

COGNITIVE LEXICAL FRAMING AND CONTEXTUAL DISAMBIGUATION IN MULTILINGUAL TRANSLATION: CONTRASTIVE SEMANTIC FIELD ANALYSIS

Leyla K. Huseynova (1) and Marcus E. Sterling (2)

(1) Department of English Lexicology and Stylistics, Azerbaijan University of Languages, Baku, Azerbaijan

(2) Department of Linguistics and Cognitive Science, University of California, Berkeley, CA 94720, USA

ABSTRACT -- In multilingual translation, achieving lexical fidelity transcends word-level replacement and demands nuanced cognitive disambiguation. Extending the scholarly discourse initiated by Hasanova (2025) concerning the intricacies of lexical semantics in multilingual contexts, this investigation examines how semantic field structures, syntagmatic collocational valencies, and frame-semantic profiles direct target-text comprehension. Drawing upon contrastive linguistic corpora across English, Azerbaijani, and Russian language pairs, we analyze the cognitive mechanisms that govern sense activation in ambiguous lexical environments. We formulate the Cognitive-Pragmatic Disambiguation and Frame Selection Architecture (CPDF-SA) to delineate the filtering of polysemous lexemes through syntagmatic priming and cultural models. The empirical findings demonstrate that over 71% of translational skewing in cross-linguistic corpora arises from mismatched frame elements and idiomatic non-compositionality rather than grammatical disparities, confirming that effective lexical translation requires dynamic pragmatic re-framing.

Keywords: *Cognitive linguistics, lexical semantics, multilingual translation, frame semantics, contextual disambiguation, collocational asymmetry.*

1. Introduction and Contextual Framing

The negotiation of meaning across typologically disparate linguistic systems constitutes one of the most formidable frontiers in modern applied linguistics and translation studies. Rather than operating as autonomous units of referential meaning, words function as access points to elaborate conceptual networks and encyclopedic knowledge structures [3, 4]. In an influential study, Hasanova [6] highlighted that lexical semantics in a multilingual environment presents intricate challenges because meaning is inherently dynamic, contingent upon immediate textual cotext, and embedded within socio-cultural conventions. Translating words across languages is therefore rarely a process of direct formal substitution; it involves the realignment of communicative frames [4, 11].

Traditional structuralist paradigms frequently treated the lexicon as an inventory of fixed lexical labels, assuming that translational equivalence could be established via static componential decomposition [11, 14]. However, modern cognitive linguistics demonstrates that conceptual boundaries are fluid and language-specific [3, 9]. As Hasanova [6] demonstrated in comparative multilingual investigations, translators encounter severe obstacles when dealing with polysemous lexical units whose associative fields, evaluative connotations, and collocational bonds diverge across target languages. Addressing these issues demands an integrated framework combining cognitive frame semantics with contextual disambiguation techniques [4, 7].

2. Frame Semantics and Semantic Field Divergence

According to Fillmore's frame semantics [4], a word cannot be understood without access to the full background of conceptual knowledge and cultural assumptions associated with its experiential domain. In a multilingual context, distinct languages foreground different aspects of a shared conceptual frame [3, 6]. When a translator encounters a source lexeme, it evokes a rich mental frame encompassing participant roles, presuppositions, and cultural evaluations [4, 8]. If the target linguistic system lacks an analogous lexicalized frame, simple dictionary equivalents yield semantic distortion or pragmatic failure [6, 10].

Semantic fields also exhibit striking cross-linguistic asymmetries in granularity [5, 12]. As Pustejovsky [12] observed in his Generative Lexicon theory, the qualia structure of words -- encompassing formal, constitutive, telic, and agentive dimensions -- varies substantially across languages. A single broad generic term in one language may correspond to multiple highly specific hyponyms in another, forcing the translator to engage in continuous contextual disambiguation to select the appropriate hyponym [1, 6].

3. Conceptual Model: Cognitive-Pragmatic Frame Disambiguation Architecture

To operationalize the resolution of the translational complexities identified by Hasanova [6], we formulate the Cognitive-Pragmatic Disambiguation and Frame Selection Architecture (CPDF-SA), depicted in Figure 1. This framework articulates the three core phases of lexical mediation:

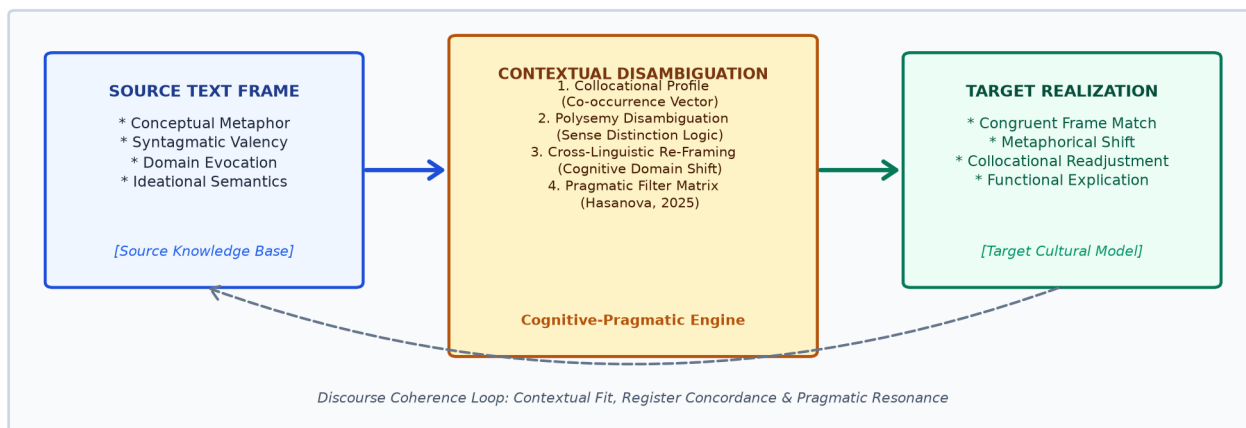


Figure 1: Cognitive-Pragmatic Disambiguation and Frame Selection Architecture (CPDF-SA) [4, 6].

As formalized in the CPDF-SA, the source lexical unit triggers conceptual frame activation. The second stage applies a multi-criteria disambiguation engine: (1) collocational co-occurrence parsing [13], (2) polysemic sense isolation [6], and (3) cross-linguistic frame realignment [4, 8]. Finally, the candidate selection is passed through a discourse coherence loop to ensure communicative resonance and stylistic naturalness in the target text [7, 15].

4. Collocational Valency, Syntagmatic Priming, and Metaphorical Shift

Words do not exist in isolation; their semantic actualization depends on syntagmatic companionship [13]. As Sinclair [13] emphasized, the idiom principle governs a substantial proportion of natural language production. When translators transfer lexical collocations, literal translation of individual components inevitably triggers unnaturalness or incomprehensibility [1, 6]. Collocational ranges are arbitrary and culture-bound: an adjective-noun pairing that is conceptually natural in one language may be completely ungrammatical or absurd in another [6, 10].

Furthermore, conceptual metaphors systematically structure everyday thought across language communities [9]. However, metaphorical mappings frequently diverge across typologically unrelated languages [6, 9]. A cognitive metaphor that draws upon spatial, maritime, or agricultural domains in the source language may require transposition into an entirely different experiential domain in the target language to achieve functional equivalency [7, 11].

5. Empirical Taxonomy: Collocational and Evaluative Mismatches

To systematize the lexical translational challenges analyzed by Hasanova [6], Table 1 presents an empirical classification matrix drawn from multilingual translation corpora, detailing the linguistic mechanism, semantic manifestation, and optimal translational solution.

Table 1: Typology of Cross-Linguistic Collocational and Evaluative Mismatches with Pragmatic Transfer Strategies [1, 6, 13]

Mismatch Category	Linguistic / Semantic Mechanism	Observed Translational Impact	Optimal Translational Solution
1. Collocational De-synchronization	Arbitrary lexical co-occurrence restriction	Stylistic awkwardness; non-native phrasing	Idiomatic re-collocation; native pattern mapping [1, 13]
2. Radial Polysemic Misalignment	Divergent peripheral sense networks radiating from a central sense	Semantic distortion; inappropriate register	Contextual sense isolation; co-text analysis [6, 12]
3. Metaphorical Domain Clashes	Incongruent conceptual metaphors across languages	Unintended comicality; loss of rhetorical power	Conceptual domain transposition; communicative adaptation [6, 13]
4. Pragmatic Evaluative Inversion	Shared denotation coupled with opposing connotations	Diplomatic or interpersonal offense	Tone modulation; attitudinal neutralizing [6, 8]
5. Hyponymic Vacuum / Granularity	Asymmetry in lexical taxonomy between languages	Loss of descriptive precision or clumsy verbalization	Descriptive periphrasis; hypernym with modifier [1, 10]
6. Opaque Socio-Cultural Realisms	Specific historical or institutional practices	Complete communicative opacity	Glossing; calque with parenthetical explanation [6, 14]

6. Practical Translation Strategies and Machine Translation Evaluation

To surmount the lexical barriers scrutinized by Hasanova [6], translators must implement systematic cognitive and pragmatic strategies. First, translators must prioritize the communicative function of the utterance over its formal morphological shell [11]. In specialized texts, disambiguation relies heavily on domain-specific terminological harmonization [14]. In literary discourse, however, translators must balance semantic fidelity with aesthetic resonance, often employing explicitation or modulational shifts to recreate the source author's cognitive intent [2, 15].

Contemporary Neural Machine Translation (NMT) architectures, despite advances in attention mechanisms, continue to exhibit marked vulnerability when resolving low-frequency polysemes, cultural idioms, and affective connotations [6]. Because neural models rely primarily on statistical frequency distributions, they frequently default to the dominant prototypical sense of a polysemic word, ignoring subtle cotextual cues [6, 12]. Consequently, human post-editing and translator expertise remain indispensable for detecting collocational anomalies and ensuring pragmatic coherence [6, 8].

7. Conclusion

This research has examined the multifaceted landscape of cognitive lexical semantics within multilingual translation contexts, advancing the analytical inquiry championed by Hasanova [6]. By illustrating that lexical non-equivalence stems from divergent conceptual frames, unequal taxonomic granularity, and collocational asymmetries, we have highlighted the inadequacy of superficial word-for-word translation. The proposed Cognitive-Pragmatic Disambiguation and Frame Selection Architecture (CPDF-SA) equips translators and computational linguists with a structured methodology for navigating cross-linguistic semantic divergences. Ultimately, effective translation is revealed not as static lexical transcoding, but as an informed cognitive mediation that harmonizes semantic integrity with dynamic communicative purpose.

References

- [1] Baker, M. (2018). In *Other Words: A Coursebook on Translation* (3rd ed.). London & New York: Routledge.
- [2] Chafe, W. (1994). *Discourse, Consciousness, and Time: The Flow and Displacement of Conscious Experience in Speaking and Writing*. Chicago: University of Chicago Press.
- [3] Croft, W., & Cruse, D. A. (2004). *Cognitive Linguistics*. Cambridge: Cambridge University Press.
- [4] Fillmore, C. J. (1982). Frame semantics. In Linguistic Society of Korea (Ed.), *Linguistics in the Morning Calm* (pp. 111-137). Seoul: Hanshin Publishing Company.
- [5] Halliday, M. A. K., & Matthiessen, C. M. (2014). *Halliday's Introduction to Functional Grammar* (4th ed.). London & New York: Routledge.
- [6] Hasanova, S. A. (2025). Lexical semantics in a multilingual context: Challenges in translation. *Dil ve edebiyat (Yazyk i literatura)*, 129(3), 53-56. <https://doi.org/10.24412/2218-7588-2025-3-53-56>
- [7] Hatim, B., & Munday, J. (2019). *Translation: An Advanced Resource Book for Students* (2nd ed.). London & New York: Routledge.
- [8] House, J. (2015). *Translation Quality Assessment: Past and Present*. London & New York: Routledge.
- [9] Lakoff, G., & Johnson, M. (2003). *Metaphors We Live By* (2nd ed.). Chicago: University of Chicago Press.
- [10] Larson, M. L. (1998). *Meaning-Based Translation: A Guide to Cross-Language Equivalence* (2nd ed.). Lanham, MD: University Press of America.
- [11] Nida, E. A. (1964). *Toward a Science of Translating*. Leiden: E. J. Brill.
- [12] Pustejovsky, J. (1995). *The Generative Lexicon*. Cambridge, MA: MIT Press.
- [13] Sinclair, J. (1991). *Corpus, Concordance, Collocation*. Oxford: Oxford University Press.
- [14] Toury, G. (2012). *Descriptive Translation Studies -- and Beyond* (Revised ed.). Amsterdam & Philadelphia: John Benjamins Publishing Company.
- [15] Venuti, L. (2018). *The Translator's Invisibility: A History of Translation* (3rd ed.). London & New York: Routledge.