ASSOCIATIVE REPRESENTATION OF MENTAL STATE CONCEPTS IN THE BILINGUAL MENTAL LEXICON

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ABSTRACT
Results of the cross-cultural (German-Russian) scientific research are presented and discussed in the article; the latter has been conducted using an association test in studying a conscious component of the bilingual associative representation regarding the mental state concepts. It describes quantitative associative links among mental states of joy (in German: Freude), nervousness (in German: Nervosität), doubt (in German: Zweifel), hatred (in German: Hass), love (in German: Liebe), fear (in German: Angst). The study found that in most cases the associative links of the mental state concepts are similar in the foreign and native language. A more expressed language-based quantitative difference and differentiation in associative proximity between the mental state links is typical for the Russian group of probands. Based on the obtained empirical data, it was concluded that the associative structure of the bilingual mental lexicon is built on the native language’s associative structure. Foreign words form certain subnets in the existing word networks of the native language and represent some concepts that have emerged during mastering the native language.

Keywords: bilingual associative representation, mental lexicon, mental states, associative experiment

INTRODUCTION

In the modern linguistics, more studies are conducted that are addressed to exploring a human influence on the language and language functioning in a person. They are carried out under the so-called anthropocentric paradigm, which consists in "switching researcher's interests from the knowledge objects on the subject, i.e. a person in the language and language in a person are analyzed" [1, p. 6].

A person him/herself is seen as a carrier of a certain world view, a substance of individual values and senses, as a linguistic individual. The linguistic world view is understood as a model of integral knowledge about conceptual system of the concepts represented by a language. The linguistic world view is assumed to be different from a conceptual or cognitive world view, which is the basis for a linguistic embodiment, verbal conceptualization of the combined human knowledge about the world [2, p.46].

Studying a world view of a linguistic individual is one of the most pressing problems of not only the modern linguistics, but also a number of other sciences. In general, implementation of linguistic studies under the culturological anthropological paradigm is very interesting and relevant, but there is a shortage of empirical and experimental works to date.

On the other hand, the cognitive science has been actively studied representations in the last decades. Representations are used when the original is not available [3]. As a rule, mental and linguistic representations are distinguished.

Mental representations can be understood both as a process of imaging and as a result of such imaging. Procedurally, studying the mental representations is not easy due to methodological limitations. Therefore, in the Russian cognitive science an approach is the most common, in which mental
representation is viewed as internal structures, which are formed in the course of a human life, in which an established view of the world, society and him/herself is represented [4]. Such understanding significantly brings together, on one hand, mental and linguistic representations, on the other hand, representations and knowledge, and it gives rise to the assumption that representations may acquire a hierarchical structure, and associative, evaluation, conceptual and figurative components can be identified and described therein.

Studying a representation of the human inner, mental life, his/her emotional states has a special place, and it is made with the help of verbal means in appealing to their reflexive aspects. In psychology, studies were conducted; they were dedicated to formation of a mental state model, mental representations and images of emotions, emotion knowledge structures and organization, emotion representation at different levels of consciousness [5, 6].

In the Russian linguistics, psycholinguistics, psychosemantics, the emotional sphere of an individual has been studied relatively recently. The psycholinguistic approach to the study of the linguistic individual’s emotional sphere allows to determine linguistic consciousness as a basic one for the psycholinguistic mechanism of emotion expression and to highlight its derivative mechanisms: emotiveness, emotive meaning and senses [7].

Therefore, studying representations of a mental state, human inner life, states, emotions and feelings is interdisciplinary; that provides good prospects for studying the topical issues of constructing an individual system of meanings and senses.

Study of representations of bilingual’s mental states and emotions is the most relevant. In the works [8, 9], the basic definitions of bilingualism as a phenomenon and modern theoretical positions on the issue of bilingual mental lexicon and structure were considered. In the work [10], it is noted that the results of the conducted association experiments do not allow to assert unequivocally that the bilingual’s reaction is less figurative than native speaker’s answers. However, among the bilingual’s answers a greater number of repetitive reactions was reported, they were often included in the lexical-semantic field represented by a stimulus word.

The present work is devoted to studying an associative component of the mental states’ representation using psychosemantic means.

**METHODS OF STUDY**

Our study was aimed at identifying patterns of associative links relating to concepts of the semantic field – the bilingual’s "mental states."

The study was focused on the native German speakers knowing Russian as a foreign language at the B1-B2 level of the European classification, and the native Russian speakers proficient in German as a foreign language at the B1-B2 level. 49 Germans aged between 18 and 25 and 55 Russians aged 18 to 22 took part in the experiment. The probands made test and control groups. The probands’ statistical data and language of the experiments are shown in Table 1.

<table>
<thead>
<tr>
<th>Table 1.</th>
<th>Probands’ statistical data and language of experiments</th>
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<td><strong>Status</strong></td>
<td><strong>Quantity</strong></td>
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In the test groups, the study was conducted in two stages: first, a task was performed in a proband’s foreign language (i.e. Russian or German), then (2-3 weeks later) the same task was performed, but in the native language (i.e. German or Russian). In the control groups, the proband’s task was to perform the tasks only in the native language (i.e. German), so the experiment was conducted in a single step. The control groups’ empirical data were needed to confirm the data reliability of such groups.

The study was conducted using a scale-based target-specific association test. It was necessary to assess the associative proximity between the given words – mental state concepts – using a three-point scale. Below are the proband’s instructions:

Are the words mentioned below associatively proximal? The assessment scale:

1. Associative proximity between concepts is low.
2. Associative proximity between concepts is medium.
3. Associative proximity between concepts is high.

The quantitative and qualitative manifestation of an associative component relating to the meaning of words that denote mental states was hypothesized. It was assumed that the associative proximity between the words reflects associative proximity between the concepts beyond the words. Concepts of six words joy, nervousness, doubt, hatred, love, fear and associations between them were studied. A total of 15 specified association links of the mentioned concepts were studied.

RESULTS AND DISCUSSION

In the proband’s test groups (German and Russian) the results were obtained showing that the Russian and German words joy (Freude), nervousness (Nervosität), doubt (Zweifel), hatred (Hass), love (Liebe), fear (Angst) indicating a mental (emotional) state are characterized by associative links between them.

In general, in the German and Russian proband’s control groups the results were obtained that were similar to the results in both test groups. This suggests that the test groups’ results considered in the future are reliable.

Figure 1 and Table 2 show the results relating to the test group of German probands performing scaling of the associative proximity between the pair links of mental states. Figure 1 depicts pair links of mental...
Figure 1. Average values of associative proximity between pair links of mental states in Russian (foreign language for probands) and German (native language for probands). Pair links of mental states: 1 – joy-nervousness, 2 – Freude-Nervosität, 3 – joy-satisfaction, 4 – Freude-Zufriedenheit, 5 – joy-fear, 6 – Freude-Angst, 7 – nervousness-fear, 8 – Nervosität-Angst, 9 – doubt-fear, 10 – Zweifel-Angst

Figure 1 indicates that the greatest difference is observed between the links doubt-fear and Zweifel-Angst (associative proximity of 2.36 and 2.68, respectively, difference – 0.32) and between links joy-fear and Freude-Angst (associative proximity of 1.21 and 1.52, respectively, difference – 0.31).

Table 2 presents data of associative proximity between pair links of mental states, in which difference appeared insignificant in Russian (foreign language for probands) and German (native language for probands).

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</table>
It follows from Table 2 that in the course of the experiment in Russian (foreign language for probands) and German (native language for probands), the smallest associative difference has been found between the links of joy-doubt and Freude-Zweifel, joy-love and Freude-Liebe, doubt-satisfaction and Zweifel-Zufriedenheit, doubt-love and Zweifel-Liebe, satisfaction-love and Zufriedenheit-Liebe, satisfaction-fear and Zufriedenheit-Angst (in all cases, the associative difference of 0.05). The experiment did not reveal any differences in the links of love-fear and Liebe-Angst (associative proximity in both languages of 1.94).

In general, in the German proband’s test group the lowest proximity between the Russian words was found in the link of satisfaction-fear (value of 1.05), while the highest – in the link of joy-love (value of 2.94). The link of Zufriedenheit-Angst (value of 1.1) showed the lowest proximity between the German words, and the link of Freude-Zufriedenheit (value of 2.94) – the highest proximity.

An important result of the conducted association experiments is a possibility of reconstructing the associative links of individual words denoting the mental states (joy, nervousness, doubt, hatred, love, fear) and underlying concepts in the mental lexicon of bilingual probands. Scheme 1 presents associative links of the Russian word joy detected in the German proband’s group (Scheme 1).

Scheme 1. Associative links of the word joy (German proband's group)

Associative links of the corresponding German word Freude appear as follows in the German proband’s group (Scheme 2):

Scheme 2. Associative links of the German word Freude (German proband’s group)

Thus, based on the represented schemes, associative links of the Russian word joy and those of the German word Freude look similar in the German proband’s group. The existing minor quantitative differences do not seem relevant.
After a more detailed review of the empirical data obtained by the German proband’s test group, it was decided to divide the probands into two groups.

The first subgroup included the results representing the same associative links between the words in the first part of the experiment (tasks were performed in Russian) and the second part of the experiment (tasks were performed in German). In this subgroup, the intensity of associative links between the words is equal in two parts of the experiment, and it does not depend on a language the task was performed.

The second subgroup contained the results representing various associative links between the words in the first and second part of the experiment. In this subgroup, the intensity of associative links between the words is not equal in two parts of the empirical experiment, and it depends on a language the task was performed.

Analysis of the empirical data showed that the associative links of the words in two parts of the study (in Russian (foreign) and native (German) languages) are similar in the most cases (up to 84% of the probands), i.e. the associative links of the concepts beyond the words are completely consistent in both languages. This may indicate that in performing the set task in a foreign (Russian) and native (German) language the majority of probands used the same concepts beyond the words, namely the concepts already formed in mastering their native language.

Figure 2 and Table 3 show the results relating to the test group of German probands performing scaling of the associative proximity between the pair links of mental states. Figure 2 depicts pair links of mental states, which quantitative associative proximity differs in German (foreign language for probands) and Russian (native language for probands). Figure 2 demonstrates that the greatest difference is observed between the links of Freude-Zweifel and joy-doubt (associative proximity of 1.77 and 1.19, respectively, difference of 0.58) and between the links
of Freude-Liebe and love-joy, Nervosität-Zufriedenheit and nervousness-satisfaction (associative proximity of 2.62 and 2.92, 1.42 and 1.12, respectively, difference of 0.30.)

Table 3 presents data of the associative proximity between pair links of mental states, in which difference appeared less expressed in German (foreign language for probands) and Russian (native language for probands).

**Table 3.** Average values of associative proximity between pair links of mental states in German (foreign language for probands) and Russian (native language for probands)

<table>
<thead>
<tr>
<th>No.</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
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</thead>
<tbody>
<tr>
<td>Associative links</td>
<td>Zweifel-Zufriedenheit</td>
<td>Zweifel-Liebe</td>
<td>Zweifel-Angst</td>
<td>Zufriedenheit-Liebe</td>
<td>Zufriedenheit-Angst</td>
<td>Liebe-Angst</td>
</tr>
<tr>
<td>Zwei fel-Liebe</td>
<td>double-satisfaction</td>
<td>1.31</td>
<td>1.19</td>
<td>1.92</td>
<td>1.69</td>
<td>2.04</td>
</tr>
<tr>
<td>Zweifel-Angst</td>
<td>double-fear</td>
<td>2.31</td>
<td>2.46</td>
<td>2.69</td>
<td>2.46</td>
<td>2.69</td>
</tr>
<tr>
<td>Zufriedenheit-Liebe</td>
<td>satisfaction-love</td>
<td>1.46</td>
<td>1.19</td>
<td>1.88</td>
<td>1.73</td>
<td></td>
</tr>
<tr>
<td>Zufriedenheit-Angst</td>
<td>satisfaction-fear</td>
<td>1.46</td>
<td>1.19</td>
<td>1.88</td>
<td>1.73</td>
<td></td>
</tr>
<tr>
<td>Liebe-Angst</td>
<td>love-fear</td>
<td>1.46</td>
<td>1.19</td>
<td>1.88</td>
<td>1.73</td>
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</table>

It follows from Table 3 that in the course of the experiment in German (foreign language for probands) and Russian (native language for probands), the smallest associative difference has been found between the links of Nervosität-Liebe and nervousness-love (0.03), Freude-Liebe and joy-fear (0.04), Nervosität-Zweifel and nervousness-doubt (0.07). Associative difference in other links ranges from 0.12 to 0.27.

In the Russian proband’s test group, the links of Freude-Angst and Zweifel-Zufriedenheit (value of 1.31) showed the lowest proximity between the German words, and the highest – in the links of Freude-Zufriedenheit and joy-love (value of 2.65). The link of nervousness-satisfaction (value of 1.12) revealed the lowest proximity between the Russian words, and the link of joy-love and joy-satisfaction (value of 2.92) – the highest proximity.

In general, it can be noted that a more expressed language-based quantitative difference and differentiation in associative proximity between the mental state links is typical for the Russian group of probands.

**CONCLUSIONS**

In most cases, associative links of the mental state concepts are similar to each other in the foreign and native languages. These results confirm the statement that an associative structure of the bilingual mental lexicon is built based on the native language’s associative structure. Foreign words form certain subnets in the existing word networks of the native language and represent some concepts that have emerged during mastering the native language.

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