

## SECONDARY IMPERFECTIVE FORMS IN RUSSIAN: COGNITIVE MECHANISMS OF VARIATION

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### ABSTRACT

This article is devoted to the empirical confirmation or refutation of an intuitively obvious assumption that more frequent words retain the inflectional type well, while less frequent words tend to change under the influence of analogy. This situation was confirmed in similar works during the study of verb unification process with an irregular declension in English and German: it was proved that the more frequent an irregular verb is, the more time it takes for it to transform into a regular one.

However, the Russian language is arranged somewhat differently: there are several types of inflection in the verbal system of Russian language, each of which has its own peculiarities. The object of this study was the variability of forms in Secondary Imperfectives, and the goal was to reveal the patterns of evolution for the variation forms of a Verbal Paradigm Center. Specific tasks to be solved: highlighting the cases of norm change for 2 centuries; the obtaining of change of numerical characteristics for the most 'conservative' members of a paradigm, the suffix selection patterns. Based on the data from the Google Books, the frequency of the conservative form use concerning the so-called 'redundant' verbs was performed.

Thus, the following hypothesis established: if the variability is observed in the compositional structure (according to Frege), then the main cognitive mechanism of evolution is the 'regularization versus stability'; if a structure is non-compositional one, then the mechanism of a word semantic meaning delimitation is added, accompanied by the change in the frequencies of competing forms separately under the influence of a particular meaning relevance in society.

A classification draft of a set of Secondary Imperfectives with the affix variation is given at the end of the article, depending on the nature of affix change and the factors affecting it (alternation of vowels in a root and l-epenteticum before an affix).

**Keywords:** Verb, Paradigm, Ngram, Google Books, Statistics, Speaking Norm.

### INTRODUCTION

One of the most acute issues in philology, which, in addition to domestic experts, is of interest to the wide strata of society is the issue of norm. A particular attention in modern studies has been given to the situation in which a new version of frequency is compared with the old one [Zemskaya 2004; Gorbachevich 2009; Ukhanova, Kosova 2016; Valamova, Miftakhova 2016].

Earlier, during the study of irregular verbs unification process in English [Bybee 2006], they showed that the more frequent an irregular verb is, the more time it takes to change it and to transfer it to the regular ones. It was shown that a higher frequency of a form strengthens its representation in the cognitive system, which makes it resistant to changes.

Among foreign linguists E. Lieberman's group for English [Lieberman et al. 2007] and L. Yanda's group [Neset, Janda 2010] for Russian language achieved interesting results. In the study of E. Lieberman's group an important result is obtained for the first time to study the mechanism of an irregular verb form

change to a regular one: the more frequent an irregular verb is, the more time it takes to transform it into a regular one. Cognitivists L. Yanda and T. Nessel, using the example of variable verbs like *khnichet* (хнычет) / *khnikayet* (хныкает), showed that the inflectional paradigm has a radial structure, i.e. one can single out a center (3 Sg > 3 Pl > 1 and 2 Sg) and a periphery (imperative > participle > adverbial participle), at that the elements of the paradigm were ordered. The conclusion is made on the basis of a detailed study concerning the frequency of variant occurrence for all inflectional forms according to the National Corpus of Russian language data. It turned out that although there is a shift from *-a-* to *-aj-* in general within these verbs of Russian, the verbs in 3 Sg retain an original form longer, and the more peripheral are changed to a new one easier. Thus, *khnychet* (хнычет) is used still more often than *khnykayet* (хныкает), but *khnychuschy* (хнычущий) is already less common than *khnykauschy* (хныкающий).

In Russian language, a productive way of imperfect tense verb development is a secondary imperfectivization with the suffix *-iva/yva-*, for example: *izgotovlyat'* (изготавливать) / *izgotavlivat'* (изготавливать). Variation appears in speech. For example, in the book texts of the second half of the XX century the secondary imperfective *nakaplivat'* (накапливать) surpassed the verb *nakoplyat'* (накоплять) prevailing before this.

The aim of the study is to reveal the regularities of the variation form evolution in respect of the Verbal Paradigm Center. Specific tasks to be solved: the highlighting of norm change cases for 2 centuries; the obtaining of change numerical characteristics concerning the most 'conservative' paradigm members, the establishment of suffix selection patterns. Based on data from the Google Books corpus, the frequency analysis of conservative form use concerning the so-called "redundant" verbs is performed. The differences in the mechanisms of competition between the affixes of secondary Russian imperfectives and the endings of irregular verb past tense in English language are suggested to be explained in terms of a meaning compositional nature (in the sense of the Frege principle).

## MATERIALS AND METHODS

A quantitative method was used in order to study the evolution of variation forms. Based on the data of the Google Books corpus, which performed the search by books published mainly since 1800 till 2000, graphs were plotted for verb frequency change with an excessive paradigm. The nature of the corpus defines the stylistic aspect of verb study: the sphere of verb usage is artistic, scientific and popular science literature.

'The Stylistic Dictionary of Variants' by L.K. Graudina [Graudina 2004] described 38 pairs of prefixed imperfective verbs with the suffix alternations *-a/ya-* // *-iva/yva-*. In order to obtain more complete and objective data besides the infinitive, it was decided to analyze 11 pairs of forms additionally: 1, 2, 3 Sg/Pl, PastMSg, Part. (Act., Pres.), Part. (Act., Past) Gerund, Imperative.

A new methodology was applied in the spirit of usage-based approach – a quantitative analysis of compatibility dynamics in order to study the mechanisms of verbal form competition, in addition to the traditional quantitative methods. The compatibility (together with word combination frequencies) is extracted from Google Books Ngram and is interpreted by us as a sort of a quantitative representation of semantics (according to the distributive hypothesis).

## STUDY RESULTS

When a search query was compiled for 456 pairs of verb forms, 344 graphs were received and analyzed, and in 112 cases the requested forms were not found in the corpus. The minority of cases (38.4%), demonstrates only one of the forms, the other one was not found. Almost always the only functioning word form turned out to be the variant with the suffix *-a/ya-*, in the form of 1 and 2 Sg/Pl or gerund. Due

to lack of uniformity they decided to divide the remaining graphs into 6 groups according to the type of the analyzed forms interaction: 1. The form with *-a/ya-* prevails in 25.9% of the graphs at the beginning of the XIX century, at the end of the 20th century its 'competitor' with *-iva/yva-* prevails (*prisposoblyat'* → *prisposablivat'*). This kind of graphs is also able to illustrate the change of norm; 2. At the end of the XXth century only one of the options is approved in 15% of cases, although both forms were used equally often during the 19th century; 3. In 5.2% of cases, one of the forms (usually with the suffix *-a/ya-*) is used more often than the other one (*obosoblyat'/obosablivat'*); 4. Over 200 years, both forms are used equally often in 4.7% of cases (*prostuzhat'sya/prostuzhivat'sya*); 5. The beginning of norm change process is discovered in 4% of cases, that is one form prevailed over the other one in the 19th century and they began to be used equally often in the XXth century (*ozdorovlyat'/ozdoravlivat'*); 6. There was a verb archaization in 3.7% of cases, that is one of the forms was used often, another one was used rarely in the XIXth century, and both forms are rare in the XXth century and it is no longer necessary to talk about the norm change (*obrezayete/obrezyvayete*).

The pattern associated with the unevenness of the verbal paradigm unification, revealed by cognitivists, is applied to another group of verbs with an excessive paradigm only partially – the identical graphs were obtained for most forms of the same verbs. For example, in all forms of the verb *prostuzhat'sya* the competition of forms had been taken place for 2 centuries, but the norm change did not happen. Thus, L. Yanda's hypothesis about the conservatism of the verbal paradigm 'central' forms is not confirmed for this group of verbs.

Also, a large number of facts was found that contradicts numerous works devoted to the norm study [Gorbachevich 2009], [Graudina 2004], [Zemskaya 2004]. Thus, the return to the old form in *-a/ya-* is noted in a large number of cases.

The second stage of the study was the drawing up of these verbs frequency list using Google Books material. If E. Lieberman's group used the ranking method to work with the list of more than 200 verbs, then it is more expedient to compare 10 least frequent verbs (each up to 10,000 word uses in 200 years) with the same number of the most frequent verbs (from 90 to 280 thousand word uses in 200 years).

Among 8 out of 10 rarest verbs (*nadlomlyat'/nadlamyvat'*, *nadlomlyat'sya/nadlamyvat'sya*, *oporozhnyat'/oporazhnivat'*, *oporozhnyat'sya/oporazhnivat'sya*, *prostuzhat'sya/prostuzhivat'sya*, *obmeryat'/obmerivat'*, *vymeryat'/vymerivat'*, *ozdorovlyat'/ozdoravlivat'*, *zasoryat'sya/zasariivat'sya*, *nakalyat'/nakalivat'*) the tendency to choose the form with the suffix *-a/ya-* prevails in the dynamics of frequency change. At the same time, as Figure 1 shows, both variants were used equally often in the XIXth century.



**Graph No. 1.** The frequency change for *prostuzhat'sya* and *prostuzhivat'sya* verbs.

A similar dynamics is observed in 3 of the most common verbs out of 10 ones (*vyrezat'/vyrezyvat'*, *srezat'/srezyvat'*, *uskoryat'/uskorivat'*, *uskoryat'sya/uskorivat'sya*, *nakoplyat'/nakaplivat'*, *nakoplyat'sya/nakaplivat'sya*, *prigotovlyat'/prigotavlivat'*, *prisposoblyat'sya/prisposablivat'sya*, *suzhat'sya/suzhivat'sya*, *izgotovlyat'/izgotavlivat'*) with the only difference that the form with the suffix *iva/yva* prevailed in the XIX century. Graph No. 2 illustrates the return of the original form.



**Graph No. 2.** Change of the adverbial participles (gerunds) *vyrezaya* and *vyrezyvaya* frequency

In four cases (*prigotovlyat'/prigotavlivat'*, *uskoryat'/uskorivat'*, *uskoryat'sya/uskorivat'sya*, *suzhat'/suzhivat'*) the form with the suffix *-a/ya-* is the only one found, or at least the dominant one in terms of frequency. Thus, 7 out of 10 most frequent verbs may illustrate the theory of E. Lieberman's group and other linguists by their dynamics about the stability of the most frequent forms to morphological or phonetic changes. On the contrary, eight of ten least-used verbs serve as the refutation of this theory: according to E. Lieberman et al. the transition to *-iva/yva-* had to be in this group, but this norm was not established in Russian language and there was the return to the forms with *-a/ya-*.

A reverse trend is observed in three pairs from the first list (*prisposoblyat'sya/prisposablivat'sya*, *nakoplyat'/nakaplivat'*, *izgotovlyat'/izgotavlivat'*) and one pair from the second one (*ozdorovlyat'/ozdoravlivat'*): the forms with *-a/ya-* characterized by frequency tens years ago, are replaced gradually by the forms on *-iva/yva-*. The graphs No. 3 and 4 illustrate the different stages of norm change.



**Graph No. 3.** The frequency change of the verbs *prisposoblyat'sya* and *prisposablivat'sya*



**Graph No. 4.** The frequency change of the verbs *izgotovlyat'* and *izgotavlivat'*

The reasons for the occurrence of the cases that contradict the general trend of return to the form with the *-a/ya-* suffix are related probably to the phonosemantics. An undesirable association caused by the combination of explosive labial consonant sounds [b], [v] and [p] with the insertion l (l-epeneticum) and the suffix *-ya(t')* makes the variant with *-iva/yva-* more preferable because of its euphoniousness. The detection of this phenomenon became possible due to the quantitative methods using the Google Books corpus. Previously, the cacophony of confixed verbs with *-iva-*, formed from the noun *srok* (\**otsrachivat'*) [Sagitova 2016] was mentioned in the corresponding literature.

Unlike the forms of English verbs in *-ed/-t*, which are compositional ones (in the sense of Frege's principle), and therefore are identical in their semantics, which is confirmed by their compatibility (*burn + ed = burn + t*), the suffixal structures in Russian are non-compositional ones generally speaking. Although in dictionaries the forms like *nakoplyat'* / *nakaplivat'* are treated as semantically identical, the analysis of their compatibility shows that the differences present. In the XXth century the verb *nakoplyat'* began to be used to describe the process of material value increase, and *nakaplivat'* – means to collect intangible values: knowledge, experience, etc. These meanings are not derived from morphemes obviously. Thus, these structures are characterized by a non-compositional nature.

The possibility to have different semantics leads to the divergence of two forms of the verb (the principle of strict synonym redundancy) and their independent functioning. Under the influence of extralinguistic factors, the semantics of various forms of verbs can vary in different ways. At that, more frequent words usually have a wider meaning, which provides an opportunity for further "fragmentation" of their semantics.

## CONCLUSIONS

The widespread assumption of frequent verbs stability to suffixal shifts was not confirmed during the analysis of word form usage from 89 secondary imperfectives. The group of verbs was formed by adding L.K. Graudina's collection [Graudina 2004]. The analysis was conducted using the Google Books Ngram. In the case under study, an inverse relationship is more likely – more frequent verbs change form more quickly.

We also analyzed the possibility of a number of secondary imperfective classification with the variability of affixes, depending on the nature of affix change and the factors influencing it. An example of a productive template: the verbs with the insert (before a suffix) of the letter l and the alternation of o/a in the root tend to change *-a/ya-* into *-yva/iva-* (*skoplyat'sya* → *skaplivat'sya*). The verbs with the insertion l but without the alternation of o/a have an opposite tendency (*uskoryat'* is used a thousand times more often than *uskorivat'*). The verbs with the insertion -l-, but without the alternation of o/a occupy an intermediate position (*otravlyat'* and *natravlivat'*).

Our hypothesis, explaining the lack of quantitative explanation concerning the susceptibility of verbs to changes, is the following one: if variability is observed in a compositional structure, then the main cognitive mechanism of evolution is the regularization vs stability; If a structure is non-compositional, then the mechanism of the semantic meaning of the word delimitation is added to it, accompanied by the change of competing form frequencies separately under the influence of a particular meaning demand in society.

Speaking of other results of the study, one may say that the methods of variational form of verbs dynamics description can be applied later on in other cases. At the same time, they will allow not only to describe and explain linguistic phenomena, but also to make informed quantitative predictions of linguistic form development.

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