Perception of Iconic Russian Elements by English Speakers: Experimental Data

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Introduction. In recent years, the anthropocentric scientific paradigm has been actively developing and the experimental method of research in linguistics is becoming increasingly popular and relevant. This article is devoted to the experiment of studying the process of perception iconic lexis of the unfamiliar language. Scientific novelty of this study is determined both by the selected material and methods of presenting this material for consideration.

Methodology and sources. The basis for the experiment was a survey for native English speakers who did not know the language of the target stimuli (Russian). To conduct the experiment, a corpus of verbs of motion was used (546 verbs, 2273 word usages). The corpus was selected from 12 novels of English literature of the 20-21st centuries, as well as contextual translations of these verbs into Russian. During the study, a group of respondents (106 people) of both genders, various social and age groups were offered 20 English contextual uses of phonetically motivated verbs of motion, which were pre-selected from the above-mentioned corpus of verbs. In each sentence, a verb of motion was highlighted, and also a sound recording of two Russian verbs was presented, which was a translation of the highlighted English verb and its synonym. The total number of responses was 2120.

Results and discussion. Participants of the experiment were asked to choose one of two Russian words that corresponded to the highlighted English word in the best way. Respondents chose with great confidence 4 iconic verbs of motion out of 15 pairs of synonyms in which only one verb is phonetically motivated. In 3 cases, respondents more often preferred the non-iconic word. The remaining pairs of synonyms were divided approximately equally. The more developed syntax of the Russian language compared to English, which sometimes obscured the sound motivated basis of the word could be a possible reason for this.

Conclusion. The results of the experiment show that the perception of phonetically motivated units of an unfamiliar language depends on many factors. Thus, native English speakers who do not speak Russian or who speak it at a minimal level do not perceive Russian iconic vocabulary in all cases. Simultaneously, statistically significant differences in the perception by people of different age groups and gender were not revealed during the experiment.

Keywords: experiment, phonosemantics, verbs of motion, iconicity, onomatopoeia, sound symbolism


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Восприятие русской иконической лексики англоговорящими: экспериментальные данные

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Введение. В современной лингвистике наблюдается последовательный переход от системно-структурной научной парадигмы к антропоцентристской. В результате этого экспериментальный метод исследования становится все более популярным и актуальным. Данная статья описывает перцептивный эксперимент, посвященный изучению восприятия иконической лексики незнакомого языка. Научная новизна настоящего исследования определяется полнотой отобранного для эксперимента материала, а также способами представления его респондентам.

Методология и источники. Основой для эксперимента стал опрос носителей английского языка, не владевших языком целевых стимулов (русским). Для проведения эксперимента был использован корпус глаголов движения (546 глаголов, 2273 словоупотребления), отобранный из 12 романов английской литературы XX–XXI вв., а также примеры контекстуального перевода этих глаголов на русский язык. В ходе эксперимента группе респондентов (106 чел.) обоих полов, различных социальных и возрастных групп были предложены 20 контекстуальных словоупотреблений фонетически мотивированных глаголов движения, отобранных из вышеназванного корпуса глаголов. В каждом предложении был выделен глагол движения, а также представлена звукозапись двух русских глаголов, представляющих собой перевод выделенного английского глагола и его синоним. Общее количество ответов составило 2120.

Результаты и обсуждение. Участникам эксперимента предлагалось выбрать один из двух предложенных русских глаголов, который наилучшим образом соответствовал бы выделенному английскому слову по звучанию. Респонденты с большой уверенностью выбирали 4 иконические глагола движения из 15 пар синонимов, в которых только один глагол обладал иконическим характером. В трех случаях респонденты чаще отдавали предпочтение неиконическому слову. Остальные пары синонимов разделились примерно поровну. Возможной причиной этого мог стать более развитый синтаксис русского языка, который иногда затемняет исходную мотивировку слова.

Заключение. Результаты эксперимента показывают, что восприятие фонетически мотивированных единиц незнакомого языка зависит от многих факторов. Так, носители английского языка, не владеющие русским или владеющие им на минимальном уровне, не во всех случаях воспринимают русскую иконическую лексику. В ходе эксперимента не было выявлено статистически значимых различий в восприятии людьми разных возрастных групп и пола.

Ключевые слова: эксперимент, фоносемантика, глаголы движения, иконичность, звукоподражание, звуковой символизм


Introduction. The history of conducting perceptual experiments in the field of studying onomatopoeia and sound symbolism goes back about 100 years [1, p. 26].

Perception of Iconic Russian Elements by English Speakers: Experimental Data
Early experimental research in this area mixed linguistic and non-linguistic environments. Experiments, being the empirical basis of scientific theory [2, p. 191], were carried out for different purposes, on different materials, and only a small number of them were carried out to study the perception and evaluation of linguistic units in contextual use. The thesis about the unity of the theoretical and empirical levels of knowledge is the philosophical basis for the use of experimental methods in linguistics [3, p. 415]. Research methods varied, including not only simple comparison or translation, but also strictly standardized numerical methods [4, p. 83]. Different types of material were used: individual speech sounds, graphemes [5, p. 51], pseudowords [6, p. 72; 7, p. 36], non-linguistic vocalizations [8, p. 4], vocabulary of existing natural languages [4, p. 118] and Invented Languages [9]. Participants in these experiments were asked to depict meaning using pictures, colors, abstract figures, descriptions and words in the subjects’ native or foreign language. As a rule, none of these factors are common in natural language communication among people.

This experiment is a continuation of studying phonetically motivated verbs of motion in the English language [10, 11]. During this wide-scale study, from 12 novels of modern English-language literature, 546 verbs of motion were selected (2273 contextual word usages), as well as their translations into Russian, carried out by professional translators. After a close linguistic and phonosemantic analysis of the selected verbs of motion and their contextual translations, it was decided to conduct two counter experiments. The purpose of these 2 experiments was studying the role of sound motivated vocabulary in the perception of the unfamiliar language. So, from the resulting corpus, were selected 20 sentences in English, as well as their translation into Russian. The first experiment was specifically designed for native Russian speakers who do not speak English or speak it at an elementary level [12, p. 110]. The conducted perceptual experiment confirms the existence of a strong correlation between the signifier and the dignified. Russian-speaking respondents, when choosing a verb out of 15 word usages in which only one verb is phonetically motivated, with great confidence (a few times more than 80 % of respondents) chose 10 iconic verbs of motion [12, p. 113].

After the first experiment, a counter experiment was conducted on the same material, for native English speakers who do not speak Russian. The second experiment pursued the goal of testing the data obtained as a result the first experiment on the opposite pair of native/host languages (L1/L2) and find out how native English speakers perceive Russian iconic vocabulary.

To summarize the above, it is worth noting that the scientific novelty of the study consists in the substantiation of the phenomenon of phonetically motivated vocabulary (onomatopoeia and sound symbolism), as well as in the originality of solving problems, designing an experiment, and is determined not only by the methods of presenting material for consideration during the experiment, but also by the selection of this material.

**Methodology and sources.** Here we should discuss the issue of methodology for compiling perceptual phonosemantic experiments in general. After examining a number of similar experimental studies, it was found that when such experiments were conducting, respondents were usually presented with individual words. In the present study, it was decided to use contextual usages for the following reasons:

1) According to researchers, the most natural environment for experimental phonosemantic research is a minimal text in the respondents’ mother tongue. Results of experiment [13] conducted
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by Shamina in 2019 in a similar way clearly indicate the cognitive potential of iconic vocabulary. Such form of the experiment helps to avoid the influence of visual and non-linguistic acoustic factors on the result. This makes the evidence of involuntary correlation between the sound form and the meaning of the word more reliable from a linguistic point of view [13, p. 194].

2) Synonymy and polysemy of the word. Each word has different shades of meaning, so in order to correctly perceive the exact meaning, it is necessary to consider the context.

In matters of translation synonymy becomes a particularly substantial factor, especially if one of the original synonyms is onomatopoic or sound-symbolic, and thereby creates a certain unique image, affecting the reader. When translating, it is necessary to select a suitable synonym that conveys not only the root meaning of the word, but also to show original image created by the author.

3) For clear, full and appropriate translation, it is also significant to take into account the contextual environment of the word. The real challenge for the translator is to convey by L2-means the general meaning of the statement and the entire text, to recreate a complete idea and author’s intent, and not just translate a single word. According to researchers, the translation unit should be considered a phrase, a sentence, and even a full text, but not a single word [14, p. 29; 15]. At the same time, the complex solution of translation problems and the establishment of clearer rules and patterns in translation are determined by the nature of the text [15, p. 155].

Based on the above, the optimal size of the context presented to the participants in the experiment, convenient for reading on the one hand and conveying the semantics of the verb of motion on the other, is a sentence. At the same time, some of the sentences selected from the original texts were too long; for the convenience of the respondents, a decision was made to shorten them. For example, (1) “I'm just writing down Sacrum Asset Management Pension Fund Launch in capitals at the top of the page, when a middle-aged man I've never seen before plonks himself down next to me” [16, p. 107] was shortened to “A man plonks himself down next to me.” It should be noted, however, that this reduction did not affect the general meaning of the fragment and the definition of the semantics of the verb of motion to plonk.

Iconic units of different phonosemantic classes were selected for the experiment. Thus, sound symbolisms are represented by intrakinesemisms that describe movements that accompany processes occurring inside the body: swallowing, chewing, rumbling. For example, the verb to jab denotes a short movement, the verb to lug conveys a long movement, the verb to sneak is a smooth movement, the verb to mesh is compression. The result should be considered the selection of a representative sample of verbs that convey different types of motion.

A wide range of sound imitative units has also been identified. Onomatopoeia in the experiment is represented by verbs of motion that are sound imitative in origin, such as: instants to plonk, to padlle, frequentatives to scribble, to scrabble, continuants to zoom, to whizz, etc.

The phonetically motivated English verbs of motion in a context were selected in this way. Then were found professional translated Russian verbs in a context and were chosen their iconic synonyms. Consider the translation of the above example (1). The translator used the verb подсаживается: «Ко мне подсаживается мужчина» [17, p. 121], and as a sound imitative synonym плохается was selected. The word плохается is not only onomatopoic, but also begins with the same letters /pl/, thus conveying the sound image of the original.
Description of the experiment. The survey of respondents was carried out on the Google Forms platform, where for the purposes of the experiment the questionnaire was compiled in English, which was subsequently offered to the participants to fill out. During the study, a group of respondents of both genders, different social and age groups were offered 20 contextual uses of verbs of motion in English. The survey was conducted among native English speakers who do not speak Russian or speak it at a minimal level.

The first part of the survey contained questions about the personal characteristics of respondents such as gender, age, native language, level of English proficiency, and knowledge of foreign languages. 106 native English speakers took part in the experiment. Participants’ answers to questions about personal data are compiled in a table, with each participant assigned a serial number.

After completing the personal data, respondents were asked to:
1) read the sentence;
2) listen to a recording of 2 foreign words;
3) choose the one that sounds more suitable instead of the English word highlighted in large font;
4) mark the number of the corresponding sound.

Audio recordings of Russian words were made by a professional phonetician. Contextual uses of verbs of motion in the form of text and an audio recording of two Russian words are proposed for analysis. Respondents were offered for selection a Russian verb, its sound-motivated synonym, and the opportunity to express their own thoughts.

Example question:
I was PADDLING around with no aim [16, p. 113].

Words suggested for translation in the audio recording: топталась, ходила.

Answer options for selection, based on the “1 from the list” principle:
– Option 1.
– Option 2.
– Other ________.

To obtain the most accurate answers and to avoid developing an algorithm when answering questions, the proposed options 1 and 2 (iconic and non-iconic words in the questionnaires were arranged in random order. To determine the results of the experiment, a table was compiled in which the answers to the questions of the participants were recorded.

Results and discussion. The English-speaking group (106 people) made a choice between iconic and non-iconic Russian verbs in 15 pairs out of the proposed 20. Another 5 pairs were control ones: in three pairs both verbs in them were non-iconic, and in two pairs both verbs were iconic.

For each respondent, the percentage of choice of iconic verbs in pairs where only one verb is iconic was calculated using the formula: – choice of iconic verbs/total number of answers in pairs where only one verb is iconic, x100.

Next, a comparison of the average values was made between:
– men and women (table 1);
– people of different age groups (table 2);
– people with different levels of Russian language proficiency (table 3).
Table 1. Selection of iconic Russian verbs by English-speaking men and women (percentage of the total number of answers)

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number (persons)</th>
<th>Average, %</th>
<th>Std. deviation, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td>39</td>
<td>51.44</td>
<td>12.46</td>
</tr>
<tr>
<td>Men</td>
<td>67</td>
<td>47.11</td>
<td>11.63</td>
</tr>
</tbody>
</table>

There were no statistically significant differences between men and women in the frequency of choosing iconic verbs (T-Student test: \( t = 1.770; \) st.st. = 75.221; \( p = 0.081 \)).

Table 2. Choice of iconic Russian verbs by English-speaking people of different age groups

<table>
<thead>
<tr>
<th>Age</th>
<th>Number (persons)</th>
<th>Average, %</th>
<th>Std. deviation, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 20 years</td>
<td>16</td>
<td>47.27</td>
<td>10.70</td>
</tr>
<tr>
<td>20–40 years</td>
<td>67</td>
<td>48.51</td>
<td>11.82</td>
</tr>
<tr>
<td>40–60 years</td>
<td>12</td>
<td>51.04</td>
<td>13.55</td>
</tr>
<tr>
<td>Over 60 years</td>
<td>11</td>
<td>49.43</td>
<td>14.91</td>
</tr>
</tbody>
</table>

There were no statistically significant differences between people of different age groups in the frequency of choosing iconic verbs (ANOVA; \( F = 0.240; p = 0.868 \)).

Table 3. Choice of iconic Russian verbs by English-speaking people with different levels of Russian language proficiency (percentage of the total number of answers)

<table>
<thead>
<tr>
<th>Level of English Russian proficiency</th>
<th>Number (persons)</th>
<th>Average, %</th>
<th>Std. deviation, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-level</td>
<td>91</td>
<td>48.49</td>
<td>12.09</td>
</tr>
<tr>
<td>Beginner</td>
<td>10</td>
<td>48.75</td>
<td>11.71</td>
</tr>
<tr>
<td>Intermediate/Advanced</td>
<td>5</td>
<td>52.50</td>
<td>14.39</td>
</tr>
</tbody>
</table>

There were no statistically significant differences between people with different levels of Russian language proficiency in the frequency of choosing iconic verbs (ANOVA; \( F = 0.258; p = 0.773 \)).

Table 4 provides information on the frequency of choice of iconic and non-iconic Russian verbs by native English speakers. The first in each pair is the iconic verb (shown in bold italics). For each pair, the distribution was compared with a uniform distribution using the binomial test. The statistical significance of the difference between the distribution obtained in the experiment and the uniform one is also presented in the table.

Table 4. Frequency of choice of iconic and non-iconic Russian verbs by native English speakers

<table>
<thead>
<tr>
<th>Sentence</th>
<th>Translation</th>
<th>Number (persons)</th>
<th>%</th>
<th>Statistically significant difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Топталаись</td>
<td>70</td>
<td>66.04</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>Ходила</td>
<td>36</td>
<td>33.96</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Шастать</td>
<td>43</td>
<td>40.57</td>
<td>0.064</td>
</tr>
<tr>
<td></td>
<td>Пробираяться</td>
<td>63</td>
<td>59.43</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Швыряю</td>
<td>45</td>
<td>42.45</td>
<td>0.145</td>
</tr>
<tr>
<td></td>
<td>Опускаю</td>
<td>61</td>
<td>57.55</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Набросилась</td>
<td>44</td>
<td>41.51</td>
<td>0.098</td>
</tr>
<tr>
<td></td>
<td>Напала</td>
<td>62</td>
<td>58.49</td>
<td></td>
</tr>
</tbody>
</table>
Table 4 shows that the distribution of answers is statistically significantly different from uniform for 7 pairs of verbs out of 15. Moreover, in three pairs, respondents statistically significantly more often preferred the non-iconic verb. More frequent choice of the iconic verb is observed only in four pairs:

- In the pair of Russian verbs “топталась”/“ходила” respondents more often (in 66.04% cases) choose the onomatopoeic verb “топталась”. The word “топталась” contains Russian sounds /p/, /t/, /l/ similar to the English word paddle, with sounds /p/, /d/, /l/.
- In the pair of Russian verbs “корябает”/“пишет” respondents more often (in 67.92% cases) choose the sound symbolism “корябает”). Probably, the word “корябает” resembles the English scribble in sound design.
- In the pair of Russian verbs “перетащить”/“волочить” respondents more often (in 60.38% cases) choose the onomatopoeic verb “перетащить”. The word “перетащить” contains sound /ɕ̪:/ which is not typical for English.
- In the pair of Russian verbs “зажимая”/“соединяя” respondents more often (in 62.26% cases) choose the onomatopoeic “зажимая”. This word contains not typical for English sound /ʐ̪/.

So, a possible reason for the frequency of last two choices may be that both words contain untypical sounds. Perhaps, sounds which are not included in the articulatory base of the mother tongue (English) more often attracted the attention of respondents.

Table 5 provides information on the frequency of choice of Russian verbs by native English speakers in “control pairs” (neither verb is iconic or both are iconic). For each pair, the distribution was compared with a uniform distribution using the binomial test. The statistical significance of the difference between the distribution obtained in the experiment and the uniform one is also presented in the table.

### Table 4

<table>
<thead>
<tr>
<th>Sentence</th>
<th>Translation</th>
<th>Number (persons)</th>
<th>%</th>
<th>Statistically significant difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Хватать</td>
<td>50</td>
<td>47,17</td>
<td>0,627</td>
</tr>
<tr>
<td></td>
<td>Розьс</td>
<td>56</td>
<td>52,83</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Плюется</td>
<td>62</td>
<td>58,49</td>
<td>0,098</td>
</tr>
<tr>
<td></td>
<td>Подлаждивается</td>
<td>44</td>
<td>41,51</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Простивет</td>
<td>50</td>
<td>47,17</td>
<td>0,627</td>
</tr>
<tr>
<td></td>
<td>Взлетел</td>
<td>56</td>
<td>52,83</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Скользнула</td>
<td>49</td>
<td>46,23</td>
<td>0,497</td>
</tr>
<tr>
<td></td>
<td>Иду</td>
<td>57</td>
<td>53,77</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Полет</td>
<td>51</td>
<td>48,11</td>
<td>0,771</td>
</tr>
<tr>
<td></td>
<td>Пробегает</td>
<td>55</td>
<td>51,89</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Мачимся</td>
<td>40</td>
<td>37,74</td>
<td>0,015</td>
</tr>
<tr>
<td></td>
<td>Едем</td>
<td>66</td>
<td>62,26</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Тыкао</td>
<td>33</td>
<td>31,13</td>
<td>0,001</td>
</tr>
<tr>
<td></td>
<td>Нажимао</td>
<td>73</td>
<td>68,87</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Корябает</td>
<td>72</td>
<td>67,92</td>
<td>0,000</td>
</tr>
<tr>
<td></td>
<td>Пишет</td>
<td>34</td>
<td>32,08</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Улизнуть</td>
<td>48</td>
<td>45,28</td>
<td>0,382</td>
</tr>
<tr>
<td></td>
<td>Уйти</td>
<td>58</td>
<td>54,72</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Перетащить</td>
<td>64</td>
<td>60,38</td>
<td>0,041</td>
</tr>
<tr>
<td></td>
<td>Волочить</td>
<td>42</td>
<td>39,62</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Зажимая</td>
<td>66</td>
<td>62,26</td>
<td>0,015</td>
</tr>
<tr>
<td></td>
<td>Соединяя</td>
<td>40</td>
<td>37,74</td>
<td></td>
</tr>
</tbody>
</table>
Table 5 shows that the frequency of choice of verbs in “control” pairs is not statistically significantly different from uniform.

Among other features it should be also noted that out of 18 Russian pairs of words with different numbers of sounds, respondents more often chose the shorter word in 11 pairs of words. This may be due to the fact that English verbs of motion tend to be short.

**Conclusion.** The author of the article conducted a perceptual experiment to study the role of sound symbolism and onomatopoeia in the perception of an unfamiliar language. For analysis, native English-speaking respondents were offered contextual Russian word usages containing verbs of motion (106 respondents). The experiment did not reveal statistically significant differences in the perception of foreign language iconic units by people of different age groups and gender.

The distribution of the frequency of choice of iconic and non-iconic Russian verbs is statistically significantly different from uniform for 7 pairs of verbs out of 15. Moreover, in three pairs, respondents statistically significantly more often preferred the non-iconic verb. More frequent choice of the iconic verb is observed only in four pairs.

The experimental results illustrate that the role sound motivated vocabulary in unfamiliar language not the same. Thus, respondents from the first experiment [12, p. 113], Russian native speakers, who were unfamiliar with English, more often chose sound imitative word than respondents-English speakers in the second experiment. A possible reason for this is the more developed morphology of the Russian language, which often hides the onomatopoeic basis of an iconic word and sometimes significantly increases the length of the word.

To obtain more reliable quantitative indicators, it seems advisable not only to conduct this experiment on a wider body of material and a more representative sample of respondents, but also to conduct other relevant experiments that can confirm or refute the results of this experiment.

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