

- Tomalin, B., Malyuga, E.N. (2016). Business language in the global age. *Issues of Applied Linguistics*, 24, 7-18.
- Waard, J. de & Nida, E. A. (1986). *From One Language to Another (Functional Equivalence in Bible Translating)*. Nashville: Thomas Nelson Publishers.
- Welnitzova, K., Jakubickova, B., & Králik, R. (2021). Human-Computer Interaction in Translation Activity: Fluency of Machine Translation. *RUDN Journal of Psychology and Pedagogics*, 18(1), 217-234. DOI 10.22363/2313-1683-2021-18-1-217-234.

УДК 32.019.52, 323.234

<https://doi.org/10.25076/vpl.45.04>

Н. К. Радина

**Национальный исследовательский Нижегородский
государственный университет им. Н. И. Лобачевского**

А. В. Козлова

Харман

ТОНАЛЬНОСТЬ КАК ФАКТОР УСПЕШНОСТИ ЭЛЕКТРОННОЙ ПЕТИЦИИ (НА МАТЕРИАЛАХ CHANGE.ORG)

В статье представлены результаты анализа тональности русскоязычных электронных петиций с международной онлайн-платформы Change.org. Эмпирическую базу исследования составили 22450 петиций на русском языке, размещенных на интернет-ресурсе Change.org с 2012 по 2016 г. В статье сравниваются тональности популярных и победивших петиций. Исследователи ранее использовали анализ тональности электронных петиций на английском и французском языках, который показал, что успех петиции связан с лексикой, имеющей положительный оттенок. Данное исследование доказывает, что современный контекст российских политических отношений требует более сложного подхода при выборе эмоциональной окраски для того или иного текста. Было высказано предположение, что сложная лингвистическая стратегия для выявления тональности текста электронной петиции обусловлена экстралингвистическим контекстом, а также социальными и

политическими причинами. Сравнительный анализ настроений популярных и победивших петиций на материале русскоязычного сегмента негосударственного интернет-ресурса *Change.org* выявил коммуникативный конфликт между интернет-пользователями и представителями политической и бизнес-элит (адресатами петиций). Коммуникативный конфликт проявляется в ориентации представителей власти и бизнеса на положительную окраску текста петиций, а пользователей Интернета на ярко выраженную эмоциональность и отрицательную окраску текста петиций. В этом коммуникативном конфликте обнаруживаются связи настроений и публичных действий, характерные для коммуникативной культуры российского общества.

Ключевые слова: анализ тональности, эмотивность, электронные петиции, онлайн-петиции, цифровая коммуникация, *Change.org*

УДК 32.019.52, 323.234

<https://doi.org/10.25076/vpl.45.04>

N.K. Radina

Lobachevsky State University of Nizhni Novgorod - National
Research University

A.V. Kozlova

Harman

TEXT SENTIMENT AS A FACTOR OF ELECTRONIC PETITION SUCCESS (ON THE DATA COLLECTED FROM CHANGE.ORG)

The article presents the results of a sentiment analysis of Russian-language electronic petitions from the international online platform Change.org. The empirical base of the study is 22450 petitions in Russian posted on the online resource Change.org (2012 – 2016). In the article the sentiment of popular and victorious petitions is being compared. The researchers have previously employed sentiment analysis of English and French electronic petitions, which has shown the success of the petition to be associated with the vocabulary that has a positive connotation. This study proves that the modern context of Russian

political relations requires a more sophisticated approach while selecting the sentiment for a certain text. It has been suggested that a complex linguistic strategy for discovering electronic petition text sentiment is due to the extralinguistic context as well as social and political reasons. A comparative sentiment analysis of popular and victorious petitions on the material of the Russian segment of the non-governmental Internet resource Change.org revealed a communicative conflict between Internet users and representatives of political and business elites (addressees of petitions). The communicative conflict is manifested in the orientation of representatives of power and business towards a positive sentiment of petitions text, and in the orientation of Internet users towards a pronounced emotionality and negative sentiment of petitions text. This communicative conflict reveals the connections of sentiment and public actions typical of a communicative culture of Russian society.

Keywords: emotiveness, sentiment analysis, electronic petitions, online petitions, digital communication, Change.org

Introduction

The study of the text sentiment is one of the urgent problems of modern political communication. In the context of the active intervention of digital communication in political reality, the 'linguistic turn' has been recognized and now reveals the textual form of digital social (including political) phenomena. It is necessary to search for concepts and tools in order to move from awareness and reflection of digital field problems to real research practice.

The impact of text in digital communication is particularly significant in the context of the political field. Since the role of digital communication increases and political practice requires the use of tools to analyse and evaluate the 'textual nature' of digital fields, the sentiment is the most obvious linguistic factor that determines the impact in digital communication and requires studying. How to create a text with the sentiment that will guarantee readers support? How to construct a text that will allow its readers to show solidarity and vote for the political and civic attitudes? Are the rules for creating such texts universal for each culture or do they have specifics related, for example, to the political values of society and/or the specifics of political communication? The affecting potential of the text sentiment, therefore, is especially

significant for the preparation of petitions, manifestos, appeals, etc., i.e. political documents that directly address the motivational sphere of civil society representatives.

Obviously, the mobilizing potential of a text is associated with both linguistic and extralinguistic factors. One of the most influential linguistic components of the impact is sentiment (affective content, evaluative value) of a text. Therefore, the identification of the emotive potential of petition texts (especially those petitions that have been successful, productive) is an important condition in studying the influence of petitions on the political and civic social activity.

Material and methods

The theoretical and methodological basis of the study is the research in the field of categories of emotion and evaluation (E.M. Wolf, N.D. Arutyunova, V.I. Shakhovsky, U.A. Fomina, T. Matveeva and others), research in the field of political communication and political participation (I.A. Bykov, M.S. Vershinin, A.N. Marinovich, A.V. Sokolov, J. VanDijk and others), the developments in the field of sentiment analysis (Pazelskaya & Solovev, 2011; Turney, 2002).

The aim of the study is to characterize the sentiment space of online petition texts to identify linguistic determinants of the success of the petition activity of Russian civil activists.

The empirical base is 22450 petitions in Russian, collected from the Change.org from 2012 to 2016, where 918 petitions have the status of 'victory'. The international digital platform Change.org is one of the most popular digital petition sites among Russians, also operating in 196 countries in 14 languages. Voting results for electronic petitions on the Change.org platform have no legal force. Nevertheless, due to the reaction of the public accompanying the vote, Change.org petitions are not only considered by their addressees, but also quite often have a positive outcome.

Given the specifics of the Change.org, in this study we call a petition a *winner* (i.e., successful) if the petition's author assigned it a 'victory' status based on its influence on the solution of the problem articulated in the petition. A petition can even be victorious, gaining, for example, only 200 votes. Petitions that received a great response among citizens and collected a large number of signatures on the Internet platform (more than 5000 signatures) will be called *popular* in this study.

At the preparatory stage of the study, standard text preprocessing was carried out: tokenization; lemmatization (i.e. reducing word forms to dictionary form) using the pymorphy library (Korobov, 2015); stop words (so-called ‘noise’ words, for example, interjections, conjunctions or pronouns, etc.) were deleted using the replenished collection of stop words from the NLTK library (Bird et al., 2009).

Using the Phrases module of the Gensim library, collocations were identified: i.e. tokens used together more often than expected were combined based on the normalized measure of Pointwise Mutual Information (1) and measure by Mikolov et al. (2013) (2).

$$nPMI(w_a, w_b) = \ln \frac{p(w_a w_b)}{p(w_a)p(w_b)} / -\ln(p(w_a w_b)) \quad (1)$$

$$\text{where } p(w) = \frac{\text{count}(w)}{\text{count}(W)}.$$

$$\text{score}(w_a, w_b) = \frac{\text{count}(w_a, w_b) - \delta}{\text{count}(w_a)\text{count}(w_b)} \quad (2)$$

where δ : a coefficient used to prevent the extraction of many combinations consisting of low-frequency words.

This step made it possible to extract such combinations at the tokenization stage as *detskii sad*, *sankt peterburg*, *pravookhranitel'nyi organ*, *kul'turnoe nasledie*, *smertnaia kazn'*, *naselennyi punkt*, etc. In addition, named entities (Natasha, 2019) (persons, organizations, and locations) were extracted from the texts, for example: *Dagestan*, *UFMS*, *Krasnoselsky district*, *Ministry of Internal Affairs*, *V.V. Putin*, *Vladimir Ulyanov*, *State Duma*, etc.

At the next stage, a tool was prepared for sentiment analysis of texts, and a thematic analysis of a collection of texts was carried out. The BigARTM library was used for thematic modeling (Vorontsov, 2014), based on the theory of additive regularization of thematic models. In order to identify the key evaluative words for a particular group/subgroup of petitions (for example, at the stage of comparing successful and unsuccessful petitions), the log-likelihood function was

used (Rayson & Garside, 2000), calculated based on contingency tables according to the formula (3).

$$-2\ln\lambda = 2 \sum_i O_i \ln\left(\frac{O_i}{E_i}\right) \quad (3)$$

where O : actually observed values.
 E : the expected values.

This measure makes it possible to find statistically significant differences between two text corpora (or parts of one corpus).

In order to identify key evaluative words and sentiment markers for a particular group/subgroup of petitions, the log likelihood function was used (Rayson et al., 2000), which was counted based on contingency tables.

E-petition as a form of political communication

An electronic petition is a petition posted as a text on any segment of the Internet, usually on a specialized portal, and collecting votes in support of an issue also using Internet technologies. In sociology, petitions are identified through the group character of civic participation and the form of writing (Kosykh, 2017), in political science – through asymmetric communication between individuals / groups and the institution (Golbraykh, 2016), in the field of law – through the group nature of the appeal in the context of citizenship focused on public authorities, with an emphasis on the requirement to adopt or cancel a normative / non-normative decision (Skryabina, 2006).

Petition studies are generally descriptive, which is typical of the initial stage of the problem study (Davydova & Goncharova, 2015; Chugunov, 2017). Only a few studies claim analysis, for example, by discussing the effectiveness of electronic petitions (Jho & Song, 2015; Riehm et al., 2014) or by studying their use as an instrument of political protest (Berg, 2017).

From the point of view of the theoretical framework, the study of online petitions in the political sciences is based on three key approaches. Petitions are being studied:

- as a form of direct democracy (Rudenko, 2003; Kreiss, 2015);
- as digital political participation (Radina & Belyashova, 2021; Reid, 2014; Stewart et al., 2013);

– as a form of e-democracy and e-government realization (Chugunov, 2017; 2015).

The nature of theorizing in research on electronic petitions is determined by work with empiricism. So, if statistics on online petitions are analysed (for example, the dynamics of filing online petitions, etc.), authors usually refer to the theoretical field of electronic / digital democracy (Sociological analysis, 2014). If the research design focuses on the concept of e-government, an important part in solving the scientific problems of such a study is the analysis of government feedback with citizens (Lindner & Riehm, 2009). The theoretical framework of direct democracy contributes to the study of the characteristics of political influence and the *legislative initiative* of electronic petitions (Sreejith et al., 2012).

Theorizing the problem of using electronic petitions in the format of digital political participation allows us to pay attention to the psychological components of political activity, namely, motivation, the reasons for the creation and support by the population of one or another electronic petition (Sheppard, 2014). Since according to the definition of digital political participation (Theocharis, 2015), participation in petition activity is voluntary, it is the motivation for creating a petition at the individual level that reveals the deprived needs of individuals, and at the group level – the unresolved socio-economic and political problems of communities supporting petitions.

Therefore, for political science, the study of the emotional potential of a petition is most significant if you study the electronic petition in the context of digital political participation.

Studying the sentiment of electronic petitions texts

Analysing the problem of electronic petitions in the context of the theory of argumentation (petitions are considered as persuasive texts that have lexical and semantic features through which influence is organized, success and recognition are achieved), foreign linguists rely on quantitative methods, computational linguistics (Subramanian et al., 2018).

Studying the influence potential of electronic petitions, researchers generally recognize the role of emotiveness in the success of petitions. Traditionally, the success of online petitions is considered in the context of the presence of positive vocabulary and vocabulary-related moral and cognitive elements in the texts (Elnoshokaty et al., 2016). In addition,

when determining the factors of petitions popularity, in addition to sentiment, some other lexical (for example, repeatability of words, informativeness and novelty of the text, etc.) and semantic (for example, thematic) features of the text are also listed (Hagen et al., 2016).

Since the presented empiricism represents non-Russian linguistic and social reality, the question of the role of electronic petitions emotionality (in Russian and in the context of Russian reality) in achieving success remains open. The practice of Russian linguistic studies of electronic petitions is concentrated in the field of studying the epistolary-media personality (Kuryanovich, 2015) and in the field of electronic petition genre specifics (Pupkova, 2010). In some studies, the analysis is close to practice, generally, in the format of a description and statement of some structural and thematic features of texts of electronic petitions (Dubrovskaya, 2017), however, this does not explain the success factors of real online petition texts.

Topic modeling of petitions texts

For topic modeling of online petitions texts we rely on the BigARTM library (Vorontsov, 2014), which implements the theory of additive regularization of topic models (ARTM) and allows applying regularization to models so that they satisfy the required criteria.

The following metrics were used to assess quality: perplexity, sparsity of the matrix Φ (SparsityPhiScore), sparsity of the matrix Θ (SparsityThetaScore), which at the end of training reached values of 0.98 and 0.93, respectively. According to the matrix of the topic word Φ , we got the top 30 words for each topic, and based on this top, the names were assigned to the topics.

According to the results of the topic analysis, 46 groups were identified: Internet; Zoos, circuses, dolphinariums; Sport; Education; Football; Territorial issues and borders, development of natural territories; Crime; Support for large families; Transport; Ecology and environment protection; Banks and cash transactions; Housing and communal services; Culture and science; Spiritual and cultural values; Animal abuse; The Great Patriotic War; Computer games, e-sports; Public transport; Family and family policy; Government agencies for children; Shared construction, unfinished construction; Narcotic substances; Building; Housing problem; City recreation areas; International relations and interaction; Nature and nature management; Historical monuments, historical heritage; Medicine and healthcare;

Law, administrative violations; Politics and governance, nationalism; Pensions and benefits; Courts; Concerts, TV shows; Taxation; Housing stock; Cars; Real estate, land tenure; Local administration, local government; Elections, representative power; Television; Ambulance; Trade and consumption; Serious felonies; Social assistance and protection; Electronic services and payments.

The largest topics are *Cruelty to animals* (5% of the total array of texts), *Transport* (3.9%), *Football* (4.5%), *Historical monuments* (4%). The least represented topics are *Narcotic substances* (0.2%), *Territorial issues and borders* (0.8%), *Support for large families* (0.6%).

Sentiment lexicon acquisition and preparation of a sentiment analysis algorithm for petitions

Sentiment is often understood as the emotional-evaluative attitude of the author of the text to an object, expressed in the text (Pazelskaya & Solovev, 2011). The sentiment of a document is often determined on a binary scale. In this study, for each petition, both a general positive and a general negative sentiment were obtained.

In addition, the analysis uses the strength (intensity) of the expressed sentiment. The structure and specificity of petitions allows us to consider them as a source (concentration) of political opinions, which, in turn, makes petitions an object for sentiment analysis.

In this study sentiment analysis based on rules and dictionaries (rule-based sentiment analysis) was used. It involves the search for affective and evaluative lexicon in texts based on dictionaries compiled by experts or automatically obtained in accordance with pre-formulated rules for combining words annotated with their semantic orientation or emotion class, negations, intensification, etc. (Thelwall et al., 2010). A general assessment of the text is obtained by summing the sentiment of individual words according to the rules.

To analyse the sentiment of the petitions, two lists of affective and evaluative words were used. List No. 1 (Sentimental:..., 2019) contains 7640 words and their sentiment ratings taking into account the intensity on a scale from -5 to 5 (for example, *dangerous* with a rating of -5, *unsurpassed* with a rating of 5). List No. 2 is based on data from the Dictionary of evaluative words and expressions of the Russian language *RuSentiLex* (Dictionary..., 2017) version of 2017 (Lukashevich & Levchik, 2016).

Sentiment and evaluation expression in the texts of popular petitions

A petition as a genre is characterized by many evaluative and affective vocabulary since it serves as a mean of evaluative description and expresses the author's subjective opinion (protest, rejection, hope, indignation, etc.) regarding any socially significant situation. A petition represents an example of persuasive communication, as the author of the petition aims to convince the reader that a specific issue exists and needs to be solved. The author encourages the reader to express support by signing the petition (Stepanova, 2016). In this context, the goal of persuasive communication is to change the recipient's attitude to a specific idea, situation by referring to his emotions, emotional reactions, positive or negative associations and memories. The proof of the success of such communication (the effectiveness of the author's intention to persuade or convince) can be equalled to signing of the petition by the recipient.

To answer the question of the linguistic impact of the petitions texts, such features as sentiment and sentiment intensity of popular petitions were studied, i.e. petitions that gathered more than 5 thousand signatures and thus received the greatest support among users of the Internet portal (according to statistics, only 17% of popular petitions were successful, that is, they received the status of 'victory'). Obviously, the petition can contain both negative and positive sentiment, while among all the petitions only a small percentage gain many signatures. So, for only seven topics the percentage of popular petitions is more than 10: Zoos, circuses, dolphinariums (28% of all petitions on this topic are popular), Cruelty to animals (18%), Narcotic substances (16%), Social assistance and protection (14%), Territorial issues and borders, development of natural territories (13%), Culture and science (12%), Ecology and environmental protection (11%).

The smallest percentage of popular petitions comprises the topics Banks and cash transactions (1.2%), Support for large families (1.25%), Computer games, e-sports (1.3%), Football (2%), Housing issue (2%), Housing and Public Utilities (2.4%), Sport (2.5%).

Petitions with a predominant negative sentiment are most common for almost all topics except for topics such as Culture and Science, The Great Patriotic War and Military Operations, Historical Monuments and

Historical Heritage, Sport, Social Assistance and Protection, Pensions, benefits.

Two subjects contain exclusively negative petitions: Narcotic substances and Housing stock. The topic Support for large families is extremely positive. The negative sentiment in popular petitions is more intense than the positive. For example, the average intensity of the positive sentiment of popular petitions is 54, the negative – 71, while the maximum value of the positive intensity is 514, and the negative – 1530 (Figure 2).

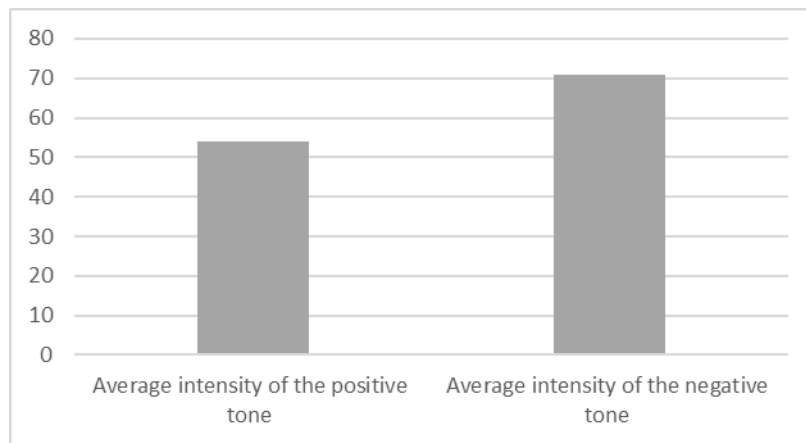


Figure 2. The sentiment of popular petitions

The number of signatures has a weak positive correlation with the intensity of the positive sentiment (0.25) and a slightly more pronounced, but still weak, positive correlation with the intensity of the negative sentiment of the petitions (0.35). Most often, support for voting is received by petitions aimed at protecting animals: the most frequent topic for popular petitions is the topic Cruelty to animals (14.4%), followed by the closely related topic Zoos, circuses, dolphinariums (6.1%); moreover, both topics mainly contain petitions with a prevailing negative sentiment. In the topic Historical Monuments, Historical Heritage (4.1%), petitions with a positive dominant sentiment significantly prevail.

Petitions with a prevailing negative sentiment are most common for almost all topics, except for topics related to cultural-historical and

moral-spiritual values or with the help for socially unprotected categories of citizens. Petitions that have a greater sentiment (primarily negative) tend to receive great support among users.

Key features of the victorious petitions

According to the rules of the Change.org Internet portal, the status of ‘victory’ is assigned by the author of the petition when the petition entails any specific change in reality, even if the solution to the problem has taken on a slightly different form than the one sought by the author of the petition. The fact of the resolution of the raised problem (i.e. the real effectiveness of the petition) is not checked on the site. It also means that the resolution of a real problem cannot be unambiguously considered a consequence of a specific petition existence.

In the collection of texts used in this study about eight hundred petitions received the status of the winner, that is, they had, in the opinion of their authors, practical effect. Two groups of petitions can be distinguished among them: effective petitions, which received a high number of signatures (‘convincing victory’), and effective petitions, which did not receive widespread support from citizens, but had practical effect (‘conditional victory’).

In general, only 4.2% of all petitions published on the platform had the status of ‘victory’ at the time of data collection. The largest share among the total number of winning petitions is made by the petitions with the topics *education* (6.2%), *transport* (4.6%), *public transport* (4.5%), *culture and science* (4.4%), *Internet* (5.5%), *television* (3.8%), *cruelty to animals* (3.9%). The smallest number of winning petitions are among the topics *support for large families*, *concerts and television shows*, *courts*, *housing*, *cars*, *real estate and land tenure*.

Let us consider in more detail the relationship between the type of dominant sentiment expressed in a text of a petition and the possibility of its victory. According to the table, the victorious petitions more often have a dominant positive sentiment (379 out of 813), slightly less negative (321 out of 813 petitions), even more rarely mixed (113 out of 813), while petitions with a negative dominant sentiment prevail among non-victorious petitions (Table 1).

Table 1

Contingency of observed values: ‘victory’ is the dominant type of sentiment

	Non-victorious	Victorious	Total
Dominant sentiment polarity: Mixed	1825	113	1938
Dominant sentiment polarity: Negative	6757	321	7078
Dominant sentiment polarity: Positive	5176	379	5555
Total	13758	813	14571

Pearson's chi-2 agreement criterion (with the number of degrees of freedom equal to two and the criterion value equal to 31.18) is 1.69, which allows us to conclude that there is a statistically significant relationship between the factor (type of sentiment) and the response (petition status). Consequently, petitions with a dominant positive sentiment more often become victorious (Figure 3).

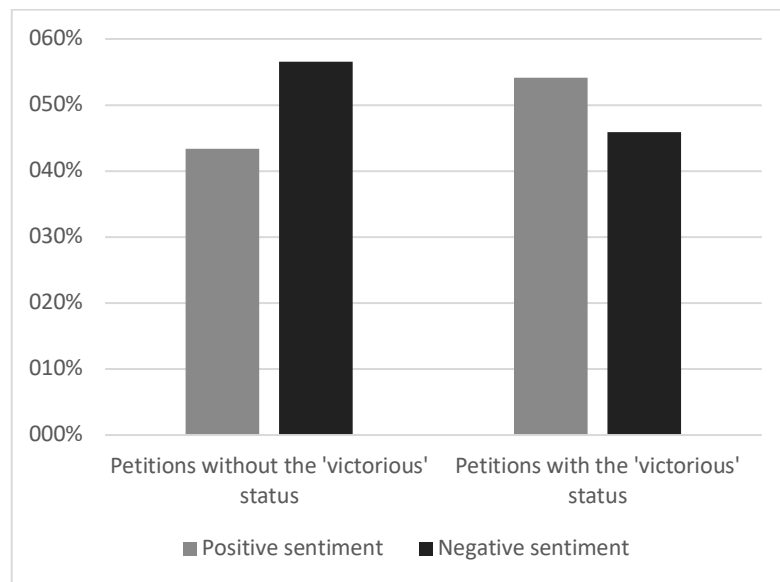


Figure 3. Negative and positive sentiment of victorious and non-victorious online petitions

Many winning petitions with a dominant positive sentiment are dedicated to a rather narrow problem or a specific situation. The following petitions can be cited as examples: *Install a monument to Saints Peter and Fevronia in Komsomolsk-on-Amur* (66 signatures), *Save Moscow House of Romance* (1962 signatures), *Help raise money for the operation of the 7-year-old Gulnara!* (6 signatures).

Frequency analysis of the winning petitions lexicon allowed us to highlight a number of focal aspects. The authors of the winning petitions often go further than criticizing the current situation and appeals to support the initiative, but also offer concrete ways to resolve the situation. Such suggestions for improvement and descriptions of the future order determine the presence of a positive sentiment in the conclusions of many victorious petitions.

The authors of the victorious petitions turn to spiritual and cultural values shared by the majority of Russian citizens: history and culture, patriotism, traditions; compassion and philanthropy, family (one of the most frequent words), love, fidelity; orthodoxy (as a system of values). For example: *Saints Peter and Fevronia are the history of Russia, its tradition, this is our view of the family, love and loyalty.*

Positive vocabulary is also used in appeals, which are generally characteristic of the petition as a genre. Such calls contain verbs with the semantics of active action and a positive component of meaning (help, develop), verbs of activity to achieve the goal (fight, achieve), verbs with the semantics of opposition (persevere, resist, etc.). The evaluative vocabulary used in the winning petitions was ranked using a measure of log likelihood. Among the most characteristic, key words for the winning petitions are the following:

- Among the vocabulary with a positive component of meaning, the following groups stand out: spiritual and cultural values (beautiful, honest, kind, active, pure, humane, orthodox, independent, caring, healthy, free, fair, responsibility, health, justice), general positive characteristics (confident, great, full-fledged, worthy, unique, legal, necessary), active action verbs (help, achieve, develop); etiquette words are much more frequent for winning petitions (in comparison with non-winning petitions): please, dear, thank you, hello.

- The negative evaluative and emotive vocabulary can be divided into the following groups: thematic group ‘crime, violation of the law’ (criminal, violation, crime, illegal, guilty, punishment, murder), active action verbs (deceive, destroy, prohibit, kill, violate, force, deprive), verbs with passive semantics (suffer, die), financial/property subjects (fines, corruption, deprivation, damage, duty, absence), thematic groups ‘cruel communication with animals’ (cruel, homeless), ‘medicine’ (illness, death). There is also a group of nouns related to the characteristic of the negative activities of officials, government bodies and other organizations: bullying, mistake, inaction, arbitrariness, violence, refusal, threat, regret, complaint, prohibition. For example: *Help break the circle of bureaucratic arbitrariness!*; *Give a legal assessment of the actions or inactions of all officials.*

The analysis of the winning petitions showed that they are usually devoted to a specific situation; winning petitions, unlike the popular ones (supported by voting), are statistically significantly more likely to have a dominant positive sentiment. Consequently, the linguistic factor (at the level of text sentiment) can influence the effectiveness of the petition.

Discussion

The evaluative lexicon and presence of verbal communication strategies, which rely, inter alia, on expressiveness and sentiment, are recognized as integral attributes of a petition as a genre. In a comparative analysis of the petitions, it was found that mixed and positive dominant sentiment polarities often accompany unpopular (with less support for votes) petitions, whereas negative sentiment is more characteristic of highly supported petitions. The connection between the popularity and sentiment intensity of a petition is also significant: popular petitions often have the total intensity and the intensity of the dominant sentiment at least of a medium degree. It turns out that authors of popular petitions rely heavily on negative sentiment and pronounced emotiveness. This fact is not consistent with the results of foreign linguists who carried out sentiment analysis on the material of English or French petitions in other countries and proved the productivity of positive vocabulary for petitions popularity (Elnoshokaty et al., 2016; Hagen et al., 2016). On the Change.org Russian-speaking segment, which is geographically connected with Russia, the positive sentiment is not characteristic of the popular, but of the winning petitions, which were supported by representatives of government or business.

These results allow us to formulate ‘the paradox of the emotional impact of online petitions’ based on the Change.org Russian-language segment:

- if you create a petition focused on support from government and business (obtaining the status of ‘victory’), it is necessary to design a text with a dominant positive sentiment;
- however, if you create a petition focused on obtaining a significant number of votes in support of the petition (without a focus on the status of ‘victory’), you must design a text with a pronounced emotiveness and negative sentiment.

We believe that there is not a linguistic, but a socio-political phenomenon that combines multidirectional trends behind this paradox: the alienation of ‘people’ (petition authors) from ‘power’ (hence the intensity and negativity of asymmetric communication in relation to all instances with power, which it has already been stated earlier in psychological studies (Radina & Koskina, 2017)) and the need to be recognized and approved by their ‘voters’ on the part of the authorities, without which it is difficult to imagine democratic forms of government. Consequently, the revealed linguistic paradox problematizes the actual conflict in the sphere of Russian political communication.

For digital political participation this fact is of particular importance, since online and offline forms of political communication are connected even when these connections are not obvious. Can the political behaviour described by Russian classicist A.S. Pushkin as ‘the people keep silence’ (tragedy *Boris Godunov*, 1831) in the modern digital world mean that people are actually silent, but put *likes* to explosive negative texts addressed to the authorities, preferring to express anger rather than formulate a polite request? From the point of view of digital political participation, this form of behaviour is destructive, since it does not allow to achieve the desired result (recipients often support positive petitions) but allows users who vote for emotional negative petitions to express anger, contempt, hatred, and prefer emotional discharge.

Conclusion

The electronic petitions filed on Change.org possess unique information for researchers. The recipients of the petitions posted on Change.org, a non-governmental Internet platform, are not supposed to obligatorily fulfil the requirements of the petitioners, even in cases of significant support by online voting. The addressees of the petitions fulfil

the requests and requirements of the petitioners, guided by other grounds (not necessarily the number of votes in support of the petitions). As a result, researchers can analyse two text bases: firstly, texts of popular petitions, which received a significant number of votes in support of online users, and secondly, texts of victorious petitions that were executed by recipients (representatives of government or business). Such a comparison reveals the sentiment logic of public actions typical of a particular culture. A comparative sentiment analysis of popular and victorious petitions on the material of the Russian-language segment of the non-governmental Internet resource Change.org, territorially connected with Russia, revealed a communicative conflict between Internet users (the people) who create electronic petitions and vote for them, and representatives of political and business elites to whom digital appeals are directed.

The communicative conflict is manifested in the orientation of representatives of power and business towards a positive sentiment of upstream appeals, and in the orientation of Internet users (the people) towards a pronounced emotionality and negative sentiment of upstream appeals.

Литература

- Barats C., Dister A., Gambette Ph., Leblanc J.-M., Peres M. Analyser des pétitions en ligne: Potentialités et limites d'un dispositif d'études pluridisciplinaires // JADT-2016: 13èmes Journées internationales d'Analyse statistique des Données Textuelles. – 2016. <http://lexicometrica.univ-paris3.fr/jadt/jadt2016/01-ACTES/83043/83043.pdf>
- Berg J. The dark side of e-petitions? Exploring anonymous signatures // Paper prepared for the D: CE Conference in Abo, Finland (May 27–29). – 2017. – <https://doi.org/10.5210/fm.v22i2.6001>
- Bird S., Loper E., Klein E. *Natural language processing with Python* [Электронный ресурс]. – O'Reilly Media Inc. – 2009. – Режим доступа: <http://www.datascienceassn.org/sites/default/files/Natural%20Language%20Processing%20with%20Python.pdf>
- Chugunov A.V. Electronic participation of citizens in public administration. – St. Petersburg: University ITMO. – 2017.

- Davydova M. L., Goncharova A.A. Problems and prospects for the implementation of the Russian Public Initiative Project [Электронный ресурс] // Bulletin of Volgograd State University. Series 5 – Jurisprudence. – 2015. – N2(27). – Pp. 58-67. – Режим доступа
<https://j.volsu.com/index.php/ru/component/attachments/download/1059>
- Dictionary of assessment words and expressions of the Russian language RuCentiLex [Электронный ресурс]. – 2017. – Режим доступа: <http://www.labinform.ru/pub/rusentilex/index.htm>
- Dubrovskaya T.V. The genre of online petitions in the context of feminist discourse // Speech Genres. – 2017. – №1(15). – С. 111-117. <https://doi.org/10.18500/2311-0740-2017-1-15-111-117>
- Elnoshokaty A. S., Deng, S., Kwak, D. H. Success factors of online petitions: Evidence from Change.org // 49th Hawaii International Conference on System Sciences (HICSS) 1979–1985. – 2016. <https://doi.org/10.1109/HICSS.2016.249>
- Golbraykh V. B. Environmental public initiatives on the Internet as a new practice of political participation // Bulletin of Tomsk State University. Philosophy. Sociology. Political science. – 2016. – №4 (36). – Pp. 340-450. <https://doi.org/10.17223/1998863X/36/34>
- Hagen L., Harrison T. M., Uzuner Ö., May W., Fake T., Katragadda S. E-petition popularity: Do linguistic and semantic factors matter? // Government Information Quarterly. – 2016. – №33. – Pp. 783-795. <https://doi.org/10.1016/j.giq.2016.07.006>
- Jho, W., Song, K. J. Institutional and technological determinants of civil e-Participation: Solo or duet? // Government Information Quarterly. – 2015. – №32. – Pp. 488-495. <http://dx.doi.org/10.1016/j.giq.2015.09.003>
- Korobov M. Morphological analyzer and generator for Russian and Ukrainian languages // Analysis of Images, Social Networks and Texts 542 of Communications in Computer and Information Science / под ред. Khachay M.Y., Konstantinova N., Panchenko, A., Ignatov D.I., Labunets V.G. – Springer International Publishing. – 2015. – Pp. 320-332. <https://arxiv.org/pdf/1503.07283.pdf>
- Kosykh E.V. The Internet petition as a method of civil resistance in modern Russia // Russian science and education today: problems and prospects. – 2017. – №2 (15). – Pp. 28-29.

- Kreiss K. D. The Problem of Citizens: E-Democracy for Actually Existing Democracy // Social Media + Society. – 2015. – July–December. – Pp. 1-11. <https://doi.org/10.1177/2056305115616151>
- Kuryanovich A. V. Epistolary linguistic personality in the context of mass media communication: the experience of sociolinguistic analysis of discursive properties (based on online petitions) // Bulletin of Tomsk State Pedagogical University. – 2015. – №9 (162). – Pp. 34-41. https://vestnik.tspu.edu.ru/files/vestnik/PDF/articles/kuryanovich_a_v_34_41_9_162_2015.pdf
- Lindner R., Riehm U. Electronic Petitions and Institutional Modernization // JeDEM. – 2009. – №1(1). – Pp. 1-11. <https://jedem.org/index.php/jedem/article/view/3>
- Lukashevich N.V., Levchik A.V. Creation of a vocabulary of assessment words of the Russian language // Open Semantic Technologies for Intelligent Systems (OSTIS-2016): materials of the VI international scientific and technical conference. – Minsk: BGUIR. – 2016. – Pp. 377-382.
- Mikolov T., Sutskever I., Chen K., Corrado G.S., Dean J. Distributed representations of words and phrases and their compositionality // Advances in neural information processing systems. – 2013. – Pp. 3111-3119. <https://papers.nips.cc/paper/2013/file/9aa42b31882ec039965f3c4923ce901b-Paper.pdf>
- Natasha (library for searching and retrieving named entities) [Электронный ресурс]. – 2022. – Режим доступа: <https://github.com/natasha/natasha>
- Pazelskaya A. G., Solovev A. N. The method of determining emotions in texts in Russian // Computer Linguistics and Intelligent Technology: A Collection of Scientific Articles. – №10(17). – Moscow: Russian State Humanitarian University Publishing House, 2011. – Pp. 510-522.
- Pupkova A.V. Petition as a genre of French environmental discourse // Bulletin of Moscow State Linguistic University. – 2010. – №10. – Pp. 33-45.
- Radina N., Belyashova D. Digital Political Participation of Western and Eastern Parts of Germany Residents (based on Change.org Online

- Petitions) // *Changing Societies and Personalities*. – 2021. – №5 (1). – Pp. 63-82. <https://doi.org/10.15826/csp.2021.5.1.122>
- Radina N., Koskina M. Power, Attraction and Reference in the Macro-Level Social Relations: ‘Closed Group’ and ‘Closed Society’ (on the psychology of the ‘Soviet’ and the ‘post-Soviet person’) // *Psychology in Russia: State of the Art*. – 2017. – №1. – Pp. 117-129. <https://doi.org/10.11621/pir.2017.0109>
- Rayson P., Garside R. Comparing corpora using frequency profiling [Электронный ресурс] // *Proceedings of the workshop on Comparing Corpora*, held in conjunction with the 38th annual meeting of the Association for Computational Linguistics. – Hong Kong. – 2000. – Режим доступа: http://ucrel.lancs.ac.uk/people/paul/publications/rg_acl2000.pdf
- Reid L. E-petitions a Viable Tool for Increasing Citizen Participation in Our Parliamentary Institutions [Электронный ресурс] // *Canadian Parliamentary Review*. – 2014. – №3. – Pp. 4-8. – Режим доступа: http://www.revparl.ca/37/4/37n4e_14_Reid.pdf
- Riehm R., Böhle K., Lindner R. Electronic petitioning and modernization of petitioning systems in Europe. – Berlin: TAB, 2014.
- Rudenko V. N. The methodology of studying the institutions of direct democracy in modern society // *Jurisprudence*. – 2003. – №4. – Pp. 38-51.
- Sentimental: a simple dictionary-based sentiment analysis system with Russian language support [Электронный ресурс]. – 2022. – Режим доступа: <https://github.com/text-machine-lab/sentimental>
- Sheppard J. Online petitions in Australia: Information, opportunity and gender // *Australian Journal of Political Science*. – 2014. – №50(3). – Pp. 480-495. <https://doi.org/10.1080/10361146.2015.1049512>
- Skryabina M.V. Collective appeals in the Russian Federation // *Legal thought*. – 2006. – №5. – Pp. 32-38.
- Sociological analysis of the experience of using modern technologies of electronic democracy (portals of public appeals / petitions and open voting) [Электронный ресурс] // *Final comprehensive analytical report*. – Moscow: ZIRCON. – 2014. – Режим доступа: http://www.zircon.ru/upload/iblock/3a1/Sociologicheskij_analiz_opyta_ispolzovaniya_sovremennyhtehnologij_elektronnoj_demokratii.pdf

- Sreejith A., Vigneswara Ilavarasan P., Gupta M.P. Citizen participation and effectiveness of e-petition: Sutharyakeralam – India, Transforming Government // People, Process and Policy. – 2012. – №6 (4). – Pp. 392-403. <https://doi.org/10.1108/17506161211267536>
- Stepanova N.B. Online petition as a new genre of Internet communication // Language in various areas of communication: proceedings of the II International Scientific Conference. – Chita: Transbaikial State University. – 2016. – Pp. 138-141.
- Stewart K. M., Cuddy A., Silongan M. Electronic petitions: A proposal to enhance democratic participation // Canadian Parliamentary Review 9. – 2013. – <https://www.canlii.org/en/commentary/doc/2013CanLIIDocs366>
- Subramanian S., Baldwin T., Cohn T. Content-based Popularity Prediction of Online Petitions Using a Deep Regression Model // Proceedings of the 56th Annual Meeting of the Association for Computational Linguistics (Short Papers). – 2018. – Pp. 182-188. <https://doi.org/10.18653/v1/P18-2030>
- Suh J. H., Park Ch. H., Jeon S. H. Applying text and data mining techniques to forecasting the trend of petitions filed to e-People // Expert Systems with Applications. – 2010. – №37 (10). – Pp. 7255-7268. <https://doi.org/10.1016/j.eswa.2010.04.002>
- Thelwall M., Buckley K., Paltoglou G., Cai D., Kappas, A. Sentiment strength detection in short informal text // Journal of the American Society for Information Science and Technology. – 2010. – №61(12). – Pp. 2544-2558. <https://doi.org/10.1002/asi.21416>
- Theocharis Y. The Conceptualization of Digitally Networked Participation // Social Media + Society. – 2015. – July-December, Pp. 1-14. – <https://doi.org/10.1177/2056305115610140>
- Turney P.D. Thumbs Up or Thumbs Down? Semantic Orientation Applied to Unsupervised Classification of Reviews // Proceedings of the 40th Annual Meeting of the Association for Computational Linguistics. Philadelphia. – 2002. – Pp. 417-424. <https://www.aclweb.org/anthology/P02-1053.pdf>
- Vorontsov K.V. Additive Regularization for Topic Models of Text Collections // Doklady Mathematics. – Pleiades Publishing, Ltd., 2014. – №89 (3). – Pp. 301-304. <https://doi.org/10.1134/S1064562414020185>

References

- Barats, C., Dister, A., Gambette, Ph., Leblanc, J.-M. & Peres, M. (2016). Analyser des pétitions en ligne: Potentialités et limites d'un dispositif d'études pluridisciplinaires. In *JADT-2016: 13èmes Journées internationales d'Analyse statistique des Données Textuelles*. <http://lexicometrica.univ-paris3.fr/jadt/jadt2016/01-ACTES/83043/83043.pdf> (In French)
- Berg, J. (2017). The dark side of e-petitions? Exploring anonymous signatures. In *Paper prepared for the D: CE Conference in Abo, Finland (May 27–29)*. <https://doi.org/10.5210/fm.v22i2.6001>
- Bird, S., Loper, E. & Klein, E. (2009). *Natural language processing with python*. O'Reilly Media Inc. <http://www.datascienceassn.org/sites/default/files/Natural%20Language%20Processing%20with%20Python.pdf>
- Chugunov, A.V. (2017). *Electronic participation of citizens in public administration*. St. Petersburg: University ITMO.
- Davydova, M. L. & Goncharova, A.A. (2015). Problems and prospects for the implementation of the Russian Public Initiative Project. *Bulletin of Volgograd State University. Series 5 – Jurisprudence*, 2 (27), 58-67. <https://j.jvolsu.com/index.php/ru/component/attachments/download/1059>
- Dictionary of assessment words and expressions of the Russian language RuCentiLex (2017). <http://www.labinform.ru/pub/rusentilex/index.htm>
- Dubrovskaya, T. V. (2017). The genre of online petitions in the context of feminist discourse. *Speech Genres*, 1 (15), 111-117. <https://doi.org/10.18500/2311-0740-2017-1-15-111-117>
- Elnoshokaty, A. S., Deng, S. & Kwak, D. H. (2016). Success factors of online petitions: Evidence from Change.org. In *49th Hawaii International Conference on System Sciences (HICSS)*, 1979 – 1985. <https://doi.org/10.1109/HICSS.2016.249>
- Golbraykh, V. B. (2016). Environmental public initiatives on the Internet as a new practice of political participation. *Bulletin of Tomsk State University. Philosophy. Sociology. Political science*, 4 (36), 340-450. <https://doi.org/10.17223/1998863X/36/34>

- Hagen, L., Harrison, T. M., Uzuner, Ö., May, W., Fake, T. & Katragadda, S. (2016). E-petition popularity: Do linguistic and semantic factors matter? *Government Information Quarterly*, 33, 783-795. <https://doi.org/10.1016/j.giq.2016.07.006>
- Jho, W. & Song, K. J. (2015). Institutional and technological determinants of civil e-Participation: Solo or duet? *Government Information Quarterly*, 32, 488-495. <http://dx.doi.org/10.1016/j.giq.2015.09.003>
- Korobov, M. (2015). Morphological analyzer and generator for Russian and Ukrainian languages: In Khachay, M.Y., Konstantinova, N., Panchenko, A., Ignatov, D.I., Labunets, V.G. (eds.) *Analysis of Images, Social Networks and Texts 542 of Communications in Computer and Information Science*, (pp. 320-332). Springer International Publishing. <https://arxiv.org/pdf/1503.07283.pdf>
- Kosykh, E. V. (2017). The Internet petition as a method of civil resistance in modern Russia. *Russian science and education today: problems and prospects*, 2 (15), 28-29.
- Kreiss, K. D. (2015). The Problem of Citizens: E-Democracy for Actually Existing Democracy. *Social Media + Society*. July–December, 1-11. <https://doi.org/10.1177/2056305115616151>
- Kuryanovich, A. V. (2015). Epistolary linguistic personality in the context of mass media communication: the experience of sociolinguistic analysis of discursive properties (based on online petitions). *Bulletin of Tomsk State Pedagogical University*, 9 (162), 34-41. https://vestnik.tspu.edu.ru/files/vestnik/PDF/articles/kuryanovich_a_v_34_41_9_162_2015.pdf
- Lindner, R. & Riehm, U. (2009). Electronic Petitions and Institutional Modernization. *JeDEM*, 1 (1): 1-11. <https://jedem.org/index.php/jedem/article/view/3>
- Lukashevich, N. V. & Levchik, A. V. (2016). Creation of a vocabulary of assessment words of the Russian language. In *Open Semantic Technologies for Intelligent Systems (OSTIS-2016): materials of the VI international scientific and technical conference*. Minsk: BGUIR, 377-382.
- Mikolov, T., Sutskever, I., Chen, K., Corrado, G.S. & Dean, J. (2013). Distributed representations of words and phrases and their compositionality. In *Advances in neural information processing*

- systems, 3111-3119.
<https://papers.nips.cc/paper/2013/file/9aa42b31882ec039965f3c4923ce901b-Paper.pdf>
- Natasha (library for searching and retrieving named entities).
<https://github.com/natasha/natasha>
- Pazelskaya, A. G. & Solovev, A. N. (2011). The method of determining emotions in texts in Russian: In *Computer Linguistics and Intelligent Technology: A Collection of Scientific Articles*, 10 (17). Moscow: Russian State Humanitarian University Publishing House, 510-522.
- Pupkova, A.V. (2010). Petition as a genre of French environmental discourse. *Bulletin of Moscow State Linguistic University*, 10, 33-45.
- Radina, N. & Belyashova, D. (2021). Digital Political Participation of Western and Eastern Parts of Germany Residents (based on Change.org Online Petitions). *Changing Societies and Personalities*, 5 (1), 63-82.
<https://doi.org/10.15826/csp.2021.5.1.122>
- Radina, N. & Koskina, M. (2017). Power, Attraction and Reference in the Macro-Level Social Relations: 'Closed Group' and 'Closed Society' (on the psychology of the 'Soviet' and the 'post-Soviet person'). *Psychology in Russia: State of the Art*, 1, 117-129.
<https://doi.org/10.11621/pir.2017.0109>
- Rayson, P. & Garside R. (2000). Comparing corpora using frequency profiling. In *Proceedings of the workshop on Comparing Corpora, held in conjunction with the 38th annual meeting of the Association for Computational Linguistics*. Hong Kong.
http://ucrel.lancs.ac.uk/people/paul/publications/rg_acl2000.pdf
- Reid, L. (2014). E-petitions a Viable Tool for Increasing Citizen Participation in Our Parliamentary Institutions. *Canadian Parliamentary Review*, 3, 4-8.
http://www.revparl.ca/37/4/37n4e_14_Reid.pdf
- Riehm, R., Böhle, K. & Lindner, R. (2014). *Electronic petitioning and modernization of petitioning systems in Europe*. Berlin: TAB.
- Rudenko, V. N. (2003). The methodology of studying the institutions of direct democracy in modern society. *Jurisprudence*, 4, 38-51.

- Sentimental: a simple dictionary-based sentiment analysis system with Russian language support. <https://github.com/text-machine-lab/sentimental>
- Sheppard, J. (2014). Online petitions in Australia: Information, opportunity and gender. *Australian Journal of Political Science*, 50(3), 480-495. <https://doi.org/10.1080/10361146.2015.1049512>
- Skryabina, M. V. (2006). Collective ap – peals in the Russian Federation. *Legal thought*, 5, 32-38.
- Sociological analysis of the experience of using modern technologies of electronic democracy (portals of public appeals / petitions and open voting) (2014). In *Final comprehensive analytical report*. Moscow: ZIRCON.
http://www.zircon.ru/upload/iblock/3a1/Sociologicheskij_analiz_opyta_ispolzovaniya_sovremennyhtehnologij_elektronnoj_demokratii.pdf
- Sreejith, A., Vigneswara Ilavarasan, P. & Gupta, M.P. (2012). Citizen participation and effectiveness of e-petition: Sutharyakeralam – India, Transforming Government. *People, Process and Policy*, 6 (4), 392-403. <https://doi.org/10.1108/17506161211267536>
- Stepanova, N. B. (2016). Online petition as a new genre of Internet communication. In *Language in various areas of communication: proceedings of the II International Scientific Conference*. Chita: Transbaikal State University, 138-141.
- Stewart, K. M., Cuddy A. & Silongan M. (2013). Electronic petitions: A proposal to enhance democratic participation. *Canadian Parliamentary Review* 9.
<https://www.canlii.org/en/commentary/doc/2013CanLIIDocs366>
- Subramanian, S., Baldwin, T. & Cohn, T. (2018). Content-based Popularity Prediction of Online Petitions Using a Deep Regression Model. In *Proceedings of the 56th Annual Meeting of the Association for Computational Linguistics (Short Papers)*, 182-188. <https://doi.org/10.18653/v1/P18-2030>
- Suh, J. H., Park, Ch. H. & Jeon, S. H. (2010). Applying text and data mining techniques to forecasting the trend of petitions filed to e-People. *Expert Systems with Applications*, 37 (10), 7255-7268. <https://doi.org/10.1016/j.eswa.2010.04.002>
- Thelwall, M., Buckley, K., Paltoglou, G., Cai, D. & Kappas, A. (2010). Sentiment strength detection in short informal text. *Journal of the*

- American Society for Information Science and Technology*, 61(12), 2544-2558. <https://doi.org/10.1002/asi.21416>
- Theocharis, Y. (2015). The Conceptualization of Digitally Networked Participation. *Social Media + Society*. July-December, 1-14. <https://doi.org/10.1177/2056305115610140>
- Turney, P.D. (2002). Thumbs Up or Thumbs Down? Semantic Orientation Applied to Unsupervised Classification of Reviews. In *Proceedings of the 40th Annual Meeting of the Association for Computational Linguistics*, (pp. 417-424). Philadelphia. <https://www.aclweb.org/anthology/P02-1053.pdf>
- Vorontsov, K. V. (2014). Additive Regularization for Topic Models of Text Collections. *Doklady Mathematics*, 89 (3), 301-304. <https://doi.org/10.1134/S1064562414020185>

УДК 81.111

<https://doi.org/10.25076/vpl.45.05>

С.Н. Попова, Т.А. Лукьянова

Российский университет дружбы народов

СИНТАКСИЧЕСКАЯ МОДАЛЬНОСТЬ И ЕЕ ПРИМЕРЫ В ЭКОНОМИЧЕСКОМ ДИСКУРСЕ

В статье рассматривается проявление авторской оценки в рамках синтаксиса экономического дискурса. Обсуждается вовлечение автора в газетные и публицистические тексты экономической направленности с помощью различных языковых средств на разных уровнях языковой системы и подчеркивается, что одним из этих средств является выразительность, которая может быть представлена через категорию модальности. Подчеркивается, что именно синтаксический уровень позволяет автору имплицитно выразить более яркое проявление авторской оценки, являясь способом показать свое отношение к высказыванию, не обязательно в буквальной форме испытываемого биологического чувства, чтобы снять с себя чрезмерную ответственность и предотвратить возможные негативные последствия выражения своего собственного мнения. Важной целью исследования является выявление и классификация синтаксических средств, используемых в экономическом дискурсе,