

Structural-Semantic and Cognitive Interpretation of the Terminological System

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Abstract

This article examines the terminological system from structural-semantic and cognitive perspectives. The study focuses on the organization of terms within specialized fields, their semantic relations and their role in representing professional knowledge. Terminology is not simply a collection of isolated lexical units; it is a systematic structure that reflects concepts, categories and domain-specific cognitive models (Cabr , 1999; ISO, 2022). The article applies qualitative structural, semantic and cognitive analysis. The findings show that terminological systems are formed through hierarchical, associative, synonymic, antonymic and derivational relations. From a cognitive point of view, terms function as verbal representations of concepts, frames and specialized knowledge structures (Temmerman, 2000; Faber, 2011). The study concludes that a complete analysis of terminology should combine structural-semantic interpretation with cognitive analysis, because terms represent both linguistic form and conceptual knowledge.

Keywords: *terminology, terminological system, structural semantics, cognitive linguistics, concept, frame, specialized language.*

Introduction

Terminology occupies an important place in scientific, technical and professional communication. Every field of knowledge uses its own system of terms to express specialized concepts accurately and consistently. A term is not merely a word used in a professional context; it is a linguistic unit connected with a particular concept and a definite field of knowledge (Cabr , 1999).

Modern terminology studies consider terms as components of a structured conceptual system. According to ISO 704:2022, terminology work deals with the relations between objects, concepts,

definitions and designations. This shows that terminology should be studied not only as vocabulary, but also as a system of concepts and relations (ISO, 2022).

The structural-semantic approach focuses on the formation, classification and semantic relations of terms. The cognitive approach, however, explains how terms represent knowledge, categorization and professional thinking. Cabré's theory of terminology emphasizes that terms are connected with language, cognition and communication at the same time (Cabré, 1999).

Therefore, this article aims to analyze the terminological system through two main dimensions: structural-semantic organization and cognitive interpretation. Combining these approaches makes it possible to understand not only the linguistic form of terms but also the knowledge structures behind them.

Materials and Methods

This study is based on a qualitative descriptive-analytical method. The research relies on theoretical works in terminology studies, structural semantics and cognitive linguistics. No artificial "experimental miracle" is invented here, because science already has enough decorative tables pretending to be destiny.

The following methods were used:

Method	Purpose
Structural analysis	To identify the form and formation models of terms
Semantic analysis	To reveal meaning relations between terms
Cognitive analysis	To explain how terms represent concepts and knowledge structures
Comparative interpretation	To compare traditional and modern views on terminology
Systematization	To classify terms according to linguistic and conceptual features

The theoretical basis of the research includes the works of Cabré, Temmerman, Faber, Roche and ISO terminology standards. Temmerman's sociocognitive approach argues that terminology should not be limited to fixed definitions only, because terms also reflect categorization, context and conceptual change (Temmerman, 2000). Frame-based terminology also explains terms through conceptual frames and domain-related knowledge structures (Faber, 2011).

Results

Structural Features of the Terminological System

A terminological system has a definite internal structure. Terms are connected with one another through formal, semantic and conceptual relations. Structurally, terms may be simple, compound, phraseological or abbreviated.

Type of term	Description	Example
Simple term	One-word terminological unit	phoneme, morpheme, corpus
Compound term	Term formed from two or more lexical elements	machine translation, semantic field
Phraseological term	Stable professional expression	source language text, target language equivalent
Abbreviated term	Shortened form used in specialized communication	CAT, AI, MT

The formation of terms depends on the nature of the field. For example, linguistic terminology often uses Greek and Latin elements, while technological terminology frequently uses English compounds and abbreviations. This proves that term formation is influenced by linguistic tradition, professional practice and communicative need (Cabr , 1999; Roche, 2016).

Semantic Relations within the Terminological System

Terms do not function separately. They form semantic networks. A term receives its full meaning not only through its dictionary definition but also through its relations with other terms in the same field (ISO, 2022).

Semantic Relations within the Terminological System		
Semantic relation	Meaning	Example
 1. Hypernymy	General-specific relation	language → natural language → Uzbek language
 2. Hyponymy	Specific term under a broader concept	vowel under sound
 3. Synonymy	Different terms with similar meaning	target text / translated text
 4. Antonymy	Opposite conceptual relation	source language / target language
 5. Part-whole relation	Component relation	sentence → phrase → word
 6. Associative relation	Functional or contextual connection	corpus → frequency → concordance

For instance, the term **translation competence** becomes clearer when it is related to **linguistic competence**, **cultural competence**, **technological competence** and **strategic competence**. This means that the semantic value of a term depends on its place within the whole terminological system (Cabr , 1999).

Cognitive Interpretation of Terms

From the cognitive perspective, a term is a verbal representation of a concept. It reflects how specialists understand, classify and organize professional knowledge. In this sense, terminology is closely connected with categorization and conceptual modeling (Temmerman, 2000).

For example, the term **artificial intelligence** is not only a combination of two words. It activates a broader cognitive frame that includes machine learning, algorithms, neural networks, data processing, automation and decision-making. Thus, one term may represent a complex knowledge structure (Faber, 2011).

Cognitive interpretation helps reveal the following features of terms:

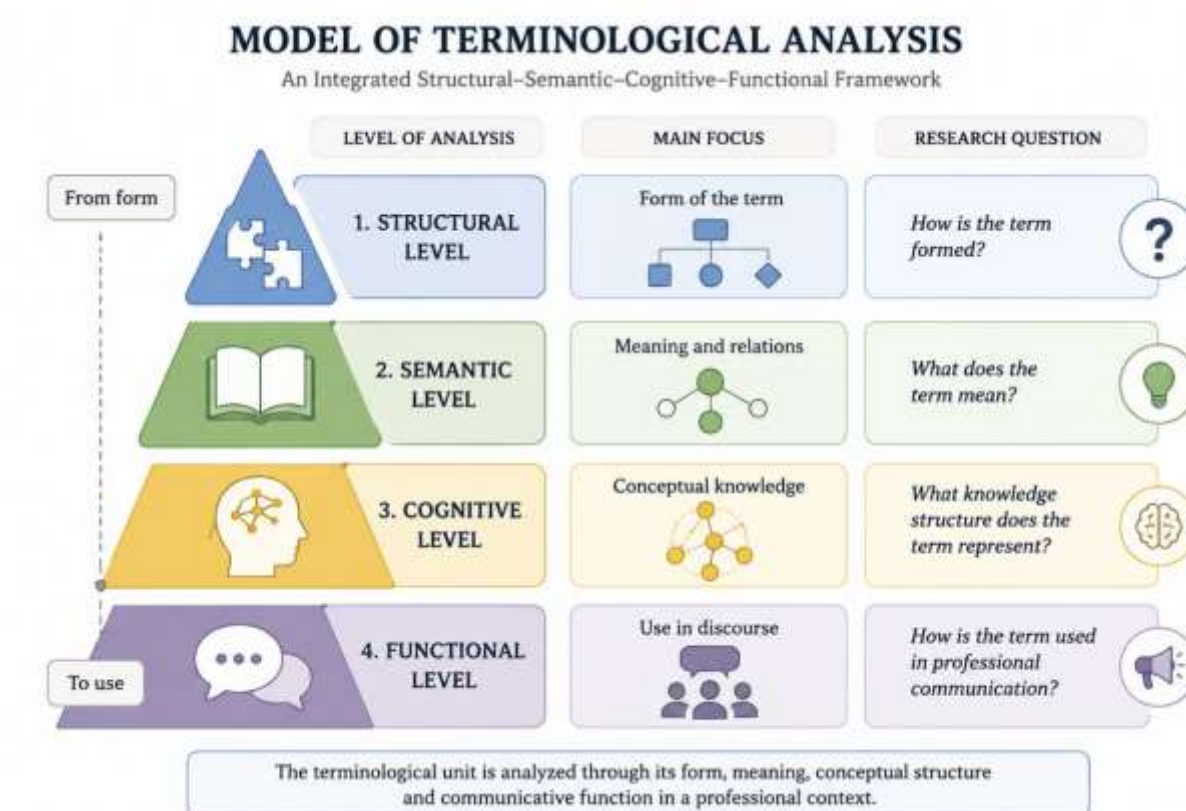
Cognitive feature	Explanation
Conceptual representation	A term names a specific concept in a field

Frame structure	A term activates related concepts and processes
Categorization	A term places knowledge into a professional category
Contextual meaning	A term may change or expand depending on domain usage

Frame-based terminology explains specialized knowledge through conceptual frames and semantic relations. This approach is especially useful in multilingual terminology, translation and specialized dictionary creation (Faber, 2011).

Integrated Model of Terminological Analysis

The structural-semantic and cognitive interpretation of terminology can be summarized in the following model:



This model shows that terminology analysis should not be limited to word structure or definition. A complete analysis must include form, meaning, conceptual content and communicative function (Cabr , 1999; Temmerman, 2000; ISO, 2022).

Discussion

The findings show that a terminological system is a complex linguistic and cognitive phenomenon. Traditional terminology focused mainly on standardization, precision and the correspondence between term and concept. This approach remains important in technical, legal, scientific and administrative communication (ISO, 2022). ISO 704:2022 also emphasizes systematic terminology work, including the preparation of terminologies, formation of terms and writing of definitions.

However, modern terminology studies show that terms are dynamic. Their meanings may change, expand or become more specialized depending on context. Temmerman's sociocognitive approach criticizes a strictly static view of terminology and emphasizes the importance of categorization, synonymy, polysemy and diachronic development in specialized language (Temmerman, 2000).

The cognitive interpretation of terms is especially important for translation studies. A translator cannot translate a term correctly by looking only at its surface form. The translator must understand

the concept behind the term, its relation to other concepts and its use in a specific discourse. For example, the term **competence** may have different meanings in pedagogy, linguistics, psychology and professional training. Translating it without context is basically academic roulette, only with worse consequences.

The structural-semantic approach is also useful for terminology management. It helps create glossaries, thesauri, term bases and specialized dictionaries. When terms are organized according to semantic and conceptual relations, users can understand the structure of a field more clearly (Roche, 2016). Roche also notes that terminology principles remain important in the context of knowledge engineering and ontology-based terminology work.

Thus, the combination of structural-semantic and cognitive approaches provides a deeper understanding of terminology. It explains not only how terms are formed, but also how they function as tools of professional thinking.

Conclusion

The terminological system is not a random collection of professional words. It is a structured system that reflects the conceptual organization of a particular field. Structural-semantic analysis reveals the formation, classification and semantic relations of terms. Cognitive interpretation explains how terms represent concepts, frames, categories and specialized knowledge.

The article concludes that terminological analysis should be carried out at several levels: structural, semantic, cognitive and functional. Such an integrated approach is important for terminology studies, translation practice, specialized language teaching, lexicography and academic communication.

In practical terms, this approach helps researchers, translators and teachers understand terms more accurately, create systematic glossaries and avoid semantic confusion in professional texts. The more clearly a terminological system is organized, the more effectively scientific and professional knowledge can be transmitted.

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