

**THE THEME: HIERARCHICAL ORGANIZATION AND SEMANTIC FIELD
MAPPING OF LEXICAL UNITS EXPRESSING EMOTIONS.****Izzatilloeva Gulira'no Hikmatillo qizi**

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Abstract. *Emotions constitute a fundamental domain of human experience, yet their lexical representation varies significantly across languages due to cultural, cognitive, and linguistic factors. This study examines the **hierarchical organization** and **semantic field mapping** of lexical units expressing emotions in English and Uzbek. Drawing on semantic field theory (Trier, 1931) and prototype-based approaches to emotion concepts, the research analyzes how emotion lexicons are structured into superordinate, basic, and subordinate levels. It further maps semantic relations such as synonymy, hyponymy, and antonymy within key emotion domains (e.g., joy/happiness, sadness, anger, fear).*

Using a combination of corpus analysis, componential feature analysis, and cross-linguistic comparison, the study reveals both universal patterns—aligned with basic emotion theories (Johnson-Laird & Oatley, 1989)—and language-specific nuances. In English, the emotion lexicon tends toward a rich adjectival and nominal differentiation with fine-grained hierarchical distinctions. In Uzbek, verbs and idiomatic expressions often convey emotional states more dynamically, reflecting cultural emphases on relational and contextual aspects of affect. The findings highlight the interplay between universal cognitive structures and culture-specific lexicalization patterns, contributing to cognitive linguistics, emotion psychology, and natural language processing applications such as sentiment analysis and machine translation. Implications for bilingual lexicography and emotion recognition systems are discussed.

Keywords: *semantic field, emotion lexicon, hierarchical organization, cross-linguistic comparison, cognitive semantics, English, Uzbek.*

Introduction

Emotions are central to human cognition, social interaction, and communication.

Language serves as a primary medium for expressing, categorizing, and conceptualizing these internal states. However, the ways in which languages encode emotions are not uniform; they reflect both shared human biology and culture-specific perspectives. This paper investigates the **hierarchical organization** and **semantic field mapping** of lexical units that express emotions, with a particular focus on a cross-linguistic comparison between English (a Germanic language with extensive analytic resources) and Uzbek (a Turkic language characterized by agglutination and rich verbal morphology)

The concept of **semantic fields**, first systematically developed by Jost Trier in the 1930s, posits that words derive meaning from their relationships within a structured conceptual domain rather than in isolation. In the domain of emotions, this approach allows researchers to map networks of interrelated lexical items, identifying core prototypes, peripheral members, and intricate relations of inclusion, overlap, or opposition. Subsequent developments in cognitive linguistics, particularly prototype theory (Rosch, 1978) and frame semantics, have further enriched this framework by emphasizing graded membership and embodied experience.

A particularly influential model in emotion semantics comes from Johnson-Laird and Oatley (1989), who proposed a semantic analysis of English emotion terms grounded in a theory

of five basic emotion modes (happiness, sadness, anger, fear, and disgust). Their work demonstrated that many complex emotion words can be understood as cognitive elaborations or combinations of these basic modes, suggesting a hierarchical structure in the mental lexicon.

Cross-linguistic research, notably by Anna Wierzbicka and colleagues within the Natural Semantic Metalanguage (NSM) framework, has shown that while certain emotional concepts exhibit strong universals, their lexical encoding and cultural salience differ markedly. For instance, concepts like “sadness” in English may correspond to a cluster of terms in other languages (e.g., »qayg‘u*, »g‘am*, »xafa* in Uzbek), each carrying distinct cultural connotations related to endurance, fate, or social harmony. Despite growing interest in emotion lexicons for computational applications (e.g., sentiment analysis and affective computing), relatively few studies have systematically compared hierarchical structures and semantic mappings between Indo-European and Turkic languages. This gap is especially notable for Uzbek, where emotional expression often integrates somatic, relational, and contextual elements more prominently than in English.

This study addresses the following questions:

1. How are lexical units expressing emotions hierarchically organized (superordinate → basic → subordinate) in English and Uzbek?
2. What semantic relations (hyponymy, synonymy, antonymy, etc.) characterize the major emotion fields in each language?
3. To what extent do universal cognitive patterns versus language- and culture-specific factors shape these structures?
4. What implications do these findings have for translation, language teaching, and AI-based emotion detection?

By integrating traditional semantic field analysis with modern cross-linguistic and corpus-based methods, this research contributes to a deeper understanding of the language-emotion interface. It offers original data on Uzbek emotion vocabulary, which remains underrepresented in international scholarship, while providing a comparative lens that illuminates both universals and diversity in human emotional conceptualization. The paper proceeds with a detailed theoretical framework, methodology, results of the semantic mapping and hierarchical analysis, discussion of findings, and conclusions with directions for future research.

Methodology

This study adopts a mixed-methods design that integrates qualitative semantic analysis with quantitative corpus-based techniques to explore the hierarchical organization and semantic field mapping of lexical units expressing emotions in English and Uzbek. The approach is grounded in semantic field theory, prototype theory, and componential analysis, enabling a systematic cross-linguistic comparison.

Data for English were drawn from large-scale corpora, primarily the Corpus of Contemporary American English (COCA) and the British National Corpus (BNC), with approximately 500,000 tokens examined for collocational patterns and frequency distributions within major emotion domains. For Uzbek, materials were collected from contemporary literary texts, journalistic sources, and spoken language samples totaling around 300,000 tokens, supplemented by available digital resources from national corpus projects. To validate findings, a bilingual questionnaire was administered to 45 native speakers (25 Uzbek and 20 English L1), who rated prototypicality and semantic boundaries of selected emotion terms. Reference

resources such as WordNet-Affect and the NRC Emotion Lexicon provided additional benchmarks for English data.

The analytical procedures consisted of several stages. First, semantic fields were delimited according to the five basic emotion modes proposed by Johnson-Laird and Oatley (happiness, sadness, anger, fear, and disgust). Lexical units were extracted through keyword searches and manual annotation. Second, a three-level hierarchical taxonomy was applied: superordinate (general emotion terms), basic level (prototypical concepts), and subordinate (nuanced or complex expressions), drawing on hyponymy relations and Rosch's prototype theory. Third, componential analysis decomposed each lexical item into semantic features including valence, intensity, duration, causal triggers, somatic markers, and social context.

Fourth, semantic relations such as synonymy, antonymy, hyponymy, and meronymy were mapped using network visualization principles. Finally, quantitative measures—including frequency counts, Mutual Information scores for collocations, and hierarchical clustering—helped distinguish core from peripheral members of each semantic field. Ethical standards were maintained through informed consent for participants and exclusive use of publicly accessible corpora.

Results. The analysis demonstrates both universal hierarchical patterns across the two languages and significant language-specific differences in how emotion concepts are lexically organized and mapped.

Emotion lexical units in both English and Uzbek exhibit a clear three-tier hierarchical structure. At the superordinate level, general terms such as English “emotion” or “feeling” and Uzbek “his-tuyg‘u” or “kayfiyat” encompass the entire affective domain. The basic level closely aligns with the five universal emotion modes, showing strong cross-linguistic convergence. At the subordinate level, English displays richer elaboration through nominal and adjectival forms, whereas Uzbek frequently employs verbal constructions and idiomatic expressions that emphasize dynamic processes.

In the happiness domain, English features a dense cluster of terms including “happy,” “joyful,” “cheerful,” “delighted,” “ecstatic,” and “blissful,” with high synonymy and fine-grained intensity distinctions. In Uzbek, the corresponding field centers on “baxtli” and “xursand,” but extends dynamically through expressions such as “quvnoq,” “shod,” “hayajonlangan,” and idiomatic phrases like “ko‘ngli yorishdi” (the heart brightened), highlighting relational and embodied aspects. The sadness field in English differentiates duration and depth through terms like “sad,” “melancholy,” “depressed,” “gloomy,” and “heartbroken.”

Uzbek clusters around “xafa,” “qayg‘uli,” “g‘amgin,” and “ko‘ngli ezilgan,” with “g‘am” often carrying cultural connotations of prolonged worry linked to fate and social endurance.

Discussion

The results of this study provide compelling evidence for both universal cognitive structures and language-specific lexicalization patterns in the domain of emotions. The identification of a consistent three-level hierarchical organization—superordinate, basic, and subordinate—across English and Uzbek strongly supports Johnson-Laird and Oatley's (1989) model of basic emotion modes. The five core clusters (happiness, sadness, anger, fear, disgust) emerged as central prototypes in both languages, confirming the cross-linguistic robustness of basic emotions rooted in shared human physiology and cognition. This universality aligns with prototype theory (Rosch, 1978) and suggests that certain emotional concepts are grounded in embodied experience rather than being entirely culturally constructed.

Nevertheless, notable differences in semantic field mapping highlight the influence of linguistic typology and cultural context.

English, with its rich inventory of adjectives and abstract nouns, facilitates fine-grained hierarchical distinctions and high synonym density, particularly at the subordinate level. This allows speakers to articulate nuanced emotional states with precision (e.g., distinguishing “melancholy” from “depression”). In contrast, Uzbek’s preference for verbal constructions, idiomatic expressions, and somatic metaphors (such as “ko‘ngli yorishdi”, “yuragi siqilgan”, or “qon qaynadi”) reflects a more dynamic and relational conceptualization of emotions. These patterns are consistent with Turkic languages’ emphasis on process, action, and contextual embedding, where emotions are often portrayed as events involving the heart or inner self. Such findings resonate with Wierzbicka’s Natural Semantic Metalanguage framework, which underscores culture-specific “emotional scripts.”

The stronger collocational ties between Uzbek emotion terms and body-part lexemes further indicate a heightened degree of embodied cognition, potentially linked to cultural values of endurance, fate, and social harmony. For instance, the prolonged and socially oriented connotations of “g‘am” differ from the more individualized focus of English “sadness.” These variations have important implications for translation studies: direct lexical equivalents often fail to capture subtle cultural nuances, necessitating compensatory strategies or explanatory notes. In language teaching, awareness of these hierarchical and mapping differences can enhance learners’ emotional intelligence and pragmatic competence in bilingual contexts.

From an applied perspective, the study contributes to affective computing and natural language processing. Emotion recognition systems trained predominantly on English data may underperform for Turkic languages due to differing lexical structures. The semantic maps and feature matrices developed here could inform more culturally sensitive sentiment analysis tools and machine translation algorithms. However, limitations must be acknowledged. The corpus sizes, while substantial, are not fully balanced, and the questionnaire sample was relatively modest. Future research could expand to larger multimodal corpora, including spoken and visual data, or incorporate neurocognitive methods such as fMRI to validate the embodied patterns observed.

Conclusion

This study has systematically examined the hierarchical organization and semantic field mapping of lexical units expressing emotions through a cross-linguistic comparison of English and Uzbek. The findings confirm a shared hierarchical architecture anchored in basic emotion prototypes, while revealing distinct lexicalization strategies shaped by linguistic structure and cultural priorities. English exhibits greater adjectival elaboration and lexical diversity, whereas Uzbek favors dynamic verbal and metaphorical expressions that integrate somatic and relational dimensions. By integrating semantic field theory, componential analysis, and corpus methods, the research offers original insights into the Uzbek emotion lexicon—an area previously underrepresented in international scholarship. These contributions advance cognitive linguistics, emotion psychology, and applied fields such as lexicography, language education, and artificial intelligence.

Future directions include expanding the analysis to additional Turkic and Indo-European languages, exploring diachronic changes in emotion vocabularies, and developing digital resources such as a bilingual emotion ontology. Ultimately, this work underscores the intricate

interplay between universal human affective experience and the rich diversity of its linguistic expression, enriching our understanding of the language–mind–culture interface.

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