



Aspects of Cognitive Terminology Studies. Theoretical Considerations and the Role of Metaphor in Terminology

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What role do metaphors play in specialized terminology? Metaphors are fundamental in shaping how we understand, categorize, and communicate complex concepts, even within specialized fields. Contrary to the common misconception that specialized discourse is devoid of metaphors, these cognitive tools play an essential role in simplifying intricate ideas, reflecting cultural values, and influencing perceptions and decision-making processes (Kövecses, 2005; Lakoff & Johnson, 1980; Mohnke, Roos & Christmann, 2023). They bridge abstract concepts with familiar experiences, facilitating understanding across disciplines. The aim of this volume, organized into two parts, is to examine the role of metaphors in terminology formation. The first part, “New theoretical developments and applications,” presents theoretical advancements and their practical applications across five chapters. The second, “Metaphors in terminology studies,” features six chapters focusing on descriptive examples from corpus data, exploring metaphors’ prevalence, functions, and role in specialized communication.

The initial chapter, “Specialised texts and levels of specialisation” by Ona Domènech-Bagaria, addresses the challenge of defining specialized texts by employing the conceptual framework of Cognitive Linguistics, identifying three conditions: cognitive, pragmatic, and linguistic. A cognitive characterization is unique to specialists in a specific field, while a pragmatic one depends on the sender, and a linguistic one is based on terminology. Texts are classified into horizontal and vertical levels of specialization, with horizontal levels related to knowledge domains and vertical levels to the depth of specialization. The author also proposes a method for determining specialization levels using an evaluable parameter.

Chapter two, “Including the cultural dimension of terminology in a frame-based resource,” written by Pilar León-Araúz and Pamela Faber, discusses

the practical implementation of Frame-Based Terminology. It presents the case of EcoLexicon, a multilingual terminological knowledge base and digital resource that has been culturally adapted to serve as a more inclusive and sensitive tool. The authors address classification issues in environmental terminology, proposing the recontextualization of terms and imagery based on geographical and contextual criteria. They challenge the assumption that terminology is culturally neutral and timeless, pointing to evidence that suggests this may not be the case.

The third chapter, authored by Marie-Claude L'Homme, explores the topic of "Polysemy and representation of meaning in terminology". It examines polysemy within terminology, highlighting its distinction from linguistic polysemy due to differing methodologies in lexicography and terminology. The chapter emphasizes the importance of identifying multiple meanings in specialized texts and how polysemy can be confused with homonymy. It also covers regular polysemy (multiple meanings within a domain), contrasts it with 'alternation' (agent-means relationships), and presents microsense phenomena as a distinct form. The author challenges the view that polysemy is marginal and should be avoided, arguing it does not impede communication.

Chapter four, "The virtual reality of terminological borrowings," written by Joaquín García Palacios and Beatriz Guerrero García, analyzes terminological borrowings from foreign linguistic systems into the target language. The authors explain how a loanword in the target language is treated as a variant of the original. With English as the dominant language in scientific communication, linguistic subordination has emerged. They introduce the metaphor "virtual copy" to replace "borrowing," describing how a term in the target language acts as a facsimile of one that remains in the source language.

The fifth chapter, "The language of shipping forecast: A corpus-driven study of specialized terms and phraseological units," by Ana Bocanegra-Valle, analyzes Maritime English, a highly specialized and under-researched field of English for Specific Purposes (ESP). Focusing on shipping forecasts produced by the British Meteorological Office, the study uses a corpus of forecasts collected over one year, analyzed with quantitative and qualitative software tools. The author examines specialized terminology, phraseological units, and formulaic expressions using a corpus-driven and frame-based approach. The chapter also explores the pedagogical implications,

particularly regarding access to authentic maritime English and textbook limitations.

Chapter five concludes the first section, and the second part begins with the sixth chapter, “Representing metaphorical terms in the Semantic Web: A proposal from a sociolinguistic perspective,” by Patricia Martín-Chozas, Isam Diab-Lozano, and Elena Montiel-Ponsoda. The chapter examines Rita Temmerman’s Sociocognitive theory, which defines terms within cognitive models, contrasting it with traditional approaches like Conceptual Metaphor Theory. The authors explore these principles in automatic terminology generation, aided by AI and guided by Semantic Web standards. They discuss TermitUp, a semi-automatic tool for generating terminology from the corpus, and Termlex, a vocabulary for representing terminologies in the Semantic Web format, proposing new classes and properties to reflect the field’s evolving nature.

The seventh chapter, “Metaphor and metonymy in specialized discourse revisited: An illustration through the lexicon of telecommunication,” by Javier Herrero Ruiz, discusses the tendency in terminology studies to prioritize conceptual metaphors over metonymy. The author argues that metonymy warrants more attention and should occupy a more prominent role than it currently does. To support this, the author analyzes a corpus of telecommunication engineering terms, gathered using the Metaphor Identification Procedure (MIP), finding that over 20% are metonymic. The author suggests that metaphors rely on metonymy (either expanding or reducing the metaphorical source) for optimal development and emphasizes the need for further research in this area.

The eighth chapter, “On defective machines and roller coasters. A critical cognitive analysis of metaphors in an ad hoc corpus on menopause,” by Chelo Vargas-Sierra, explores the conceptual and cognitive functions of metaphors, focusing on their pragmatic role in triggering emotions and influencing beliefs. The author applies this framework to the biomedical discourse surrounding menopause, analyzing metaphors in a corpus of menopause-related texts. The analysis reveals that these metaphors were selective, carried ideological assumptions, and conveyed a sense of risk. The author advocates for a shift in this discourse to create a more positive representation and influence reality.

In the ninth chapter, “Exploring metaphors in academic biotechnology journals,” Silvia Molina-Plaza and Antonio Martínez-Sáez investigate the role

of metaphors in biotechnological discourse, particularly their effectiveness in communicating complex technical information. They argue that biotechnology discourse shapes perceptions of the reality it describes. Analyzing metaphors from the English Biotechnology Corpus (EngBiotech), which represents interdisciplinary biotechnology journals, the authors apply Conceptual Metaphor Theory and Deliberate Metaphor Theory to categorize and measure metaphor frequency. Using a qualitative approach, they analyze each category and provide illustrative examples. This novel study contributes to understanding how biotechnology concepts are constructed through metaphors.

The tenth chapter, “Translating scientific texts: Do conceptual metaphors always follow a straight path?” by Micaela Rosi, commences with an analysis of the complexity of metaphors in scientific and technical discourse. The author investigates metaphors as a creative strategy within the context of scientific discourse, distinguishing between terminological metaphors (shared by specialists) and explanatory metaphors (more personal or culturally specific). Rosi discusses the challenges in translating metaphors, focusing on two key factors: availability and opportunity, which influence how terms are translated. The chapter tests these factors by analyzing a corpus of English articles from *Scientific American* and *Nature* and their French and Italian translations.

The eleventh chapter, “The terminology of cybersecurity and its metaphors,” contributed by Nava Maroto, analyzes the formation and translation of metaphorical terms employed in the field of cybersecurity. The author compares English-originating metaphors with their equivalents in four Romance languages (Spanish, French, Italian, and Catalan). Using a comparative approach, Maroto examines existing glossaries and databases, including the Spanish National Cybersecurity Institute (INCIBE). The study explores how metaphors are maintained across languages and the impact of the source language and culture on the languages that have adopted those metaphors, providing illustrative examples.

The final, twelfth chapter, “Metaphors in European treaties: A contrastive and cognitive perspective”, by Arsenio Andrades Moreno, focuses on legal discourse, which has not been extensively studied from the perspective of conceptual metaphors. This contrastive study analyzes a bilingual corpus of English/Spanish EU legal texts to determine if metaphors differ or remain consistent across languages on the same topic. Using the Sketch Engine

program, the study explores metaphors depicting the EU (as a family, building, person/body, machine, and business), finding that most metaphors remain consistent, with only minor variations in the body and building domains. The author calls for further investigation into these trends observed in legal texts.

The insight articulated by Faber (2012) remains relevant: “metaphor in specialized language has not received the same degree of attention as metaphor in a general language” (p. 2). Despite increased research in recent decades, studies on metaphors in specialized language continue to lag behind those in general language. Several factors contribute to this imbalance, including the predominant focus on everyday language and its impact on thought and communication. Additionally, the complexity of specialized language analysis, involving technical, context-specific terms, complicates the generalization of metaphor theory across domains. An interdisciplinary approach, integrating linguistics, cognitive science, and specific fields, is often required. This publication aims to address these gaps and consolidate knowledge, enhancing our understanding of terminology, cognitive linguistics, and their application in the field of ESP, offering valuable insights for those seeking a deeper understanding of these areas.

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