

Associative-Semantic Representation of Somatisms In Uzbek-Dominant and Uzbek-Russian Bilinguals

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Abstract: This article examines the associative-semantic representation of somatisms in the language consciousness of Uzbek-dominant speakers and Uzbek-Russian bilinguals. The material was obtained through a comparative association experiment that included tasks on the prevalence of body-part terms, responses to the stimuli bosh/head and qo'l/hand, and assessments of the motivational, aesthetic, speech-related, psychological, cultural, and child-language functions of body vocabulary. Between-group distributions were compared using Pearson's chi-square test; the robustness of the findings was assessed by correcting for multiple comparisons, while the response structure was interpreted using correspondence analysis. Statistically robust differences were found in the overall prevalence of somatisms, the associative field of bosh/head, and the perceived psychological impact. The item jigar/liver was particularly discriminative, revealing culturally marked emotional and kinship-related semantics among Uzbek-dominant participants. Most other blocks showed no statistically significant between-group differences. The findings indicate that bilingualism does not disrupt the shared embodied-semantic core but redistributes the accessibility of selected culture-specific associations and the ways in which they are verbalized.

Keywords: Somatism, language consciousness, association experiment, bilingualism, Uzbek, Russian, semantic representation, correspondence analysis.

Introduction: Somatisms, or names of body parts and internal organs, belong to the basic layer of vocabulary through which people categorize not only bodily experience but also emotions, intellect, character, social relations, and moral evaluation. Units such as head, hand, heart, eye, tongue, jigar, yurak, bosh, and qo'l readily extend from direct anatomical meanings to metaphorical, phraseological, and symbolic ones. Their associative fields therefore reflect both universal mechanisms of embodied conceptualization and the cultural and linguistic specificity of a community [1; 2].

Body vocabulary is of particular research interest in the context of Uzbek-Russian bilingualism. Uzbek and Russian coexist in education, the media, professional communication, and everyday interaction, but their functional distribution differs across speakers. For an Uzbek-dominant participant, a culturally established

association may be activated primarily through an Uzbek lexical unit and its conventional imagery. A bilingual speaker accesses the same conceptual domain through two interconnected lexical systems, which creates the possibility of competition, mutual reinforcement, semantic convergence, or a redistribution of associative accessibility [3-5].

The relevance of the study stems from the limited experimental investigation of body vocabulary in Uzbek-Russian language contact. Most studies describe somatisms using dictionaries, phraseology, or literary texts. An association experiment, however, makes it possible to observe not only codified linguistic meaning but also the probabilistic organization of living language consciousness: which responses arise first, which semantic zones cluster together, and the extent to which distributions depend on the respondent's

language profile [6; 7].

The purpose of this article is to identify shared and distinctive characteristics of the associative-semantic representation of somatisms in Uzbek-dominant speakers and Uzbek-Russian bilinguals. The study addressed four objectives: to determine the blocks in which language profile is associated with response distribution; to identify the most discriminative somatic units; to compare stable and variable zones of embodied semantics; and to interpret the findings in light of models of the bilingual lexicon and cultural semantics.

THEORETICAL FRAMEWORK

In cognitive semantics, the body is regarded as the primary coordinate system of conceptualization. Spatial, emotional, and social meanings emerge from recurring sensorimotor experience but become conventionalized in specific linguistic models [1; 8]. Somatisms therefore have a dual nature: their denotational basis is universal, whereas their figurative meanings, collocational patterns, and evaluative connotations are culturally conditioned. Across languages, the head is associated with thinking, control, and the upper part of an object, while the hand is linked to action, assistance, work, and control. The strength of these associations, typical phraseological scenarios, and emotional coloring, however, need not coincide.

The semantics of *jigar* is particularly revealing in Uzbek linguoculture. Its anatomical meaning, 'liver,' coexists with forms of address and nominations referring to a close or dear person, thereby strengthening the emotional and kinship-related zone of its associative field. In Russian, *pechen'* 'liver' retains predominantly anatomical and physiological reference and much more rarely functions as an independent symbol of closeness. Literal cross-language correspondences between somatisms therefore do not guarantee equivalence in their associative potential. Such cases show how a cultural model organizes access to meaning.

Psycholinguistic models of the bilingual lexicon assume that the two languages are interconnected. Units from both languages may be activated during word processing, while the strength of the links depends on proficiency, frequency of use, context, and the direction of form-to-concept access [3-5]. The BIA+ model describes the nonselective activation of lexical

candidates, whereas the Revised Hierarchical Model emphasizes changes in the links between lexical forms and the conceptual level as second-language proficiency develops [3; 4]. For somatisms, this implies that a bilingual speaker may share a common conceptual foundation while showing unequal access to Uzbek and Russian lexical-cultural associations.

In this study, associative-semantic representation is understood as an organized set of links between a somatic stimulus and the meanings, evaluations, images, and functions activated by the respondent. It cannot be reduced to a list of frequent responses: the relative prominence of categories, the between-group profile, and the positions of categories in multidimensional space are also important. Quantitative comparison of the distributions was therefore supplemented by qualitative interpretation and correspondence analysis.

METHODS

The study was conducted as a comparative association experiment. The total sample comprised 480 respondents divided into two language profiles: Uzbek-dominant participants and Uzbek-Russian bilinguals. Profile assignment was based on the predominant language of everyday communication and participants' self-reported regularity of Uzbek and Russian use. The number of valid observations differed across individual questions because of missing responses; consequently, statistical conclusions were based on the actual number of responses in each block.

The instrument comprised nine content blocks: (1) overall prevalence of somatisms; (2) the associative field of *bosh*/head; (3) the field of *qo'l*/hand; (4) motivational function; (5) association with beauty and aesthetic evaluation; (6) characterization of speech; (7) psychological impact; (8) cultural conditioning; and (9) somatisms in child language. Closed and categorized responses formed contingency tables of language profile by response category. Open responses were normalized before analysis: orthographic variants and transparent morphological forms were combined while semantically distinct responses were retained.

Pearson's chi-square test was the main criterion for between-group comparison. Standardized residuals were used to locate the contribution of individual cells; absolute values of approximately 1.96 or greater were

interpreted as notable deviations of observed from expected frequency. For significant tables, the strength of association was assessed using Cramer's V. Because several thematic blocks were tested, the original p-values were evaluated against the Benjamini-Hochberg false discovery rate correction [9]. This procedure reduces the risk of treating a chance difference as substantively meaningful under multiple testing.

Correspondence analysis was applied to the bosh/head field to represent the row and column profiles of the contingency table in a shared space. The closer a response category lies to a language group, the stronger its relative association with that group; proximity to the origin indicates a weak discriminative role. The obtained eigenvalue for the first dimension (0.0252) indicates low

but interpretable structural heterogeneity in the field. Interpretation considered not only p-values but also the substantive coherence of the responses.

RESULTS

The summary results show that language profile affects selected nodes rather than the entire system of somatic representations. After correction for multiple comparisons, robust differences remained in three blocks: overall prevalence of somatisms, the bosh/head field, and psychological impact. The difference in the characterization of speech was borderline and did not remain a distinct robust effect after correction. The remaining blocks showed similar distributions across the two groups.

Table 1. Between-group comparison of the thematic blocks of the association experiment

Thematic block	p	Initial finding	After FDR
Prevalence of somatisms	0.004257	significant	robust
Bosh/head	0.005616	significant	robust
Qo'l/hand	0.1424	not significant	not significant
Motivation	0.313	not significant	not significant
Beauty	≈ 0.90	not significant	not significant
Characterization of speech	≈ 0.036	borderline	not robust
Psychological impact	0.0000668	significant	robust
Cultural conditioning	0.7999	not significant	not significant

Prevalence of Somatisms

A statistically significant difference between the language groups was found in the overall prevalence block ($p = 0.004257$). The strongest local contribution came from jigar/liver: the standardized residual was 2.74 for Uzbek-dominant participants and -2.74 for bilinguals. This means that jigar occurred more often than expected under independence in the first group and less often in the second group. Because $|2.74|$ exceeds the reference value of 1.96, the discrepancy cannot be explained solely by the overall volume of responses.

This finding is consistent with the cultural polysemy of jigar. In Uzbek-dominant language consciousness, the unit activates not only an anatomical referent but also meanings of kinship, emotional closeness, and

affectionate address. This association does not disappear among bilinguals, but its relative accessibility decreases against the background of a broader bilingual repertoire and competition with Russian emotional nominations. The between-group difference thus reflects not knowledge or lack of knowledge of the word, but the probability of selecting it as a representative of the embodied-emotional domain.

Associative Fields of Bosh and Qo'l

The distributions in the bosh/head field differed significantly ($p = 0.005616$). Correspondence analysis confirmed that the response structures of the groups were not identical; the eigenvalue for the first dimension was 0.0252. The low inertia indicates a shared core - the representation of the head as a body part and a center of thought and control - alongside differences in peripheral categories. It is precisely the

periphery that is most sensitive to the language of everyday conceptualization, conventional collocations, and phraseological experience.

Unlike the bosh/head field, the qo'l/hand field showed no reliable association with language profile ($p = 0.1424$). The semantics of the hand, linked to action, work, assistance, skill, and physical contact, forms a high-frequency cross-language core. The similarity between the groups may be explained by both the universality of manual experience and the many functionally comparable expressions in Uzbek and Russian. The absence of significance is substantively important: it limits the hypothesis of a pervasive bilingualism effect and demonstrates that restructuring of the associative network is selective.

Functional and Evaluative Blocks

No statistically significant differences were found in the blocks of motivation ($p = 0.313$), beauty ($p \approx 0.90$), and cultural conditioning ($p = 0.7999$). Participants in both groups therefore assessed the role of body vocabulary in prompting action, aesthetic characterization, and cultural markedness in broadly similar ways. The especially high p -value in the beauty block indicates closely similar distributions rather than a weak borderline effect. These findings point to shared norms of embodied evaluation within a common sociocultural space.

The speech-characterization block yielded an uncorrected p -value of approximately 0.036. In an isolated test, this value could be considered significant at the 0.05 level; however, the effect did not remain robust after accounting for multiple comparisons. It is therefore more appropriate to interpret it as a direction for replication rather than as an established difference. Language profile may influence the selection of somatic resources for characterizing speech - for example, through the units tongue/til and mouth/og'iz - but the magnitude of the effect requires confirmation in an independent sample.

The strongest divergence was found in the assessment of psychological impact ($p = 6.68 \times 10^{-5}$). Among 462 valid responses, 134 participants selected 'very strong,' 246 selected 'moderate,' 22 selected 'weak,' 26 selected 'no impact,' and 34 selected 'difficult to answer.' Thus, 380 respondents, or 82.3% of those who answered, acknowledged a strong or moderate impact of somatic

expressions. The between-group difference indicates that a generally high sensitivity to body vocabulary coexists with different distributions of perceived impact across the two language profiles.

The psychological effectiveness of somatisms may be related to their imagery, bodily salience, and emotional intensity. Words denoting vital organs or body parts rapidly evoke perceptual and affective scenarios. Culturally conventionalized figurative meanings reinforce this effect only when they are regularly activated in the dominant language. Bilingual processing introduces the possibility of cross-language activation and thereby changes the relative strength of individual responses without necessarily reducing the overall impact.

DISCUSSION

The findings support a model of an associative-semantic space that is partly shared and partly differentiated. Commonality is reflected in the absence of between-group differences for qo'l/hand, motivation, beauty, and cultural conditioning. Differentiation is concentrated in areas where a somatic unit is highly culture-specific or participates in emotionally salient scenarios. Thus, jigar/liver functions as a marker of an Uzbek linguocultural model of closeness, whereas the bosh/head field displays variability in peripheral associations while retaining a shared conceptual center.

This pattern is consistent with the view of nonselective access in the bilingual lexicon [3; 5]. When a somatic unit is presented or produced, an interconnected network of forms, concepts, and contexts is activated rather than an isolated lexicon of a single language. The probability of the final response, however, is determined by the relative strength of the links. Frequent use of Russian may increase the accessibility of Russian lexical and phraseological patterns, while an Uzbek-dominant mode may sustain culture-specific links of the Uzbek unit. Differences between the groups should therefore be interpreted as a redistribution of activation rather than evidence of two entirely separate worldviews.

Statistical and substantive significance must also be distinguished. The borderline result in the speech-characterization block may reflect a genuine weak tendency, but multiple testing increases the probability of chance findings. Applying the FDR correction

identified the three most reliable effects. At the same time, nonsignificant results do not prove complete identity between the groups; they indicate that the available sample provides insufficient grounds to reject the hypothesis of similar distributions. Future studies should systematically report Cramer's V and confidence intervals to assess the practical magnitude of the differences.

Methodologically, combining frequency analysis, standardized residuals, and correspondence analysis is promising. The chi-square test addresses whether profile and response are associated, residuals identify the categories that produce the association, and correspondence analysis visualizes the configuration of the entire field. For somatic semantics, this combination is particularly productive because it allows researchers to move from a general claim about 'cultural differences' to a specific lexeme or semantic zone in which the difference occurs.

The practical value of the findings lies in the teaching of Russian and Uzbek, intercultural communication, and lexicography. In bilingual education, it is insufficient to provide only the anatomical equivalents *jigar* - liver, *bosh* - head, or *qo'l* - hand. Typical figurative meanings, pragmatic appropriateness, and the emotional range of the units must also be demonstrated. In bilingual dictionaries and teaching materials, culturally marked somatisms should be accompanied by contexts that reflect differences in associative potential.

The study has several limitations. Language profile is a complex variable and should be refined using objective proficiency measures, age of Russian acquisition, switching frequency, and domains of use. The categorization of open responses requires assessment of inter-rater agreement. Unequal numbers of valid responses across blocks should be considered when comparing effects. Finally, an associative link reflects the accessibility of a representation in an experimental setting but does not exhaust its use in natural speech. The next stage should include replication, calculation of effect sizes for all tables, modeling of individual differences, and reaction-time analysis.

CONCLUSION

The comparative association experiment revealed a selective influence of language profile on the semantic organization of somatisms. After correction for multiple

comparisons, robust differences remained in the overall prevalence of somatisms, the *bosh*/head field, and the assessment of psychological impact. The clearest lexical marker was *jigar*/liver: its higher representation among Uzbek-dominant participants reflects the culturally established link among bodily, emotional, and kinship-related meanings.

At the same time, similar distributions for *qo'l*/hand, motivation, beauty, and cultural conditioning confirm the existence of a shared embodied-semantic core. Uzbek-Russian bilingualism does not create two isolated systems of somatic representation; instead, it changes the weight and accessibility of individual links within an interconnected network. The associative-semantic representation of somatisms should therefore be described as a dynamic structure combining universal bodily experience, cultural symbolization, and an individual's language-use pattern.

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