Zrja ty nalajal^{p} na Xakamadu.
'You barked at Xakamada for nothing.'(liveinternet/G)

(19) Ja pozvonil v gazetu i nagremel^{p} na nix.
'I called the paper and thundered at them.' (tymoshenko.com.ua/Y)

In all these cases, the *pf* verbs with *na-* occur in senses different from their *impf* bases *xrjukat'*, *gremet'*, *lajat'*, etc. They fail the Maslov test since the meaning of the *pf* verb with *na-* is lost. Compare (20a) and (20b):

(20) a. Bes, ty navernoe nagudel^{p} mnogo na nix.
'Bess, you must have droned a lot at them.' (games.alkar.net/G)
b. *Vot i včera, Bes, ty gudiš'^{i} mnogo na nix.
*'Yesterday also, Bess, you drone a lot at them.'

Therefore, *pf* verbs in *na-* should be excluded from the list of candidates for aspectual partners.

3.1.2. Verbs with the Prefix *za-*

Though several researchers have investigated verbs with the *za-* prefix (Zemskaja 1955, Isačenko 1960, Šeljakin 1969, Ramchand 2004, and Braginsky 2008, among others), none of them paid due attention to the use of *za-* verbs in the sense of speaking. Such verbs when complemented by various expressions denote a heterogeneous situation, which marks a change in the extent of received information. *Za-*prefixed verbs governing direct and indirect speech clauses exhibit properties both like and unlike those of inceptive verbs marking sounds. Like inceptive verbs, they denote single events characterized by high intensity, unexpectedness, and short temporal duration (Šeljakin 1969: 22), which is marked by their combination with adverbs such as *neožidanno* 'unexpectedly' in (21), *vdrug* 'suddenly', or *srazu* 'at once':

(21) —Xorošo! —golos Girina neožidanno zagremel.
'"Great!" Girin's voice thundered unexpectedly.' (I.A. Efremov/G)

Like Inceptive verbs, they are usually incompatible with A_{DI}s. But unlike inchoative verbs, they do not express the onset stage of speaking, though the onset of a durative action is the meaning of inchoative verbs (Zemskaja 1955: 9). Usually, they mark linguistic action as a whole, often after a period of silence. Although Maslov (2004: 390) does not recommend distinguishing between ingressive and inchoative shades of inceptive meaning, we can say that *za-* inceptive verbs are closer to ingressive verbs, since they denote "achievement of the result in the process of the onset of a phenomenon" (Vinogradov 1947: 531). In most cases, the combination of the inceptive prefix with the verbs *načat'* and *stat'* 'begin', which express the meaning of the duration of the beginning more vividly than even A_{DI}s, sounds odd or is impossible, as shown in (22) (Vinogradov 1947: 530):

(22) V naušnike zašelestel / ??načal šelestet' golos režissera: —"Čitaj dal'še."
'The director's voice rustled in the earphone: "Read on."'(E. Kozyreva/RNC)

Such verbs differ in meaning from proper Inchoatives in *za-*, which mark homogeneous situations (Zaliznjak and Šmelev 2000: 107). They can pass the Maslov test but with a change of meaning: they lose the semantic component of beginning. Complemented with an object marking message and denoting an action as a whole with the weakened meaning of a process, a sound verb in *za-* functions as an Ingressive or a total Inchoative, a kind of "illegal" correlate (Zaliznjak and Šmelev 2002: 216). Although such verbs can combine with *vnezapno* 'suddenly', which makes them similar to the "legal" correlates (p. 216) and they can pass the Maslov test (23a–b), there is still a semantic shift from the *impf* simplex, the loss of the weakened inceptive sense.

(23) a. Vnezapno ona zamurlykala^{p}: "Kupi mne èto kol'co."
'Suddenly she purred / ?began to purr: "Buy me this ring."'
b. Vnezapno ona murlyčet^{i}: "Kupi mne èto kol'co."
'Suddenly she purrs: "Buy me this ring."'

Therefore, *za- verb*s are not quite eligible candidates for *pf* partners of aspectual pairs.

3.1.3. Single Act Verbs (Semelfactives)

Single Acts contain the suffix *-nu-*.[12] Most of these *pf* verbs have a punctual, instantaneous meaning and are correlated with *impf* multiplicative verbs, which mark a series of quanta regularly repeated after small time intervals: *maxnut'*^{p} 'wave once' / *maxat'*^{i} 'wave'. Paducheva (1996: 119) considers such pairs to be aspectual since they meet the Maslov criterion. In Zaliznjak and Šmelev 2000 (60), such pairs are treated as semelfactive aspectual pairs.[13] Other scholars disagree with this treatment. Isačenko (1960: 254) does not consider them paired. The same opinion is shared by Avilova (1976: 288). According to Šeljakin (1983: 121), the pair type of *maxat'*^{i} / *maxnut'*^{p} does not present an aspectual pair but can be called an "approximate aspectual pair," since this Aktionsart is closest to aspectual meanings. Forsyth (1970: 35) claims that such pairs do not satisfy the essential requirement of an aspectual

[12] For other types of Semelfactives, see Dickey and Janda 2009.

[13] On the pairhood of Semelfactives, see also Xrakovskij 1998.

pair—that its members must be synonymous apart from aspect. Some dictionaries also treat Semelfactives as unpaired. Thus, Ushak treats a number of verbs as *semelf* only and not the *pf* partners of corresponding *impf* verbs: *bul'knut'*^{p}, *gromyxnut'*^{p}, *karknut'*^{p}, etc.

However, Ushak treats certain other verbs in *-nu-* as paired *pf* partners. Some verbs are marked as *pf* only rather than *semelf*. For example, the verb *brjakat'* is marked as the *impf* of *brjaknut'*, and the latter is marked as the *pf* (but not *semelf*!) of *brjakat'*. But some other verbs (*buxnut'*, *zvjaknut'*, *krjaknut'*, etc.) are marked as both *pf* and *semelf*, and the corresponding verbs (*buxat'*, *zvjakat'*, etc.) are treated as their aspectual correlates and marked *impf*. Therefore, we can conclude that verbs in *-nu-* can be considered as likely candidates for NPs of sound verbs, though their pairhood cannot be stated with certainty.

3.1.4. Perfectives with the Prefix *pro-*

Perfectives of this kind are considered here to be the most eligible candidates for NPs in the speaking sense, for reasons related to the following: (i) the meaning of the prefix *pro-* in verbs denoting linguistic actions and (ii) the treatment of *pro-*prefixed sound verbs in dictionaries.

3.1.4.1. The Meaning of the Prefix *pro-* in Sound Verbs of Speaking

Researchers observe a wide polysemy in the prefix *pro-* in verbs. Efrem-1 (1995: 414–16) distinguishes six senses, in Vinogradov (1953: 599–601) there are ten senses, and Golovin (1976: 17–19) records eighteen. Not all senses are related to sound verbs.[14] Typically, sound and speech verbs occur in the sense listed in Efrem-1 as bringing "an action to the resultative completion" (*prokričat'*^{p} 'give a shout'). In Vinogradov 1953, they occur with the meaning of "completeness, conclusion" (*zakončennost'*, *zaveršennost'*), (*probormotat'*^{p} 'mumble', *prožužžat'*^{p} 'drone') or "filling a certain time span by an action" (*proboltat'*^{p} 'chatter', *progovorit'*^{p} (*celyj čas*) 'talk through[15] (the entire hour)'). The related senses in Golovin 1976 (18) are "achievement of the result" (*prokašljat'*^{p} 'cough

[14] According to Chevalier (2001: 180), sound verbs account for only 3% of all *pro-* verbs.

[15] According to Flier (1975: 228), "The English form *through* serves a function similar to that of *pro-* in Russian."

through'), "complete, finish performance of an action" (*prodeklamirovat'*^{p} 'recite'), and "perform an action in one act" (*progovorit'*^{p} 'say'). Avilova (1976: 300–01) proposes for such verbs a special Terminative Aktionsart with the meaning of the completion of an action that lasted for some time.

Ničman (1969) claims that such verbs express the completion of an action when used with direct speech or a direct object: "Direct speech (or a direct object) provides the action with the character of a concrete utterance having certain boundaries. The real achievement of the action's completion (its limit) is expressed in such verbs with the prefix *pro-*, which brings the meaning of completion in the simplex" (1969: 50–51). Since *pro-*prefixed verbs in the speaking sense express completability and resultativeness (perfectivity and telicity, *predel'nost'*) unburdened with the nuances of the inception of an action (as in verbs with *za-*), cumulation, inflicting harm and aggression (as in verbs with *na-*), as well as semelfactivity (as in verbs with *-nu-*), they may be treated as the most eligible candidates for the *pf* correlates of verbs in the given sense. They are, in fact, often treated as *pf* correlates in explanatory dictionaries.

3.1.4.2. The Treatment of the *pro-* Verbs of Sound in Dictionaries

Sound verbs in *pro-* constitute the majority of *pf* correlates of such verbs in dictionaries. According to the four dictionaries (BAS, MAS, Ushak, and OžegŠv), *pf* correlates of the fifty verbs studied include words with the prefixes *pro-* (21 verbs), *po-* (2), *raz-* and *s-* (1 verb each), and *-nu-*suffixed (6). Thus, dictionaries treat the following verbs as *pf* correlates: *progromyxat'*^{p} to *gromyxat'*^{i}, *proskripet'*^{p} to *skripet'*^{i}, *proxlopat'*^{p} to *xlopat'*^{i}, etc. According to Karunc (1987: 66), 80% of verbs in *pro-* of the type *progremet'*^{p}, *prožurčat'*^{p}, etc., are recorded in the 1972 edition of OžegŠv as paired.

Though verbs of human speech with various prefixes can be used to express linguistic action as in (24a), taking into consideration the large proportion of paired verbs of speaking with the prefix *pro-* recorded in dictionaries and the finding of researchers that such verbs express the completion of an action when used with direct speech or a direct object, it is arguable that sound verbs with the prefix *pro-* should be chosen as the most eligible candidates for *pf* partners when no other NP is readily available; cf. (24b).

(24) a. "Gde ja voz'mu uzbeka?" —"V Uzbekistane," —podskazal ja.

'"Where will I find an Uzbek?" "In Uzbekistan," I prompted (NP_{SP}).' (S. Dovlatov/RNC)

b. "'Sčast'e' očen' daže kačestvennyj produkt," —otčetlivo proxrustel^{p} (NP_{SP}) xudožnik.

'"'Happiness' is a product of very good quality," the artist crackled (NP_{SP}) distinctly.' (V. Susi/G)

To repeat, verbs in *pro-* are better candidates for *pf* partners of sound verbs in the speaking sense than verbs in *-nu-*, which can also mark speaking and express a message. Compare:

(25) a. "Nikuda ty tak pozdno ne pojdeš'!"—probuxal (NP_{SP}) Klim svoim gromovym golosom.

'"You won't go anywhere so late," Klim thundered in his thunderous voice.' (M. Grigorian/G)

b. "Kapitan pomer," —buxnul^{p} (SA_{NP}) Pavel.

'"The captain is dead," Pavel blurted out.' (I. Krupennikova/G)

Following the principle of uniqueness of aspectual correlate (Zaliznjak and Šmelev 2000: 50), the verb in (25b), we must consider a Single Act rather than Natural Perfective.

It is now possible to list the cluster types of sound verbs in the sense of speaking. From Table 3 on the next page, we can see that inanimate verbs display a diversity of cluster types (seven types) while animates are more uniform (five types). In addition, inanimate verbs have three specific cluster types (##5, 6, 7) and animate verbs, one (#8). Both groups share the four most frequent types, (##1–4). The first two have reverse rankings (frequency order) in the two groups. The difference arises because of the proportion of the corresponding cluster elements, which I will consider in more detail below.

Table 3. Cluster Types of Sound Verbs Marking Linguistic Action

#	Cluster type*	Verbs**	Sub-quantity	Quantity
1.	A + NP_{SP} + (SP) + CA + SA+ (SSA)	*gromyxat', skripet', šelestet' / kvakat', krjakat', kudaxtat', kukarekat', myčat', xrjukat', čirikat'*	3/7	13 (4/9)
	A + NP_{SP} + SP + CA + SA + (SSA)	*brjakat' / karkat'*	1/1	
	A + NP_{SP} + (SP) + CA + (SA) + (SSA)	*mjaukat'*	Ø/1	
2.	A + NP_{SP} + SP + CA	*gremet', treščat' / blejat', kukovat', lajat'*	2/3	12 (8/4)
	A + NP_{SP} + (SP) + CA	*brenčat', žurčat', zvenet', taraxtet', určat', šuršat'/ žužžat'*	6/1	
3.	A + NP_{SP} + SP + CA + SA	*šumet'*	1/ Ø	6
	A + NP_{SP} + SP + CA + (SA)	*ščebetat'*	Ø/1	(3/3)
	A + NP_{SP} + (SP) + CA + SA	*cokat'*	1/ Ø	
	A + NP_{SP} + (SP) + CA + (SA)	*gudet' / vorkovat', strekotat'*	1/2	
4.	A + NP_{SP} + CA + SA	*buxat', groxotat', skrežetat'*	3/Ø	7
	A + NP_{SP} + CA + (SA)	*rokotat', xrustet'/ klekotat', ržat'*	2/2	(5/2)
5.	A + NP_{SP} + CA	*drebezžat', xljupat'*	2/Ø	2
6.	A + (A_{DI}) + (NP_{SP}) +(SP_{NP}) + CA + SA + SSA	*bul'kat'*	1/Ø	1
7.	A + (A_{DI}) + NP_{SP}+ SP_{NP} + SP + CA	*trezvonit'*	1/Ø	1
8.	A + A_{DI} + NP_{SP} + SP_{NP} + (SP) + CA + SA + SSA	*murlykat'*	Ø/1	1
		TOTAL	24/19	43

* The elements marked by parentheses occurred only in the extended database, making them a subtype of a cluster type. The quantity of a cluster type is the sum of the quantities of its subtypes.

** Verbs and their quantities before the sign (/) relate to inanimate, after it to animate.

4. Cluster Elements and Their Expression

Clusters of sound verbs in the sense of speaking consist of two *impf* elements (A and A_{DI}) and six *pf* ones (NP_{SP}, $SP_{NP,}$ SP, CA, SA, and SSA). The most frequent cluster elements are A, CA, and NP_{SP}, which are part of all eight cluster types, followed by SP (34 verbs occurring in six cluster types, ##1, 2, 3, 6, 7, 8).

4.1. The Element A

The base or simplex verb, when complemented by direct or indirect speech, transforms normally atelic sound verbs, as in (26a), into telic ones, as in (26b). Compare:

(26) a. Tixo brjakal[i] kolokol v bližnej kirxe.

'The bell in the nearby church clanged softly.' (A. Kučaev/RNC)

b. Vse-taki stoit…bubnit' i brjakat'[i], čto my po-prežnemu xotim žit' svobodnymi ljud'mi.

'It is worthwhile to mutter and even blurt out that we want to live like free people as before.' (Fajbisovič/G)

4.2. The Element NP_{SP}

Expressed by a *pro*-prefixed verb, this element was treated as a *pf* correlate in this study (see 3.1.4.2). All 43 *pro*-prefixed sound verbs appeared to be recorded in dictionaries, though the sense of speaking often remained unmentioned.

4.3. The Element CA

My treatment of the Complex Act Perfective is described in section 1.2.4.2. The element CA in this study turned out to be expressed by verbs with the following prefixes: *za-* (43 verbs), *po-* (11), *vz-* (10), *na-* (4), *pro-* (2), and *ot* (1).

4.3.1. Verbs with *za-*

Complex Acts in all clusters contain verbs in *za-* functioning as Ingressives or total Inchoatives (see 3.1.2 above). All 43 *za*-prefixed sound verbs for which the sense of speaking was attested are recorded in dictionaries and belong to the conservative database. In the least frequent cluster types (##6–8), CA was expressed only by *za-* verbs. The consistent use of *za-* with all sound verbs in the sense of speaking contrasts with the infrequent occurrence of verbs with the other prefixes.

Speech verbs in *za-* can be considered "atypical" Inceptives (Inchoatives or Ingressives) for the following reasons. Inceptives in *za-* are formed only from intransitive verbs (Isačenko 1960: 225–26; Avilova 1976: 278). Though some transitive verbs can also be found (cf. *zanosit' čemodany vverx po lestnice* 'start carrying the suitcases (upstairs)' (Braginsky 2008: 226)), such examples are rare. Speech verbs in *za-*, complemented by "quotation" objects, are consistently transitive. Such verbs are also a counterexample to the idea that their motivating bases are atelic (Avilova 1976 and Karunc 1987: 19) and that telic verbs are at variance with perfectivizing Inceptivity (Šeljakin 1969: 27). However, complemented with quotation clauses, verbs with *za-* become telic, since such clauses set limits on the action of the verbs introducing them.

4.3.2. Verbs with *vz-*

Such verbs denote the onset of an action that is quick, sudden, and unexpected (Šeljakin 1969: 22). In this study, five verbs of inanimate sounds (*vzgremet'*, *vozgremet'*, *vzgroxotat'*, *vzgudet'*, and *vzžurčat'*) and six verbs of animate sounds (*vzblejat'*, *vzvorkovat'*, *vzžužžat'*, *vzmyčat'*, *vzmjaukat'*, and *vskudaxtat'*) were attested. Of these eleven verbs, eight are unconventional. Such verbs are stylistically marked, being "low colloquial" (*prostorečnye*) or "archaic."

It was noted that sound verbs with *vz-*, like all Inceptives, combine only with atelic stems (Karunc 1987: 19). However, complemented with "quotation" objects, verbs in *vz-*, like other Complex Act verbs, become bounded and telic because "quotation" objects indicate that the action occurs as a concrete utterance, which has definite boundaries coinciding with the beginning and end of the utterance (Ničman 1969: 50):

(27) "Naglaja lož'," —vzgudel^{p} Prometej.

'"Deliberate lies," Prometheus hooted.' (V. Vlodislavov)

Therefore, for the reasons stated in 4.3.1, such verbs also behave as atypical CA verbs.

4.3.3. Verbs with *po-*

Verbs with *po-* include both animate (*poblejat'*, *povorkovat'*, *požužžat'*, *pokudaxtat'*, *pomurlykat'*) and inanimate sound verbs (*pobrjakat'*, *pobul'kat'*, *pogremet'*, *pogudet'*, *podrebezžat'*, *požurčat'*, *pozvjakat'*, *porokotat'*, *pocokat'*). Functioning as CAs, *po-* verbs are Delimitatives (i.e., "perfective procedural verbs that express the occurrence of an activity for some 'short' or indefinite period of time" (Dickey and Hutcheson 2003: 23). In contrast to the prevailing opinion that Delimitatives describe atelic situations (Flier 1985: 44; Dickey 2000: 17), linguistic Delimitatives (like other situations complemented and thus bounded by expressions of message) are telic. Moreover, linguistic Delimitatives have two types of telicity: internal (conditioned by the nature of the action) and external (temporal) (Ničman 1969: 59). Like other Delimitatives, they occur in contexts describing sequences of events, as in (28).

(28) On tože dostal svoj 'ikonostas', povorkoval čto-to svoej krasavice i, rasklanjavšis', ušel.

'He also took out his "iconostasis" [snapshots of his kids—G. R.], cooed something to his pretty girl and, bowing, he left.' (V. Balon/G)

Since when combined with telic verbs *po-* manifests "a resultative rather than determinative function" (Flier 1984: 45), telic *po- verb*s complemented with expressions of message are, strictly speaking, very atypical Delimitatives, synonymous with *pro-* verbs. In (29), *poblejal* can be replaced by *problejal* with no significant change of meaning.

(29) "Časy ne daet," —poblejal čurban.

'"(He) does not give away his watch," the blockhead bleated (= said in a complaining tone).' (B. Grebenščikov/G)

The atypicality of Delimitatives of speech has been mentioned in the literature. Zaliznjak and Šmelev (2000: 59) note two functions of the verb *pogovorit'*^{p} 'speak.' It can occur as either Delimitative (*pogovorit' s prijatelem polčasa* 'speak for half an hour with a friend') or as a *pf* correlate in a telic context meaning 'carry through a conversation' as it occurs in the pair *govorit'* / *pogovorit'*, which is "close to the aspectual pair" (ibid.) and is atypical for unpaired Delimitatives. Tixonov lists verbs of speech with *po-*, such as *pogovorit'*, in a section describing *pf* correlates of aspectual pairs (1998: 60–61). Two meanings of *pogovorit'* are also treated by Dickey (2006: 22).

4.3.4. Verbs with *na-*

Verbs with *na-* usually denote cumulation (say a lot), as in (30a), and intensity (speak loudly), as in (30b).

(30) a. On ej navorkoval vsjakix ljubeznostej.
'He cooed a lot of pleasantries (to her).' (Dal')

b. Mixalyč naxmurilsja i našumel na posetitel'nicu.
'Mixalyč frowned and yelled at the visitor.' (A. Tovkač/G)

However, such verbs more often express aggressive negative speech action (*agressivno-otricatel'noe rečevoe vozdejstvie*; see Krongauz 1998: 221), in which case such sentences should be classed as expressing Specialized Perfective (see 4.4.1; see also 3.1.1).

4.3.5. Verbs with *do-*

Verbs with *do-* in a speaking sense in my database are derived mainly from animate sounds (*dovorkovat'*, *dokukarekat'*, *domyčat'*, *doxrjukat'*, and *dočirikat'*). Only one verb (*dorokotat'*) is based on an inanimate sound. These verbs express completion of a linguistic action that is performed in a special manner, shown in (31a), or that causes a special (usually negative and ironic) response in the listener, as in (31b).

(31) a. Kakoj-to "molodoj i r'janyj"…ne uspel dovorkovat' so svoej ljubimoj.

'Some "young and zealous" guy…had no time to finish his tender talk with his sweetheart.' (si-eu.livejournal.com/629.html/Ya)

b. Knjaz' domyčal svoj tost.

'The count finished mumbling his toast.' (A. Mjakšin/G)

CAs with the other prefixes occurred below the established minimum (see 4.3) and are not considered here.

4.4. The Element SP

In contrast to NPs, which have the same lexical meaning as their *impf* correlates, Specialized Perfectives are lexically distinct from the corresponding base verbs because the lexical prefixes entail a shift in the meaning of the verb and describe completable situations with internal boundaries (Janda 2006). In contrast, CA verbs have external boundaries (see Bondarko 1987: 46–47, Dickey and Janda 2009: 231). Potentially, SPs include all prefixal derived verbs that are neither NPs nor CAs (see 1.2.4.3). However, among linguistic sound verbs their proportion did not turn out to be very large. Apart from 28 SP verbs with the prefix *na-*, the other six base verbs in my databases contained the prefixes *raz-* (10 verbs); *vy-* (10); *ot-* (4); and *pere-*, *pod-*, and *pri-* (1 each). Combined, their quantities are almost equal to that of verbs with *na-*. Normally, SPs derive A_{DI}s. However, A_{DI}s were attested only for clusters ##6, 7, 8 (*probul'kat'*^{p} / *probul'kivat'*^{i}; *rastrezvonit'*^{p} / *rastrezvonivat'*^{i}). But *pomurlykat'*^{p} does not form an aspectual pair with *pomurlykivat'*^{i} (see fn. 5). The unusually small proportion of A_{DI}s in speaking cluster types compared to unpaired ones is noteworthy.

4.4.1. Verbs with *na-*

In section 4.3.4, it was shown that *na*-prefixed verbs with the sense of cumulation are not frequent in speaking sound verbs. Among such *na*-prefixed verbs, we find both a) animate and b) inanimate sound verbs, with the latter prevailing in quantity.

a) *nablejat'*, *nakarkat'*, *nakvakat'*, *nakrjakat'*, *nalajat'*, *namurlykat'*, *načirikat'*, *naščebetat'*, etc.;

b) *nabrenčat'*, *nagremet'*, *nagromyxat'*, *nagudet'*, *nažurčat'*, *naskripet'*, *nataraxtet'*, *natrezvonit'*, *nacokat'*, etc.

Most verbs with *na-* denote conveying information to a more important person about somebody with the aim of doing harm to the latter. These verbs indicate messages that contain slander, false rumors, or threats, as in (32) (see also section 3.1.1).

(32) a. Kto èto tebe nabrjakal, čto ja ne car', ne Petr Fedorovič?

'Who blurted out to you that I am not the tsar, not Petr Fedorovič?' (V. Šiškov/G)

b. Gospoža Timošenko rešila nažužžat' na gospodina Ivčenko.

'Mrs. Timošenko decided to slander Mr. Ivčenko.' (V. Nemykin/Y)

4.4.2. Verbs with *raz-*

Seven out of the ten attested verbs with *raz-* are derived from inanimate simplexes (*razbrenčat*, *razgremet'*, *razgudet*, *razžurčat'*, *rastaraxtet'*, *rastrezvonit'*, *rasšelestet'*). Such verbs have the following two meanings: "spread rumors", as in (33a), and "cause somebody to produce sounds or speech", as in (33b).

(33) a. Lena rastrezvonila vsem o "xobbi" soseda.

'Lena noised about the neighbor's "hobby" to all the residents.' (Doncova/ RNC)'

b. Olja, i ja rad, čto razmurlykal vas.

'Olja, I am also happy that I made you murmur.' (V. Tjurenkov)

4.4.3 Verbs with *vy-*

They occur with the meaning of speech production in a specific tone (*vyblejat'* 'speak in a bleating voice' (34a); *vyskripet'* 'squeak out, utter in

a squeaky voice' (34b); *vyvorkovat'* 'utter in a cooing, tender voice' (34c); etc.).

(34) a. Oni…ne umejut členorazdel'no vyblejat' svoi predvybornye obeščanija.

'They don't know how to bleat out their pre-election promises articulately.' (surr.su/staryjvorchun)

b. "Kakoe gadstvo!" —vyskripel on.

'"How disgusting!" he squeaked.' (gatter.ru/newforum/post.asp?.)

c. Eželi kto so storony ugljadit —podumaet: milostynju ded vyvorkoval.

'Anybody who sees it from the side will think that the old man begged for charity in his pleading voice.' (E. Lukin/G).

Verbs with other prefixes are not considered because of their low frequencies.

4.5. The Element SA

Single Act Perfectives turned out to be expressed exclusively by verbs with *-nu-*. Verbs with the prefix *s-*, which also express semelfactivity (Dickey and Janda 2009), did not occur with sound verbs. Only one verb with the confix *s-…-nu-* (*sbrjaknut'* 'say too much') is recorded in my conservative database (see Efrem-2). The proportion of SAs in animate sound verbs turned out to be much higher (animates: 79%; inanimates: 28%). SAs of only four animate verbs (*blejat'*, *kukovat'*, *lajat'*, and *žužžat'*) were not attested (see Table 3). The fact that SAs appeared only in clusters which also contained CAs supports the Implicational Hierarchy formulated in Janda 2007 (634) (see also section 1.2.4.5).

4.6. The Element SSA

The element Specialized Single Act Perfective was added to the cluster model quite recently. It would require a detailed description that is beyond the scope of this study. This element is expressed by the confix 'prefix … + *-nu-*' and combines the properties of Specialized Perfectives

(SPs) (such as Completability, the ability to provide new semantic content in combination with various prefixes, etc.), and of Single Act Perfectives (SAs) (such as the expression of a quantum of an action, correlation with multiplicatives, etc.). In our materials, SSA-derived verbs of 15 *impf* speaking simplexes are attested. As in the case of SA, animate sound verb stems prevailed (10 versus 5). Various prefixes occur in this structure. The most frequent prefix is *vz-* (11 derivatice verbs of 15 = 73%). The other prefixes are *pod-* (8), *pro-* and *pri-* (4 each), *za-* (3), *vy-* and *s-* (2 each), and *do-* (1).

In the literature, this type of Perfective is treated variously: as Inceptive Aktionsart (Avilova 1976: 275), as Delimitative Aktionsart (Šeljakin 2007: 154), as Intensive Single-Act Aktionsart (Pixlak 1991: 78), and as Diminutive (*umen'šitel'nyj*) Aktionsart (Avilova 1976: 289). Researchers note conflicting meanings in such verbs. On the one hand, in *vz*-prefixed verbs the nuance of intensity is emphasized (Zemskaja 1955: 14, Avilova 1976: 275, Pixlak 1991), and on the other, the nuance of insignificant intensity (Efrem-1: 96), diminutivity, attenuativity (Avilova 1976, Zaliznjak and Šmelev 2000: 120), and shortness of action (Šeljakin 2007) are noted. Most likely, both of these opposing nuances can be ascribed to SSA verbs, which can differ in the extent of intensity: *vzgromyxnut'* 'rumble once unexpectedly' (intensive); *vsplaknut'* 'have a little weep' (attenuative). Compare also: *vskrjaknut'* 'grunt suddenly and abruptly' in (35a) and *vsxrjuknut'* 'grunt a little' in (35b):

(35) a. Ona ne ožidala ego vstretit', vskrjaknula: "Vy!"

'She, not expecting to meet him, grunted, "You!"' (I. Turgenev/RNC)

b. "Jurodivyj ty, vot kto" —Maksim vsxrjuknul.

'"Cracked, that's what you are," Maxim said with a little grunt.' (S. Daniliuk/ RNC)

As with SPs, one *impf* stem can form multiple SSA verbs. Thus, six prefixes are attested in SSA verbs derived from *karkat'*[i] 'croak': *vskarknut'*, *vykarknut'*, *dokarknut'*, *zakarknut'*, *nakarknut'*, and *podkarknut'*.

Makarova and Janda (2009: 82–83) noted that there are deviations from the implicational hierarchy in Janda 2007: 634, but the restricted materials of this study have not discovered any. Moreover, since a new cluster element (SSA) has appeared in the model and we have observed

of its functioning we may now include it in the implicational hierarchy as the final element:

… > Complex Act > Single Act > Specialized Single Act Perfective

This means that the presence of a Specialized Single Act Perfective in a cluster assumes the presence of both a Complex Act Perfective and a Single Act Perfective.

4.7. The Element A_{DI}

The element A_{DI} turned out to be the least frequent. The proportion of A_{DI}s in linguistic sound verbs is very small. They were attested twice in the inanimate group (*probul'kivat'*^{i}, *rastrezvonivat'*^{i}) and only once in the animate group (*pomurlykivat'*^{i}). These *impf* verbs are motivated by corresponding Perfectives, which perform different functions in this sense: *probul'kat'*^{p}—NP_{SP}, SP_{NP};[16] *rastrezvonit'*^{p}—SP;[17] *pomurlykat'*^{p}—CA. How-

[16] Following Zaliznjak and Šmelev (2000: 50), I consider the aspectual triplet *bul'kat'*^{i}, *probul'kat'*^{p}, and *probul'kivat'*^{i} as two aspectual pairs—of Type II *bul'kat'*^{i} (A) / *probul'kat'*^{p} (NP_{SP}) and Type I *probul'kat'*^{p} (SP_{NP}) / *probul'kivat'*^{i} (A_{DI}), where *probul'kat'*^{p} is designated by two notations: NP_{SP} and SP_{NP}. The latter notation appears because one NP already exists in the cluster. Pairs of each type appear in the following examples:

(i) a. Est'! –…probul'kal^{p} (SP_{NP}) ja.
'"Yes, sir," I gurgled.' (V. Popov/RNC);

b. Predstavljaete,—probul'kival^{i} (A_{DI}) on skvoz' smex,—ja—kak kapusta.
'"Imagine," he was gurgling through laughter, "I am like cabbage."'
(A. Lazarčuk/G).

(ii) a. —Ja...ob'jasnil emu, čto žena molodaja…—gluxo bul'kal^{i} (A) Paramonov.
'"I explained to him that my wife is young," Paramonov was gurgling softly.' (O. Nekrasova/RNC);

b. —Ja ego ljublju, …probul'kala^{p} (NP_{SP}) Larisa.
'"I love him," Larisa gurgled.' (Ju. Bujda/RNC).

[17] According to Ushak, the *pf* partner of *trezvonit'*^{i} in the sense of 'spread rumors' is *rastrezvonit'*^{p} 'trumpet'. However, *trezvonit'*^{i} in the sense of linguistic action has four Perfectives: *protrezvonit'*^{p} 'proclaim', *rastrezvonit'*^{p} 'trumpet', *natrezvonit'*^{p} 'trumpet', *zatrezvonit'*^{p} 'start trumpeting'. Since verbs with the prefix *pro-* in this sense were "appointed" to be NP_{SP}, verbs in *ras-* and *na-* are treated as SP or SP_{NP} when they motivate A_{DI}. So the verb *rastrezvonit'*^{p} is SP_{NP}, since an NP with *pro-* for this sense is also avail-

ever, the rest of the SPs and CAs used in the sense of speaking were not attested as motivating the corresponding A_{DI}s.

This reluctance of *pf* speech verbs to form A_{DI}s can be accounted for. Telic speech verbs, especially complemented with specific messages, are unique and are usually not iterated. Therefore, they are at variance with the iterativity and habituality of Imperfectives.

Sound verbs, in the sense of speaking, differ from the ordinary speaking verbs (such as *govorit'*) by an emotive coloring, which is especially clear with animate sound verbs, as in (36).

(36) —Želaju prijatno otdoxnut', —provorkoval^{p} oficiant.
'"Have a nice rest," the waiter cooed.' (binders.benoffice.ru/G)

5. Directional Motion

The second subset of sound verbs under investigation is paired sound verbs with a sense of directional motion. These rank second in quantity (see Table 1). Motion can be understood as the changing of the location of an object. Since a moving object can produce sound, sounds associated with a certain object can be understood as motion of that object. Certain objects (bullets, arrows, etc.) can sound only in motion. Therefore, even without contextual support, such sound verbs can acquire a semantic component of motion.[18] Compare:

(37) a. Svisteli puli.
'Bullets whistled.' (V. Šatilov/G)
b. Vsju noč'…gudeli snarjady.
'Shells were buzzing all night long.' (V. Rudnyj/G)

This sense can sometimes arise only in constructions (Goldberg 1995), when sound verbs are complemented with directional structures marking the Path (38a) and/or Goal (38b) of the motion. For example:

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able: *—Ministr, ne pora li sdelat' pereryv? —šepotom protrezvonil^{p} Grjum*. '"Mr. Minister, isn't it time to take a break?" Grume proclaimed in a whisper.' (Harry Potter/G)

[18] Compare the definition of WHISTLE in Webster's New World Dictionary: "3. To move, pass, go, etc. with a high, shrill sound, as the wind" (1982: 1621).

(38) a. Po mostovoj…gromyxala^{i} telega.
'A cart rumbled along the road.' (Dju Mor'e/Y)

b. Poezd groxotal^{i} v storonu Moskvy.
'The train thundered toward Moscow.' (F. Iskander/G)

Motion can be expressed by the prefix of a sound verb. The most dynamic prefix is *pro-*, which means "to cover some distance, to move forward by means of the action marked by the motivating verb" (Efrem-1: 414). The sense of motion in sound verbs with this prefix is often recorded in dictionaries. Thus, MAS records the meaning of *progremet'* as 'drive by with a loud noise and crash'. Similar senses are recorded for the verbs *progromyxat'* 'drive by, walk by with rumbling', *progroxotat'* 'drive by, walk by with a din', *progudet'* 'fly with rumbling, buzzing', etc.

The sense of motion expressed by sound verbs has a restriction. It has been proposed that "in order for a verb of sound emission to be used as a verb of directed motion, the sound must be emitted as a necessary concomitant of directed motion" (Levin and Rappaport Hovav 1995: 191). For that reason, animal sounds produced by vocalization cannot express motion and do not usually combine with directional phrases (**Svin'ja xrjukala k svinarniku.* *'The pig grunted toward the pigsty.').[19] Therefore, the sounds of inanimate objects are more likely to mark motion than those of animates. Most verbs marking sounds of animate beings are closely associated with their sources and, as such, are not construed as necessarily accompanying motion. As a rule, animate emissions do not have a sense of motion. Only two verbs (*žužžat'* and *strekotat'*) out of the twenty studied were found to have this sense (see Table 1).

When directional phrases relate to the sound alone without a change in the location of its source, no sense of motion is expressed.

[19] The following example is acceptable because the phrase *po doroge k svinarniku* is locative (or temporal) rather than directional and the sound is unrelated to the motion: *Svin'ja xrjukala po doroge k svinarniku.* 'The pig grunted on the way to the pigsty.' (suggested by L. Janda, personal communication).

(39) Raskatistyj bas Il'i gremel po vsemu knjaževskomu dvoru.
'Il'ja's resounding bass thundered all over the count's court.' (kvirtu.ru/G)

In (39), it is the sound (*bass*) that moved, not the causer-emitter (Il'ja).[20]

In order to determine the set of cluster types for sound verbs with a sense of motion, the same procedure was applied as previously applied for sound verbs with a sense of speaking. It consisted of finding a Natural Perfective (cf. section 3.1), because sound verbs with the sense of motion, like those with a sense of speaking, also express a heterogeneous situation but as monoaspectual verbs do not have readily available *pf* partners. This allowed us to determine cluster type for each verb studied, as well as the set of cluster types for the whole group of verbs marking motion.[21]

5.1. In Search of the NP

As stated in section 3.1, contrary to Avilova's view that certain telic verbs that could have *pf* correlates remain unpaired, I propose a procedure—Natural Perfective "by appointment"—to select the best candidate and treat it as a functional *pf* correlate. This procedure includes the consideration of all eligible candidates and the selection of the best of them (see 1.2.4.6).

Let us first consider various kinds of Perfectives of sound verbs denoting directional motion. They are listed in Table 4 on the next page. Table 4 demonstrates that the most frequent *pf* markers of sound verbs expressing motion are the prefixes *za-*, *pro-*, *po-*, and the suffix *-nu-*. Such verbs might be considered as possible partners of aspectual pairs. Perfectives in *za-* and *pro-* are poor candidates, since the clear meanings of their prefixes preclude such partnership. So the choice should be made between the remaining two alternatives.

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[20] For more on causer-emitters and other participants in a sound event, see Rubinstein 2008: 362–65.

[21] The word *motion* in the phrase "sound verbs marking *motion*" should not be understood as the actual meaning of the sound verbs but as a component of their semantic structure when such verbs describe or denote sounds that necessarily accompany some implied motion and that motion can be included in their description. Thus, *taraxtet' po doroge* means 'move clattering along the road', etc.

Table 4. Perfectives of Sound Verbs Expressing Directional Motion

Kinds of Perfectives (Verbs with the affixes:)	Conservative Database	Extended Database	%%	Kinds of Perfectives (Verbs with the affixes:)	Conservative Database	Extended Database	%%
prefix *za-*	20	20	100%	prefix *ot-*	1	2	10%
prefix *pro-*	18	20	100%	prefix *ob-*	1	2	10%
prefix *po-*	17	17	85%	prefix *vz-*	–	2	10%
prefix …+ suffix *-nu-*	3	13	65%	prefix *na-*	–	2	10%
suffix *-nu-*	9	9	45%	prefix *s-*	–	1	5%
prefix *do-*	–	8	40%	prefix *v-*	–	1	5%
prefix *pri-*	3	5	25%	prefix *vy-*	–	1	5%
prefix *u-*	5	5	25%	prefix *raz-*	–	1	5%
prefix *pod-*	2	3	15%	prefix *pere-*	–	1	5%

In order to select the more eligible candidate for the NP between verbs with *po-* and those with the suffix *-nu-*, we should observe the cluster elements of the basic motion verbs (*idti*, *exat'*, etc.).[22] Some scholars claim that basic motion verbs are unpaired since the prefixes combined with these verbs do not lose their lexical meaning (see Zemskaja 1955: 5, Avilova 1976: 110–11, among others). Others (for example, Maslov 2004: 79–80) think that they are paired when provided with the goal of motion: *idti/pojti na sobranie* 'go to the meeting', etc. Still others are of the opinion that these motion verbs are always paired. Forsythe (1970: 43) states that "the perfectives of determinate verbs of motion (e.g., *pojti*, *pobežat'*) are similarly valid partners because they frequently express not merely the starting-point of the action, but the total performance." Similarly, Perfectives with *po-* are treated as partners of ingressive aspectual pairs by Zaliznjak and Šmelev (2000: 87) and as NPs in the cluster model (Janda 2007: 639; 2006: 190).[23] I share this opinion and therefore treat Perfectives of sound verbs with *po-* marking motion as NP_{CA}[24] and Perfectives with *-nu-* as SAs, provided these verbs also have Perfectives with *po-*. However, some verbs (*brjakat'*, *bul'kat'*, and *pleskat'*) do not have Perfectives with *po-* in the sense of motion. So their Perfectives with *-nu-* remain the only choice for NPs, and they are treated as NP_{SA}.[25] Consider (40).

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[22] In dictionaries, the pairhood of determined motion verbs is treated variously. BAS, MAS, and OžegŠv consider them unpaired. Ushak treats some of them as unpaired (*idti*) and others as paired but only in certain senses: *poexat' pf* for *exat' impf* 2.

[23] The facts disagree with Avilova's assertion that "verbs with the prefix *po-* are not formed from verbs of sound and speaking" (1976: 273–74). Perfectives in *po-* in the sense of motion cannot represent CA Delimitatives because the latter cannot be formed from unidirectional verbs of motion (Zemskaja 1955: 26; Avilova 1976: 284). Such Perfectives represent CA Ingressives and, as paired correlates, they are treated here as NP_{CA}.

[24] Some dictionaries (BAS, MAS, Ushak, OžegŠv) consider the verbs *brjaknut'*, *buxnut'*, and *gromyxnut'* as *pf* partners and Semelfactives.

[25] Note that verbs in *po-* with no sense of motion are treated as CA and with that sense, as NP_{CA}. Compare the following:

(i) a. Žigulenok vjalo potaraxtel (CA) i zaglox.
'The little Žiguli car rattled sluggishly (for a while) and stalled.' (A. Brynza/G);

b. Šaraban… potaraxtel (NP_{CA}) po razbitomu šosse.
'The gig rattled along the damaged highway.' (I. Abramovič/G).

(40) a. Oficiant…brjaknul^{p} /*pobrjakal^{p} na stol vilki, ložki, noži.

'The waiter banged forks, spoons, and knives onto the table.' (D. Karalis/RNC)

b. Molotok…bul'knul^{p} /*pobul'kal^{p} v vodu meždu kamnej.

'The hammer plopped into the water among the rocks.' (K. Serafimov/RNC)

Four verbs—*buxat'*^{i}, *gromyxat'*^{i}, *groxotat'*^{i}, and *xljupat'*^{i}—each have both Perfectives, one with the prefix *po-* and another with the suffix *-nu-*. When we consider examples (41–44) with these verbs, we notice that they mark motion in different directions. In the (a) examples, the direction of motion is horizontal, whereas the (b) examples indicate vertical motion.

(41) a. Rjadovoj pobuxal^{p} (*buxnul) nazad.

'The private clumped (*dropped) back.' (h.ua/story/ 22521)

b. Mark buxnul^{p} (*pobuxal) kofejnik na stol.

'Mark dropped (*clumped) the coffee pot onto the table with a thud.' (V. Kliueva/RNC)

(42) a. Avtotelega pogromyxala^{p} (*gromyxnula) obratno.

'The autocart rumbled (*dropped) back.' (M. Zinčenko/G)

b. Ona gromyxnula^{p} (*pogromyxala) na stol podnos.

'She dropped (*rumbled) the tray onto the table with a clatter.'(I. Kuberskij/G)

(43) a. Bul'dozerist…pogroxotal^{p} (*groxotnul) k magazinu.

'The bulldozer driver rumbled along (*fell rumbling) toward the store.' (Ė. Matonina/RNC)

b. Groxotnul^{p} (*pogroxotal) gde-to kamen' s vysot lednika.

'Somewhere from the top of the glacier, a rock fell with a rumble' (*rumbled along). (V. Afuksenidi/G)

(44) a. Otrjad poxljupal^{p} (*xljupnul) dal'še.

'The group squelched along farther.' (Murrèj/G)

(44) b. Bystro opuščennyj grob xljupnul^{p} (*poxljupal) v vodu.
'The quickly lowered coffin squelched down into the water.'
(A. Čexov /RNC)

Both these Perfectives in *po-* (marking horizontal motion) and in *-nu-* (marking vertical motion) pass the Maslov test:

(45) a. S"exav s dorogi, telega pogromyxala dal'še.
'Getting off the road, the cart rumbled on farther.'
b. I vot, s"exav s dorogi, telega gromyxaet dal'še.
'And then, getting off the road, the cart rumbles on farther.'

Since the Perfectives marking motion in horizontal and in a vertical direction are not interchangeable, they may be considered as marking different sub-senses of motion; both of them might be regarded as *pf* partners (NP_{CA} and NP_{SA}) without violating the principle of uniqueness of the aspectual correlate. But since sub-senses of motion are not distinguished in this study, I comply with the above-mentioned principle and treat only one verb as the Natural Perfective.

Table 5 on the next page demonstrates that 20 verbs denoting motion occur in the subset of six cluster types. Eighteen verbs (with the exception of the verbs *žužžat'* and *strekotat'*) mark inanimate sounds. These two animate verbs turn out to belong to the same cluster type (#1) as the inanimate verbs. Eight elements participate in the motion subset of cluster types. Apart from A, two elements (SP and CA, 20 verbs each) function in all six cluster types and one element (NP_{CA}, 17 verbs with *po-*) in four cluster types (##1, 2, 4, 6). The proportion of Semelfectives (SA, 7 verbs) is much smaller, and those of NP_{SA}, SA_{NP}, and A_{DI} (3 verbs each) are the smallest.

For lack of space, the elements of the cluster types of sound verbs marking motion will not be described.

5.2. Cluster Types of Sound Verbs with the Senses of Speaking and Motion Compared

A comparison of the cluster types of sound verbs denoting speaking (Table 3) and directional motion (Table 5) reveals several similarities.

Table 5. Cluster Types of Sound Verbs Marking Directional Motion

##	Cluster Type*	Verbs**	Quantity**
1.	A + NP_{CA} + SP + CA	*gremet'*, *gudet'*, *drebezžat'skrezetat'*, *skripet'*, *taraxtet'*, *xrustet'*, *šelestet'*, *šuršat'* / *žužžat'*, *strekotat'* (11 verbs)**	12
	A + (NP_{CA}) + (SP) + CA	*xrupat'* (1 verb)	
2.	A + NP_{CA} + SP + CA + SA+ SSA	*buxat'*, *gromyxat'*, *xliupat'* /	3
3	A + (A_{Dl}) + NP_{SA} + SP + SP_{NP} + CA + SA + SSA	*brjakat'*, *pleskat'* /	2
4.	A + NP_{CA} + SP + CA + SA	*groxotat'* /	1
5.	A + NP_{SA} + (SP) + CA + SA + SSA	*bul'kat'* /	1
6.	A + (A_{Dl}) + NP_{CA} + (SP) + CA+ (SP_{NP})	*cokat'*/	1
		TOTAL	**20**

* The elements marked in parentheses occurred only in the extended database making a subtype of a cluster type. The quantity of a cluster type is the sum of the quantities of its subtypes.

** Verbs and their quantities before the sign (/) relate to inanimate, after it to animate sounds.

First, atelic sound verbs in their principal senses are transformed into telic verbs upon aquiring the speaking and motion senses. Second, they show a small proportion of Derived Imperfectives (A_{DI}s) and a high proportion of inceptive verbs with *za-*. Third, they comply with the principle of Implicational Hierarchy, whereby SSA in a cluster requires the presence of both SA and CA (see section 4.6, and also Janda 2007: 634).

However, the cluster types of verbs in these two senses still differ in a number of ways. They are different in quantity (eight speaking types and six motion types). They are also different in the behavior of sound verbs produced by animate beings, which are more active in speaking types and are practically unused in motion types. This is probably because sounds from animate beings are easier to metaphorize as human speech, and such sounds are practically impossible to use in directional motion constructions because vocal animate sounds are unrelated to motion. The two groups in question are different in the quantities of cluster elements (speaking 8, motion 9). This difference is due to the fact that certain motion sound verbs lack Ingressives with *po-*, which are standardly used as NPs for motion verbs and have to use other (semelfactive) NPs instead, while all speaking sound verbs have the sense of terminativity associated with the *pro-*prefixed NP for speaking verbs. Naturally, these groups also differ in the kinds of Natural Perfectives (NP_{SP} versus NP_{CA} and NP_{SA}) and in the cluster types themselves, which lack common types. All these facts support the idea that the thematic and therefore semantic differences of verbs are reflected in differences of their cluster types.

6. Conclusion

This study was performed in the framework of the cluster model, which is an extension of the traditional pair model. The latter presents the essence of the aspectual system as the opposition between two aspects—Imperfective and Perfective. Focused on the *impf* and *pf* correlates, the pair model thus leaves the other kinds of Perfectives out of consideration. However, most Russian verbs are embedded in larger clusters of three or more aspectually related verbs. Besides the traditional pairs, the clusters involve all kinds of Perfectives, thus capturing the specificity of particular verbs based on their actual aspectual properties. This creates a foundation for grouping verbs with similar as-

pectual properties expressed in their cluster types and investigating these groups. The underlying hypothesis is that verbs grouped in one cluster type should reveal some kind of similarity in their nature which can be expressed in their lexical semantics, behavior, and relation to other verbs.

An attempt was made, by refining the cluster elements and increasing their number, to determine if the aspectual cluster model can reflect differences in the lexical semantics of the verbs of a thematic class. In order to include the partners of prefixal aspectual pairs in the cluster, the nomenclature of cluster elements was modified by distinguishing NP_{SP} (Natural Perfectives related to Specialized Perfectives, such as *pricokat'*^{p} 'clatter up'), NP_{CA} (Natural Perfectives related to Complex Act Perfectives, such as *zagremet'*^{p} 'crash down'), NP_{SA} (Natural Perfectives related to Single Act Perfectives, such as *brjaknut'*^{p} 'blurt out'), SP_{NP} (Specialized Perfectives motivating Derived Imperfectives, such as *probul'kat'*^{p} 'gurgle'; cf. *probul'kivat'*^{i} 'gurgle'), and CA_{NP} (Complex Act Perfectives motivating Derived Imperfectives, such as *zagovorit'*^{p} 'start to talk'; cf. *zagovarivat'*^{i} 'start to talk'). In order to determine aspectual partners for verbs marking heterogeneous (completable, telic) situations when such partners are not readily available, a special procedure was adopted, Natural Perfective "by Appointment", whereby the best of the eligible candidates for a *pf* partner can be identified. This procedure was applied during the investigation of two subsets of Russian sound verbs including inanimate and animate sounds: (i) paired verbs marking linguistic action and (ii) paired verbs marking directional motion. Aspectual clusters for each of the 50 verbs under investigation were determined, and clusters of various groups of verbs were compared. The verbs were divided into 14 cluster types, which turned out to be broken down into subsets peculiar to each of the two groups of sound verbs studied. It was concluded that each of these groups appears to be characterized by a specific subset of aspectual cluster types. No cluster type was shared by any of these two groups of sound verbs in the senses that were studied. This supports Janda's claim that "[t]he lexical meaning of a verb plays a powerful role in motivating the arrangement of its aspectual cluster in Russian," which was made on the basis of the analysis of "the three metaphors that motivate the patterns observed in the Russian aspectual system" (Janda 2008a: 192, 181). The analysis of the cluster types of the two subsets of sound verbs supported the hypothesis that there is some correspondence

between the lexical semantics of verbs and their cluster types. Though a certain number of verbs were concentrated in one cluster type, six types were represented by one verb only; the rest of the types were not strong enough. This distribution of verbs among cluster types is not haphazard; it reflects the aspectual properties of individual verbs. The composition of the cluster is not an agglomerate of disconnected elements. On the contrary, the elements in each cluster make an interconnected system in which the presence of each element can predict the presence or absence of other elements. Thus, the absence of A_{DI} in a cluster immediately predicts the lack of SP_{NP} and CA_{NP}. The composition of the cluster also respects the rule of the Implicational Hierarchy proposed by Janda (2007: 634) and extended in this study with the finding that the presence of an SSA verb in a cluster requires the presence of an SA and a CA. All the related cluster types in this study confirmed this rule. Analysis on the level of the expression of cluster elements showed a high proportion of Inceptives with *za-*, which is a feature of sound verbs noted by a number of scholars (Vinogradov 1947: 530, Zemskaja 1955: 9, Isačenko 1960: 225, Avilova 1976: 274, and Zaliznjak and Šmelev 2002: 212).

Analysis on the level of senses revealed an important property of sound verbs: their transformation from atelic unpaired verbs in the primary senses into telic paired verbs when extended by the expression of a message (in the sense of a linguistic action) and by the expression of goal (in the sense of directional motion). The acquired telicity affects some other properties of sound verbs resulting in their atypicality. Unlike inceptive verbs, they do not express the onset stage of speaking, though the onset of a durative action is the meaning of inchoative verbs and the onset of motion is indispensable for ingressive verbs. They are also atypical Delimitatives, being counterexamples to the prevailing opinion that Delimitatives describe atelic situations.

Besides differences in the cluster types, the study discovered some other differences between the analyzed subsets. Thus, attested verbs in paired senses have a low proportion of Derived Imperfectives and consequently a low proportion of *pf* correlates of prefixed pairs. The infrequent occurance of Derived Imperfectives is a common property of sound verbs with the senses of motion and speaking. This is due to the resistance of Natural Perfectives to imperfectivation (Janda 2007: 620).

Verbs with the senses of motion and speaking differ in their kinds of SPs, which is related to their semantics. Speaking verbs, except for

those with *na-*, are restricted in prefixed derivation, while spatial prefixes freely combine with verbs marking motion.

Both verbs produced by inanimate objects and those produced by animate beings share the most frequent cluster types and the frequency order of their elements. However, verbs of sounds generated by animate beings have fewer cluster types and, as a rule, do not have the sense of motion.

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Appendix: List of Sound Verbs under Investigation

##	Verb	Meaning*
1.	*blejat'*	bleat
2.	*brenčat'*	jingle; chink; clank; strum
3.	*brjacat'*	clang; clank; rattle; jingle; thrum; twang
4.	*brjakat'*	bang; drop with a bang; clatter; clang; clank; blurt out; rattle; tinkle; jingle
5.	*bul'kat'*	gurgle
6.	*buxat'*	thump; bang; thunder; thud; flop; blurt out
7.	*čirikat'*	chirp; twitter
8.	*cokat'*	click, clatter
9.	*drebezžat'*	tinkle; jingle; rattle
10.	*gremet'*	thunder; peal; clatter; jingle; rattle, ring out; roar; crash
11.	*gromyxat'*	rumble; lumber
12.	*groxotat'*	thunder; crash; roll; peal; rumble; roar
13.	*gudet'*	buzz; drone; hum; hoot; honk
14.	*karkat'*	croak; caw; prophesy
15.	*klekotat'*	scream
16.	*krjakat'*	quack; grunt; hem

* The following sources were used for the English meanings: BRAS, NBARS, RAS.

17. *kudaxtat'* cackle; cluck
18. *kukarekat'* crow
19. *kukovat'* cuckoo
20. *kvakat'* croak
21. *lajat'* bark
22. *mjaukat'* mew
23. *murlykat'* purr; hum
24. *myčat'* low; moo; bellow; mumble
25. *pleskat'* splash; plash; lap
26. *rokotat'* roar; murmur; crash; thunder; boom
27. *ržat'* neigh; whinny; guffaw
28. *ščebetat'* twitter; chirp; chatter; prattle
29. *šelestet'* rustle
30. *skrežetat'* grind; gnash; grit
31. *skripet'* squeak; creak; crunch; rasp
32. *strekotat'* chirr; rattle; chatter; chug
33. *šumet'* be noisy; murmur, rustle; talk a lot
34. *šuršat'* rustle
35. *taraxtet'* rattle; rumble
36. *tikat'* tick
37. *treščat'* crackle; rattle; creak; chirr; chatter; jabber
38. *trezvonit'* peal; ring; spread (abroad); trumpet
39. *určat'* rumble
40. *vorkovat'* coo; bill
41. *xljupat'* squelch, flounder; sniffle; snivel
42. *xlopat'* clap; flap; slap; bang; crack; drink at a gulp
43. *xrjukat'* grunt
44. *xrupat'* crunch
45. *xrustet'* crunch; crackle
46. *žurčat'* purl; babble; murmur
47. *žužžat'* buzz; drone; hum
48. *zvenet'* ring; twang; clank; clink; jingle
49. *zvjakat'* tinkle; jingle, clink, clank, ring
50. *zvonit'* clang; ring; toll; phone; call