A HISTORY OF TERMINOLOGY: FROM STANDARDIZATION TO COGNITION

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Abstract - This article explores the evolution and diversification of theoretical approaches to terminology, focusing on both classical and contemporary perspectives. The study traces the development of terminology from its origins in the work of such pioneers as Eugen Wüster (*Der Begriff der Terminologie und die Terminologielehre, 1953*) to more recent multidimensional frameworks that incorporate social, linguistic, communicative, and cognitive dimensions. By revisiting these theories, the article highlights the growing recognition that terminology is not merely a technical endeavor but also a dynamic process shaped by social interaction and real-world applications. The paper advocates for a more holistic framework that accommodates the complexities of modern terminological practices while maintaining the essential goal of clear and precise communication in specialized fields.

Key words - Terminology theories; multidimensional; framework; concept; specialized field

1. Introduction

During the 18th and 19th centuries, scientists took the lead in developing terminology, though their primary concern was the overwhelming number of terms being created. They were particularly focused on the variety of forms and the relationships between terms and their corresponding concepts, rather than on the nature of the concepts themselves or the principles for generating new terms. In the 20th century, engineers and technicians became more involved due to rapid technological advancement, which not only required the creation of new terms but also consensus on their use. Consequently, terminological work began to be systematically organized in specialized fields. However, it wasn't until the 1930s that terminology, as it is known today, began to take shape. Eugen Wüster, an Austrian linguist often regarded as the father of modern terminology, played a key role in its development. In his 1930 doctoral dissertation, Wüster [cited in 1] advocated for the systematization of methods in terminology, introduced several principles for working with terms, and outlined a methodology for processing terminological data. He developed the first theoretical model, the General Terminology Theory (GTT). His contributions were crucial to the evolution of modern terminology, laying the foundations for the establishment of other theories such as Socioterminology, Communicative Terminology Theory (CTT), Sociocognitive Terminology Theory (STT) and Cognitive-based Terminology Theories. A critical review of the aforementioned terminology theories will be provided in the following paragraphs.

2. Terminology Theories

2.1. General Terminology Theory

As a relatively modern academic field, Terminology emerged in response to the pressing need to unify language and concepts across specialized domains. This unification was crucial for enhancing communication and expediting knowledge transfer [1]. Its historical roots are found in the 1930s, when Eugen Wuster, often hailed as the “father of Terminology”, conceived the pioneering theoretical model: the GTT [1].

Wuster's significant contributions, including his French and English dictionary *The Machine Tool, an Interlingual Dictionary of Basic Concepts*, formed the fundamental basis of GTT. The theory's key objectives were to standardize technical language and its vocabulary, eliminate ambiguity, and firmly establish Terminology as a recognized science and discipline. It was therefore logical that GTT dedicated considerable effort to differentiating specialized language from general language, and consequently, to distinguishing terms from words. GTT explains that while general language permits polysemy (multiple meanings for words) and synonymy (different words sharing the same meaning) [2], specialized language is uniquely defined by univocity-where each term refers to only one concept-and mono-referentiality-where each term designates only one concept [3], [4]. Fundamentally, GTT proposed a model of specialized communication built on these core principles, which served to simplify understanding and exclude various interpretations or inconsistencies [5]. An example of GTT, based on Eugen Wüster’s principles, can be seen in the standardization of medical terminology, in which medical terms were standardized in such way as they were conceptually clear, unambiguous, and systematic.

GTT adopted an approach where specialized knowledge concepts were central to structuring and explaining terminological information. Under this framework, a concept was regarded as an entity separate from the term itself, with the term acting simply as its linguistic representation. These concepts were understood as abstract mental constructs that corresponded to concrete objects in reality [6].

Early Terminology, as shaped by GTT, was largely a denominative exercise, emphasizing naming over the communicative function of language. GTT's disregard for syntax and pragmatics resulted in a limited

comprehension of language's broader communicative role [7]. Moreover, GTT's conceptual framework was rather inflexible, focusing exclusively on hierarchical relationships such as "is_a" and "part_of". This restrictive view prevented it from grasping the fluid character of terms and the intricate, multi-faceted nature of concepts. Numerous scholars have since addressed this lack of adaptability [8], proposing more nuanced insights into the complexities of linguistic structures who offer additional perspectives on the complexity of language [9 - 11].

2.2. Socioterminology

GTT proved crucial in establishing Terminology as a legitimate field of study and spurred the development of subsequent academic inquiry. Nevertheless, GTT was not without its constraints when it came to elucidating all dimensions of specialized language. This led to the emergence of alternative theories in the 1990s, including Socioterminology [12 - 14] and CTT [1, 4, 5]. Socioterminology is an extension of Eugen Wüster's GTT but takes into account the social, cultural, and contextual factors that influence the creation, evolution, and use of terminology in society. Unlike traditional terminology theory, which seeks standardization, socio-terminology recognizes that terms evolve based on their usage in different social groups and contexts.

Drawing on sociolinguistic frameworks, Socioterminology [12 - 14] explored how social and ethnic factors contribute to variations in specialized language. This often results in a single concept being expressed by multiple terms, or a single term representing several concepts (demonstrating polysemy and synonymy), influenced by interactions among experts and specialists. While Socioterminology didn't become a standalone theory, it was crucial in opening the door for subsequent descriptive theories of Terminology. These theories, in turn, consider social and communicative aspects, grounding their theoretical understandings of how terms are genuinely used within specialized discourse.

One prominent researcher in this period was Jean-Claude Boulanger with the study "*Socioterminology: A Study of Terminological Variation in Social Contexts*" conducted in 1995. In his work, Boulanger focused on the variation of terms within different social groups and professional communities. He explored how factors such as regional dialects, professional practices, and cultural influences contribute to terminological diversity. Another notable author was Rita Temmerman. In her work "*Towards New Ways of Terminology Description: The Sociocognitive Approach*" in 1997, Temmerman critiqued traditional terminology theories and proposed a sociocognitive approach that integrates social and cognitive aspects into terminology studies. Her work highlighted the dynamic nature of terms and the influence of cultural and contextual factors on their development. These foundational studies from the 1990s have significantly shaped the field of socio-terminology, emphasizing the importance of social and cultural contexts in understanding and analyzing specialized language.

2.3. Communicative Terminology Theory

The merging of Linguistics and Terminology resulted in CTT [1, 4, 5], which represents a more thorough method for comprehending the intricate characteristics of specialized terms within genuine communication. This theory moves beyond the confines of Socioterminology. Cabré [1] advocates for a revised theory of terminology, as it helps establish terminology as a distinct discipline. In this pursuit, Cabré [15] bases her argument on two key assumptions. The first is that terminology encompasses "a set of needs, practices to address these needs, and a unified body of knowledge". The second assumption is that terminological units are multi-dimensional, serving as units of knowledge, language, and communication simultaneously. The description of these "terminological units" should encompass the concept, the term, and the situational context, distinguishing them from other linguistic units with similar structures, such as words, and from units that convey specialized knowledge, such as specialized, morphological, or phraseological units.

Cabré [15] argues that specialized terms are inherently multidimensional, incorporating cognitive, linguistic, and socio-communicative aspects. She proposes the Theory of the Door as an illustrative metaphor for understanding the diverse ways one can approach, examine, and grasp terminological units. This theory identifies three key dimensions for terminological units: a cognitive dimension (useful for concept and relationship description), a linguistic dimension (explaining how specialized knowledge is verbalized), and a communicative dimension (detailing term usage in different communication contexts). It's worth noting that focusing on one dimension doesn't negate the importance of the others, which remain present in the background [4]. According to Cabré [15], CTT specifically engages with specialized knowledge through its linguistic facet.

CTT offers a contrasting perspective to GTT by not separating words from terms. Instead, CTT proposes that terminological units are fundamentally general language units, with their specialized nature being context-dependent.

The impact of CTT on Terminology research is clear and important. However, as noted by Faber [7], the theory has specific drawbacks. These include: (i) its reliance on a general linguistic framework without a specific theoretical model; (ii) an incomplete account of how conceptual representations emerge, their features, and their constraints, despite CTT's emphasis on conceptual semantics; and (iii) an inability to fully define the essence of specialized meaning, even though it claims specialized meaning arises from discourse.

One notable contribution is María Teresa Cabré's 1999 publication, *"Terminology: Theory, Methods, and Applications"*. In this work, Cabré elaborates on CTT principles, advocating for a multidimensional approach to terminology that integrates cognitive, linguistic, and

communicative aspects. While this publication primarily focuses on theoretical frameworks, it lays the groundwork for subsequent empirical research applying CTT principles.

2.4. Cognitive-based Terminology Theories

In the last ten years, linguistics has seemingly experienced a cognitive turn, with a growing emphasis on meaning and the conceptual foundations of language [16], which is more focused on meaning and the conceptual network underlying language. In response to this, Cognitive-based Terminology theories have emerged. While they share a common focus with earlier theories on terms in texts and discourse, they uniquely incorporate insights from Cognitive Linguistics and Psychology to elaborate on concepts and how categories are structured. Prominent examples in this area are STT [3, 17, 18] and Frame-based Terminology (FBT) [7, 20].

2.4.1. Sociocognitive Terminology Theory

To address the limitations of GTT, Temmerman [3, 17] introduced the STT. This theory is built on sociocognitive principles and supported by findings from Life Sciences data [3]. STT emphasizes the cognitive dimension of Terminology within specialized language domains, examining how terminological variation is shaped by verbal, situational, and cognitive factors in discourse across diverse communicative settings [20].

STT shares a descriptive, term-focused methodology with Socioterminology and CTT. Yet, it diverges significantly by not delving deeply into the syntactic behavior of terms. The key differentiator for STT among other theories is its strong focus on conceptual organization and category structure, drawing heavily from Cognitive Linguistics. Unlike GTT, where concepts are generally ordered by "type_of" and "part_of" relations, sociocognitive theories are shown to exhibit a prototype structure, with conceptual representations first taking the form of cognitive models.

Another key distinction for STT is that it's the first and only approach to genuinely incorporate the historical and diachronic aspects of terms. Faber [7] highlights STT's emphasis on the diachronic study of terms and concepts as one of its most valuable contributions. Nevertheless, like CTT and Socioterminology, STT refrains from engaging with syntax, a point also made by Faber [21]. This omission might stem from the fact that any syntactic analysis, whether general or specialized, necessitates an explicit or implicit reliance on a syntactic theory, and Terminology currently has minimal or no links to syntactic theories.

An illustrative application of STT is found in Rita Temmerman's chapter titled 'Units of understanding in Sociocognitive Terminology studies' [19]. This work exemplifies the application of STT by demonstrating how terms are not static entities but evolve through cognitive processes, social interactions, and historical developments. Her analysis showcases the multidimensional nature of terminology, integrating cognitive, social, and linguistic perspectives to provide a comprehensive understanding of specialized language. This study serves as a foundational example of how STT can be employed to analyze and interpret the dynamic nature of terms within various specialized domains, considering factors such as cultural context, historical evolution, and cognitive framing.

2.4.2. Frame-based Terminology

FBT, a prominent theory proposed by Faber [7, 8, 20], aligns with CTT and STT in its acceptance of a word-term continuum and its emphasis on analyzing specialized knowledge elements in real-world texts. FBT's unique contribution lies in its synthesis of principles from Corpus Linguistics, the Lexical Grammar Model [22], and Frame Semantics [23, 24]. This blend allows FBT to effectively organize specialized domains and create visual representations that extend beyond conventional linguistic boundaries.

Unlike STT, in which knowledge is organized in idealized cognitive models based on prototypes, FBT organizes knowledge in frames, the notion defined as "a schematisation of experience (a knowledge structure), which is represented at the conceptual level and held in long-term memory and which relates elements and entities associated with a particular culturally embedded scene, situation, or event from human experience" [16, p. 85].

FBT is characterized by three primary areas of emphasis: its focus on conceptual organization through frames or events; its consideration of the multidimensionality of terminological units by accounting for both hierarchical and non-hierarchical relationships; and its process of extracting semantic and syntactic data from multilingual corpora and dictionaries. FBT leverages adapted frame-like representations, initially developed by Fillmore [23, 24], to organize specialized knowledge units and their functions within specific domains, incorporating both linguistic and non-linguistic information. These frames are extracted from diverse language corpora using knowledge patterns that capture semantic relations [25]. This data is subsequently utilized to structure categories, construct concept frames, and define general processes and actions. When a frame delineates an action or process with participants, it creates a predicative frame that connects two semantic categories. Despite its use of linguistic corpus data, it is believed that the frames generated encode conceptual knowledge that extends beyond the particulars of any given language. Hence, FBT's objective is to understand how linguistic structures serve to activate or prompt underlying frame knowledge.

FBT, a recent cognitive approach, aims to directly connect specialized knowledge representation with cognitive linguistics and semantics [20]. While it shares common ground with Cabré's CTT [5] and Temmerman's STT [17] in studying terms and their textual behavior, FBT distinguishes itself through a methodology that combines premises from five different theoretical frameworks. These include Argument Structure, the Lexical Grammar Model [22], Role and Reference

Grammar [26, 27], Frame Semantics [23], and the Generative Lexicon [28].

Despite such shortcomings as complexity, scalability, ambiguity, inflexibility, and expertise dependence as highlighted by [20], FBT offers valuable benefits in organizing and structuring domain-specific knowledge. FBT emphasizes that terms derive their meaning not in isolation but within specific contexts or frames. It aligns terminology with cognitive processes, focusing on how people conceptualize and categorize specialized knowledge. Moreover, FBT organizes terms according to their roles within broader knowledge structures, improving the way terminological systems represent relationships between terms. This helps clarify how concepts are related to one another within specialized fields. FBT accounts for variation and change in meaning over time and across disciplines, therefore highlighting the adaptability and flexibility of terms. Finally, by incorporating cognitive and contextual dimensions, this approach enhances the usability of terminological systems, making them more intuitive and accessible to users who need to navigate specialized fields. One outstanding example of FBT is EcoLexicon - an interactive, multilingual knowledge base that organizes environmental terms based on their semantic relations. In EcoLexicon, terms are linked within environmental scenarios, showing how they relate to each other. It includes perspectives from ecology, geography, climatology, hydrology, and more. In addition, terms are available in multiple languages, ensuring cross-linguistic understanding and represented in interactive networks of related concepts. Structuring terminology through semantic frames and conceptual networks, enhances clarity, usability, and interdisciplinary communication in environmental discourse.

Overall, FBT provides a more comprehensive and flexible framework for understanding and organizing specialized knowledge, moving beyond traditional approaches focused solely on standardization and precise definitions.

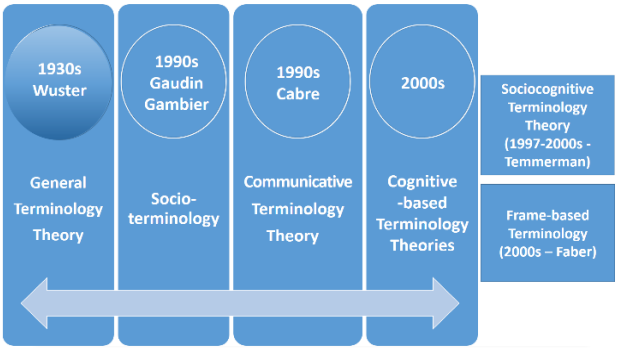

Figure 1. *Terminology Management Theories*

3. Conclusion

In conclusion, this article contributes a valuable perspective on the evolution of terminology by documenting the shift from traditional, standardized models to a more dynamic and adaptable approach in terminology such as FBT, thereby providing a more effective tool for organizing knowledge, enhancing communication, and ensuring that specialized language remains relevant in a rapidly changing world. This shift emphasizes the importance of conceptual structures and contextual meaning, aligning terminology work more closely with real-world applications. By advocating for FBT's adaptable approach, which accommodates cognitive and communicative dimensions, this study offers a roadmap for future terminology practices, in which standardization is shifted to flexibility, contextual meaning, and conceptual structure is focused, and the integration of cognitive and communicative dimensions is emphasized. This shift enables terminology to remain relevant, adaptable, and functional in real-world applications, ensuring that future terminology practices can keep up with the dynamic, evolving nature of specialized fields.

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