

The Project of a Dictionary of Phonosemes Using Digital Technologies

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ABSTRACT

The article proposes a project of a psycholinguistic dictionary of phonosematically marked (sound - symbolic) vocabulary of modern Russian literary language. The dictionary project has an interdisciplinary character and is conducted at the of linguistics and psychology, which allows us to consider the language unit (lexeme) in the light of the indications of language consciousness. The author has found that the phonetic shell of a word has a certain effect on the modification of its semantics and the nature of speech functioning through experimental research and data analysis using digital technologies. This causes a number of difficulties in the dictionary representation of sound-symbolic lexemes, in particular, the need to take into account such an important component of their meaning as phonosemantic connotations.

Phonosemantic connotations are understood as additional meanings that are superstructured in relation to the lexical content of a word and are determined by its sound.

The article analyses different types of correlation between the sound shell of an idiophone and its denotation/ connotation, including those in which the sound shell of a word has independent significance and “suppresses” lexical semantics; the phonetic significance of a word contradicts its lexical semantics.

Reliance on data from the experimental series using digital technologies (electronic program VAAL) helps to get a more detailed understanding of the phonetic meaning of the word, which is the basis of the dictionary project.

The structure of the dictionary article is based on the identification of denotative, connotative and phonosemantic components in the interpretation, with the disclosure and detail of each of them. The proposed principle of describing the material allows us to trace the degree of denotative, connotative and phonosemantic components in the semantic structure of the word, as well as to identify nuclear and peripheral semes for native speakers.

Keywords: *lexicography, interdisciplinary, phonosemantic expressiveness, psycholinguistic experiment, digital technologies, sound symbolism*

1. INTRODUCTION

One of the most actual areas of modern lexicography is the development of psycholinguistic explanatory dictionaries that allow us to consider the lexical meaning of the word “from a new angle”, in the light of the indications of language consciousness, taking into account not only the main, subject - conceptual components, but also in the entire set of connotative meanings, associative layers [Sternin, Rudakova 2012; Rudakova, Kovalenko, Sternin 2018]. If normative explanatory dictionaries present the lexicographic meaning of a word [Ovchinnikova 2009, Sternin 2010], then psycholinguistic dictionaries are focused on the description of the psycholinguistic meaning, which is understood as “the ordered unity of all semantic components that are actually associated with this sound shell in the minds of native speakers” [Sternin 2010: 58].

In contrast to associative dictionaries, which provide the associative field of the word [Butakova 2012, Goldin 2004, Guts 2004, Karaulov 2002, Leontiev 1977, Cherkasova 2008, etc.], psycholinguistic explanatory dictionary offers the formation of a dictionary definition with the identification of individual semes based on experimental data [Rudakova, Kovalenko, Sternin 2018].

I. A. Sternin offers an algorithm for creating a dictionary entry of a psycholinguistic explanatory dictionary, which includes several stages: 1) free associative experiment, 2) directed associative experiment (identification, with a questionnaire that is determined by cognitive classifiers: *which? what does it do? what is needed?*), 3) a definitional experiment to identify subjectively significant semantic features for the subjects [Sternin 2010: 60].

Based on the results of experiments, an integral model of the meaning of the studied word is constructed.

In this regard, we consider it necessary to identify a special group of lexemes, sound - based, the interpretation of the meaning of which is a certain complexity, involves the adaptation of the presented model or the development of additional research procedures. Sound - symbolic vocabulary has repeatedly become the subject of research by both Russian and foreign scientists [Kawahara 2018, Sidhu 2018, Slavova 2019, Tkacheva 2019, Widmann 2004].

So, the specificity of sound descriptive lexical units is caused by a particular associative load of their sound form, which can be associated, on the one hand, with the imitation of acoustic denotations (*onomatopoeia*), on the other hand, with the creation of phonetic means of a non - sound, figurative representation of the signified (*sound symbolism*) [see Voronin 1982, Zhuravlev 1974, Levitsky 1994, etc.]. For example, the verbs *gavkat'* (bark), *vorkovat'* (coo), *murlykat'* (purr), their sound "resemble" the voices of animals; the sound shell of the nouns *caca*, *fifa*, *karga* forms a negative image of a person.

The conducted experimental studies allowed us to conclude that the meaning of a sound - imaginative word has a complicated structure and contains, in addition to denotative and connotative *semes*, a *phonosemantic* component of connotation, represented by a complex of additional, "superstructure" emotional - expressive - evaluative associations in relation to its conceptual meaning [Vaulina 2017: 243]. If onomatopoeia implies primitive motivation, then audio - symbolic words (ideophones) have an indirect associative relationship between the sound and the nature of the perceived sensation.

Sound form of a word can show their expressive expressiveness in different aspects: 1) forms additional emotional and evaluative context for the perception of denotation (LM+PhM¹), 2) interacts with denotative or connotative *semes* on the principle of blending, strengthening the emotional - expressive - evaluative expressiveness of words (LM=PhM); 3) models the denotation, sets the variability of the perceptual properties of the signified in an expressive - emotional - evaluative register (PhM>LM); 4) contrary to its lexical semantics and forms the opposite, estimated vector of word perception (PhM≠LM). Phonosemantic connotations can be caused by the transformation of the meaning of the word in synchrony and diachrony (various types of extensions, denotation constrictions, "shifts" of reference relatedness, etc.) [Vaulina 2017: 110-114].

This makes it necessary to develop a psycholinguistic explanatory dictionary of the usual sound - based Russian language vocabulary that reflects not only the semantics of language units of this type, but also phonosemantic connotations.

2. RESEARCH METHODOLOGY

When referring to the dictionary description of sound - forming words, a number of problematic questions arise.

First, the "coverage" of language material: which groups of sound - based vocabulary is appropriate to include in the volume of the dictionary? Since onomatopoeic and phonosymbolic units have different types of phonosemantic motivation, they will need different ways to represent their phonetic meaning in a dictionary. In this study, we will consider the problems of lexicographic interpretation of sound symbols as a phenomenon of a more complex order, focused on individual language consciousness.

The selection of lexical material was carried out by the method of continuous sampling from basic explanatory dictionaries (MAC, etc.) based on semantic and phonetic criteria for identifying the ideophone described in linguistic works [Voronin 1982, Zhuravlev 1974, Shlyakhova 1991, etc.], and included such procedures as component analysis of the dictionary entry with the selection of *semes* relevant for the sound - symbolic word, phonosemantic analysis of the sound form and diagnostics of its expressive potential using the electronic VAAL system. Our phonosemantic analysis of words was based on data on connotative marking of sounds and sound complexes obtained as a result of experimental studies [Voronin 1982, Zhuravlev 1991, 1974; Levitsky 1998, etc.].

The most difficult issue is the establishment and dictionary description of the phonetic meaning of the ideophone, which is subjective, associative, inconsistent, and not always amenable to observation and measurement procedures. It is known that "in the word we are aware first of all of the meaning. And therefore, no matter how we draw up instructions to informants, no matter how we aim them to evaluate the sound of the word, they will still respond mainly to the meaning" [Zhuravlev 1991: 34].

For example, the noun *frant* in MAC has the following meaning: "smart, fashionably dressed man; a dandy" [MAS, 1999, vol. IV: 583]. In the dictionary interpretation of the characteristic of the person, in terms of his preferences in clothing. There are no emotional-expressive - evaluative connotations, and there are no stylistic and expressive droppings. It is proved that the non - frequent consonant [f] in the Russian language has an extremely negative connotative coloration [Zhuravlev 1973:] (cf. also VAAL: [f] - *bad, repulsive, terrible, rough, angular, evil, dark, heavy, dull, sad, etc.*), which is enhanced by the position of the absolute beginning of the word and the combination with the vibrant [r], creating the effect of discord [for combinations of this kind, see Zhuravlev 1974, Matveeva 1986, etc.]. Consequently, the sound form of the word *frant* has a high degree of evaluative expression. This conclusion is supported by data from the VAAL program, according to which the word gives the impression of "*bad, repulsive, scary, rough, angular, evil, dark, heavy, rough, dull, sad*". The sound form of the ideophone in this case creates an additional connotative background, which is not fixed in

the dictionary, but is potentially present in the minds of native speakers: with the relative neutrality of the meaning, the noun has a pronounced negative - evaluative phonosemantics.

A free associative experiment and an experiment using the direct interpretation method with the word *frant* revealed only stereotypical reactions that mark its systemic connections (paradigmatic, syntagmatic: *dandy, fop, dandy, man, metropolitan*); denotative characteristics (*following the fashion of a man, festively dressed person*), evaluative connotations (*out of place, out of season dressed; young and personable man, beauty, handsome, narcissistic man*), reactions that recreate the situational context of perception of the stimulus (*fashion, style, suit, gloves, hat*), etc.

Units with “negative phonosemantics” are interesting in this respect., it is when the sound form forms an evaluation vector that does not correspond to the lexical semantics of the word, cf. *fierce* “ferocious, bloodthirsty (about animals)// Cruel, merciless (about man)” [MAC, 1999, vol. II: 211]/ VAAL: *good, beautiful, safe, kind, light*. Phonosemantic connotations in the associative field are not detected: “*frost (30), beast (26), enemy (21), cold (6), wolf (4), evil (3), cold, man (2), wind, hunger, wild, ignorant, hatred, guy, nasty, crazy, fierce, cold, terrible*” [RAS 2002: 302].

The phonetic meaning of a stimulus, as a rule, “remains behind the scenes” and therefore needs special research methods. Experimental procedures such as a free association experiment or even an in - depth directed one with a universal questionnaire for all words will not be sufficient in most cases. A series of experiments is needed to “switch” the respondents’ attention from the usual semantics of stimulus words to the “hidden” sound - symbolic connotations.

Preparation of experimental material for developing vocabulary psycholinguistic dictionary phonosemantic, in our view, may include the following steps, involving successive “layer deepening association”:

1. Free associative experiment for establishing stereotypes of perception of sound symbols;
2. An experiment using the method of direct interpretation aimed at identifying the main (basic) components of the psycholinguistic meaning of stimuli, such as denotation and emotional - expressive - evaluative connotations;
3. A series of directed associative experiments aimed at verifying the phonetic meaning of a word.

Associations obtained as a result of the first two stages of the experimental series were combined into groups that mark individual semes of the stimulus word (the denotation included evaluatively neutral reactions that objectify the subject - conceptual core of the word's meaning, a set of features that distinguish this phenomenon among others; the connotative component included reactions containing semes of intensity, emotionality, and evaluability, which are additional to the denotation):

Profan “Ignorant in any area of the person” [MAC, 1999, vol. III: 540]

Denotation

- of knowledge, of experience: *Inexperienced (2), beginner (2), a beginner in any business; one who is not confident in themselves and their knowledge, not knowing smth, amateur, knowing nothing about the matter, knowing nothing about his craft (11)*

Денотат

- наличие знаний, опыта: *Неопытный (2), новичок (2), новичок в каком-либо деле; тот, кто не уверен в себе и своих знаниях, не знающий чего-л., дилетант, любитель; ничего не смыслит в деле, не знает своего дела (11)*

- age: *young, boy (2)*

- field of knowledge: *chemistry (2), work, algebra, in the business (5)*

Connotative component

1) expressive - intense: *ignorance is expressed in a strong form*

2) emotional - expressive - evaluative

2.1) negative rating

- properties of intelligence, ability (stupid), knowledge, abilities: *the fool (6), foolish (6), duffer (3), kettle (2), stupid, narrow - minded person, , naive, stupid, knows nothing, just a stupid, stupid, disgrace oneself through ignorance and is unable to hide it (27)*

- success (unsuccessful): *loser (15), failure (3), unlucky, mistake, loser, puddle (to sit in a puddle), lose, trapped (24)*

- character traits, behavior in society: *mattress (3), he boasts of knowledge (4)*

2.2) positive assessment

- properties of intelligence, abilities: *smart, knowledgeable, skilled; knowledgeable person (4)*

- character traits, behavior features: *simpleton (3), simple - minded, without malice (5)*

Stylistic component

A word close to colloquial; a word of reduced style [Vaulina 2019: 39].

The definitions obtained in this way confirm the thesis of I. A. Sternin that “the meaning of a word revealed by psycholinguistic experiments is almost always much larger and deeper than its representation in dictionaries” [Sternin 2010: 57].

Based on the fact that the phonetic meaning of a word is a set of evaluative associations inspired by its sound, and not by semantics, the questionnaire for a directed associative experiment should be formed based on the parameters of sound - symbolic expressiveness identified as a result of phonosemantic analysis of the ideophone and its diagnostics using the electronic program VAAL.

For example, the noun *zhmot* has the meaning “*Simp. A mean man, a miser*” [MAC, 1999, vol. I: 487]. Phonosemantics of a word is manifested in the following areas: emotional assessment (the image of the angry, aggressive, rough associated with the negative symbolism of the initial consonant [zh]); visual association (proved that labially vowel [o] is involved in creating the sound image is large, rounded, convex “thanks to such a feature of their articulation, as the rounding or protrusion of the lips and increasing the volume of the oral cavity”

[Voronin 2009: 98]). According to VAAL, the word is perceived as something “*repulsive, terrible, evil, dark, heavy, rude, strong, powerful, large*”. The sound symbol in this case can “work” to form an additional idea on the one hand, about the properties of a person's character, on the other hand, about his appearance and physical qualities. These vectors of word perception should be emphasized when developing an experimental questionnaire.

3. RESULTS AND DISCUSSION

Thus, one of the possible ways of experimental verification of the phonetic value of an ideophone is that 1) as a result of phonosemantic analysis of the sound shell of a word, the most pronounced characteristics of its phonetic value are revealed (in this case - *angry, aggressive, rude; large, rounded; strong, powerful*); 2) for each of the obtained characteristics, questions - concretizers are selected: *Explain the meaning of the word. Describe the characteristics of this person's character and behavior. Is he evil or good? Soft, tender, or rough? What does he look like? Fat or thin? Tall or short? What is the body type (strong, muscular or weak, thin)?* etc. This procedure allows us to focus the attention of the subjects not on the lexical semantics of the stimulus, but on additional, “background” associations

and sensations caused by the sound. Cf. in this aspect, the “Living name” method [Konovalova 2015: 51], focused on the respondents’ reflection on the associative content of the proper name.

The usual meaning of a word, represented in explanatory dictionaries and fixed in the minds of native speakers, does not give an answer to such questions, so respondents are forced to rely on the expressive expressiveness of its sound form.

A pilot experiment with USPU students (30 people aged 18-25 years) allowed us to trace the correlation between the characteristic selected as a result of phonosemantic analysis and the resulting reactions, cf.: 1) **angry, aggressive, rude** - *aggressive; very rude, hard - hearted, ill - mannered; people can call “harsh man”, rude; always dissatisfied with something, always complains about life, lives alone; hard - headed, uncompromising, unprincipled person who is not interested in anyone and nothing but himself; rude, unpleasant person;* 2) **big, round, strong, powerful** - *big man; I can see it already: there is a fat man, like an inflated balloon; a fat man of short stature; an old man, fat, bald, scowling bodybuilder.* We assume that associations of this type are identifiers of the phonetic value of the ideophone.

Here are a few more options for developing the presented experimental method:

Table 1 Development options for the presented experimental technique

Phonosemantic analysis of the sound form of a word	Questionnaire for a directed associative experiment
<p><i>caca</i> “<i>Simp. scorn. About someone who puts on airs, demands too much attention, who gives a lot of trouble and worries</i>” [MAC, 1999, vol. IV: 633] The carrier of the “connotative charge” in the sound form of the word is the affricate [C] [Zhuravlev 1974, 1991]. The negative connotation is enhanced by reduplication. VAAL: bad, angular, evil, base, weak, puny, small, sad, fast, dull</p>	<p><i>Explain the meaning of the word. What kind of person is this? Is he good or evil? Happy or sad? What does it look like (describe the features of the figure)? Tall or short? What is the body type (strong, muscular or weak, thin)? What colors does he / she prefer in clothing: flashy, bright or dim, muted?</i></p>
<p><i>fufyra</i> “<i>1. Simp. outdated. A fastidious, swaggering man. 2. Simp. frantiha, shchegoliha</i>” [MAC, 1999, vol. IV: 589] VAAL: bad, repulsive, scary, rough, angular, angry, dark, heavy, rough, quiet, frail, sad, slow, passive, dull, sad</p>	<p><i>How do you imagine the word? Is it round or angular (describe the shape)? Dark or light? What color? Is it light or heavy? If it is a sound, is it quiet or loud, pleasant, melodic or harsh, annoying? How does it feel (rough, smooth, fluffy, prickly, slippery, etc.)? Describe the emotions that this word evokes in you.</i></p>
<p><i>vzdor (nonsense)</i> “<i>Something that is frivolous; nonsense, nonsense</i>” [MAC, 1999, vol. I: 166] VAAL: rough, majestic, rough, manly, strong, loud, brave, big, active, bright, joyful</p>	<p>For two lexemes that have the same lexical meaning and different phonosemantic coloration, we consider it possible to apply an identical questionnaire and compare the resulting associative fields: <i>How do you imagine the word? What does it feel like (rough, smooth, fluffy, prickly, slippery, cold or hot, etc.)? Is it more bright or dim? What color is associated with? If this is a sound, describe what it is. What emotions does this word evoke (sadness or joy, fear, boredom, anger, etc.)?</i></p>
<p><i>chush’ (nonsense)</i> “<i>Sp. Nonsense, nonsense, absurdity</i>” [MAC, 1999, vol. IV: 695] VAAL: terrible, rough, angular, dark, low-lying, weak, hot, quiet, dim</p>	

The proposed procedure allows us to identify the range of associations that are superstructured in relation to the usual meaning of the word, provoked by the peculiarities of its sound. The disadvantages of the method are, firstly, its labor intensity and high time cost, since it requires the selection of special questions for each stimulus word separately in accordance with the results of its phonetic and semantic analysis, and secondly, it is applicable only to a small block of material: for lexical units whose phonetic value is either represented as characteristics that

complement lexical semantics (type 1: LM+PhM) or “models the denotation”, sets the variability of perception of the properties of the signified (type 3: PhM>LM). If the phonetic and lexical values are related by the principle of “overlap” (PhM=LM), the question arises about how to distinguish them in the associative field. If there is a contradiction or contrast between the PhM and the LM, the prevailing factor for respondents’ perception of a word is undoubtedly its lexical meaning.

4. CONCLUSION

Thus, in this article we have considered only a small aspect of the problem of lexicographic interpretation of a sound - symbolic word. The research prospects consist of 1) testing the proposed experimental methodology and developing a draft dictionary article, 2) developing procedures for experimental verification of other types of correlation of lexical and phonetic values.

The practical value of a dictionary that takes into account sound - imaginative connotations is determined by the possibility of its use in such areas as

- suggestive linguistics: the dictionary allows you to predict the emotional impact of the phonetic structure of individual words on the human subconscious when developing texts (set the characteristics of the desired impact and purposefully edit texts to achieve the desired effect; assess the load on sensory perception channels by

- analyzing the vocabulary used, etc.): creating an emotional image of a politician and businessman, writing advertising articles, searching for brands for new products and organizations being created, psycho - and hypnotherapy, journalism, politics, etc.

- linguistic expertise: the dictionary allows you to assess the level of aggressiveness of the vocabulary used in the message text;

- artistic creativity: assessment of the phonosemantic halo of the vocabulary used to achieve an aesthetic effect, create a bright, sensually colored image;

- teaching practice: when developing University courses in phonosemantics, psycholinguistics, and lexicology.

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