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Contextual Constraints in Terminological Definitions

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The purpose of a terminological definition is to represent in natural language the most relevant knowledge associated with a term. However, the knowledge activated by a term (i.e., its meaning) varies according to the usage context. Since context is indispensable in meaning construction, it should guide terminological definition writing. Nonetheless, the recommendation is still that a terminological definition should represent a concept's necessary and sufficient characteristics, which are regarded as context-independent. This paper proposes a parametrization of the contextual constraints applicable to terminological definitions so that context can be accounted for in them. To this end, the notions of premeaning and precontext are introduced, and different types of contextual constraints (linguistic, thematic, cultural, etc.) are discussed. We argue that the conscious application of contextual constraints by the terminologist helps to produce more useful definitions and to avoid inconsistencies and biases.

Keywords: terminological definition, context, precontext, premeaning, meaning, semantic potential, terminology, contextual constraint

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INTRODUCTION

The purpose of a terminological definition is to represent in natural language the most relevant knowledge associated with a term. However, the knowledge activated by a term (i.e., its meaning) varies according to the usage context, which includes not only the surrounding words but also the communicative situation. In fact, context comprises any factor affecting the actual interpretation of a sign (Kecskes, 2014, p. 128).

Since context is indispensable in meaning construction, knowledge representations in terminological resources must account for it (Faber and León-Araúz, 2016, p. 2). Terminological definitions are no exception. Nonetheless, the general recommendation is still that a terminological definition should represent a concept's necessary and sufficient characteristics (NSCs), which are regarded as context-independent. Examples include the most recent ISO standard on terminology work (ISO, 2009), the terminology handbooks by Pavel and Nolet (2001) and Dubuc (2002), as well as the guides on definition writing by Quebec's (Vézina et al., 2009) and Catalonia's (Fargas, 2009) official terminological bodies.

According to Faber (2011, p. 10), for any knowledge extraction and representation task to be successful, it should be guided by the organization of semantic information in the human

mind. It follows that parametrizing context becomes essential (Faber and León-Araúz, 2016, p. 2). Consequently, this paper proposes a parametrization of the contextual factors applicable to terminological definitions as an alternative approach to NSCs.

THE INADEQUACY OF THE CLASSICAL THEORY

According to the classical theory of categorization, all members of a category share some fundamental characteristics (the NSCs) that determine their category membership. This theory considers that semantic memory is amodal and separate from the modal systems of perception (vision, hearing...), action (movement, proprioception...), and introspection (mental states, emotion...) (Barsalou, 2008, p. 618). This has been refuted by grounded theories of cognition (Barsalou, 2008, 2010, 2020) that argue that human cognition is affected by the physical properties of the world (grounding), the inherent limitations of the human body (embodiment), and the characteristics of the context (situatedness) (Pezzulo et al., 2013, p. 4–5).

The classical theory's lack of cognitive adequacy becomes evident when one tries to apply it. In fact, actual terminological practice usually deviates from its principles (Seppälä, 2012, p. 117). NSCs cannot be easily determined for most concepts (Temmerman, 2000, p. 76)] because categories exhibit a prototypical structure[1]: a complex representation encoding an analysis of the usual properties of category members (Laurence and Margolis, 1999, p. 27). Some categories also show a family-resemblance structure (Rosch et al., 1976, p. 433), which means that the number of features shared by all category members may be minimal or there may even be none at all. Furthermore, categories usually have fuzzy boundaries (Rosch, 1978, p. 35). For instance, in Chemistry, *metal* is a fuzzy category. *Iron* is a clear member of this category. However, *polonium* is a doubtful case since it possesses fewer prototypical properties than *iron*.

The classical theory also clashes with multidimensionality. Concepts can belong to more than one category, and the relevance of their features varies depending on the perspective adopted (Bowker, 1997; Kageura, 1997; Rogers, 2004; León-Araúz, 2009). For instance, *nitrogen* is classified as a plant nutrient in Soil Sciences, whereas it is an energy storage medium in Energy Engineering. The prototype of a category is not universal, as there may be different context-dependent prototypes. Prototypical features are thus also variable and context-sensitive.

Therefore, in consonance with Temmerman (2000, p. 43) and Seppälä (2015, p. 33–34), we reject the principle that terminological definitions should represent NSCs. Additionally, as explained in San Martín (2022), even if it were possible to determine a concept's NSCs, such definitions would not be helpful for non-experts. We believe that the key to high-quality terminological definitions lies in accounting for the role of context in meaning construction.

[1]Rosch (1978, p. 40) warns that prototypes as a representation of categories do not actually exist and that only prototypicality effects are real.

MEANING AND CONTEXT

As advocated by Cognitive Semantics (Lakoff, 1987; Croft and Cruse, 2004; Evans, 2019, inter alia), terms do not carry meaning in themselves. They are access points to large repositories of knowledge, i.e., their semantic potential (Allwood, 2003; Evans, 2009). It is always the context that determines which part of a term's semantic potential is activated (i.e., what the term means in that context). For example, if an energy engineer speaks of the impact of cryptocurrencies on climate change, the meaning of *cryptocurrency* in that context will include the fact that cryptocurrency mining is a source of CO_2 emissions. In a guide on filing federal taxes in Canada, its meaning will include that cryptocurrency exchange is a taxable event. In both cases, the term invokes the same concept, but the activated knowledge differs. This phenomenon is called contextual variation[2] (also known as *vagueness* [Geeraerts, 1993] or *conceptual variation* [Freixa and Fernández-Silva, 2017]).

Without context, we can only refer to a term's semantic potential (e.g., all the knowledge that *cryptocurrency* can activate in any context). Semantic potential includes a concept (or concepts, in the case of polysemy) and all relevant frames. Frames are encyclopedic knowledge structures that relate concepts associated with a particular scene, situation, or event from human experience (Evans, 2007, p. 85). Concepts can only be understood within frames (Fillmore, 1982). For instance, *helicotrema* (a part of ear) can only be understood within the *human hearing* frame, where it is linked to other concepts such as *cochlear apex*, *perilymph,* and *hair cell*.

Definitions cannot represent semantic potentials because they are an unwieldy quantity of information. Meaning cannot be represented in definitions either because meaning depends on context, and both are fleeting occurrences. We argue that a terminological definition can only represent a premeaning (an abstraction of real meanings) determined by a precontext (an abstraction of real contexts).

PREMEANING AND PRECONTEXT

Premeanings are halfway between the semantic potential and meaning in particular usage events (Croft and Cruse, 2004, p. 110). They constitute activation trends of specific conceptual content in specific contexts. A premeaning arises when a given term tends to be used to convey certain knowledge in certain contexts, making it easier for that content to be activated again in similar contexts. In terminological definitions, a premeaning corresponds to

[2]Contextual variation and polysemy are different phenomena. Contextual variation occurs when a term activates different features with varying relevance levels for a single concept in different usage events. Polysemy occurs when a term can activate different concepts. However, the border between polysemy and contextual variation is fuzzy. There is no consensus on how it should be determined. We agree with Heylen et al. (2015, p. 161) in that the decision to lump or split concepts ultimately depends on the function and users of the terminological resource.

a subset of the semantic potential[3] selected according to the precontext.

To parametrize the precontext, we reviewed the types of context characterized by other authors (Clark, 1996; Sperber and Wilson, 1996; Coulson, 2001; Carston, 2002; Croft and Cruse, 2004; Récanati, 2004; Langacker, 2008; Evans, 2009; Asher, 2011; Kecskes, 2014; inter alia). Context types were linguistic, discursive, sociocultural, and spatiotemporal context. We then analyzed which parts of these contexts could be abstracted to be represented in a terminological definition. This entailed determining if they could help predict what meaning the term might have under such contextual constraints.

From Linguistic Context to Linguistic Constraints

The linguistic context (or cotext) consists of the words that accompany a lexical unit in a usage event. The meaning of a lexical unit is thus partly determined by its surrounding words. For example, if *waste* is combined with *toxic* in a specific usage event, the semantic potential of *waste* is reduced. The characteristics related to fertilizer toxicity become relevant and frames such as *pollution* or *human health* are activated.

Terms are normally defined without a linguistic context. Nonetheless, there are the two main types of linguistic constraint applicable to terminological definitions: (1) when the defined term is a multiword term, which is a way of linguistically contextualizing the units that compose it; and (2) when the defined term is inserted in an argument structure or any other lexico-grammatical structure.

From Discursive Context to Thematic Constraints

Discourse is usually characterized by its field, tenor, and mode (Gregory and Carroll, 1978). Cabré (1999, p. 46) adapts it to specialized language as (1) channel (oral, written, and hybrid); (2) communicative purpose (to inform, convince, argue…); (3) degree of formality (from formal to informal); (4) level of abstraction (from specialized to non-specialized); and (5) topic.

The channel, communicative purpose and degree of formality are excluded from the precontext of terminological definitions because they cannot predict a term's meaning under those conditions. For example, it is impossible to determine in what regular ways the meaning of *daunorubicin* (an antitumor antibiotic) changes when used in an oral vs. a written communication, when the sender has the purpose of arguing or evaluating, or when communication happens in a formal or informal setting.

As for the level of abstraction, it is the depth in which the topic is treated. It mainly depends on the receiver's knowledge of the topic (Cabré, 2000, p. 29). It follows that the sender will adapt their message so that the receiver can interpret it by using different terminological variants and by activating different conceptual content (Fernández Silva, 2011, p. 71). Nonetheless, this factor cannot be part of the precontext of a definition. The prior knowledge of a receiver in a particular usage event needs to be distinguished from that of the intended user of a definition. It is the functional constraints of the definition that will determine how to adapt the definition to the users' prior knowledge[4]. For example, *jejunocecostomy* (an animal surgery procedure) is used in highly specialized discourse aimed at specialists. However, the content of the definition of *jejunocecostomy* aimed at lay users will be adapted to their prior knowledge regardless of the usual addressee of the discourse in which the term usually occurs.

The only remaining discursive factor is topic (also called *thematic context* [Miller and Leacock, 2000]), which is particularly relevant for terminological definitions. Depending on the topic, a term will activate different conceptual content without necessarily giving rise to polysemy. This phenomenon is a type of contextual variation that we call thematic variation. The notion topic can be very broad since the subject of a discourse can be more or less general and be viewed from different perspectives. In terminology, the most common way to systematically characterize thematic constraints[5] is in terms of domain or subject field. For instance, for the term *methane* in the domain of Waste Management, the fact that methane is associated with the decomposition of organic waste becomes relevant. However, in Energy Engineering, the fact that it can be used as a fuel is foregrounded. In both cases, the term refers to the same concept, but the activated knowledge differs.

Thematic constraints allow to make an abstraction of the potential meanings that the term can have under certain thematic contexts. They are thus part of the precontext of the terminological definition.

From Sociocultural Context to Cultural and Ideological Constraints

The sociocultural context includes the social activity in which the communication takes place, the characteristics of the participants in the communication (social class, gender, age, culture, ideology, etc.) and the relationship between the participants (including power relations) (Croft and Cruse, 2004, p. 103; van Dijk, 2008, p. 172–173; Auer, 2009, p. 93). This context overlaps with the discursive context, since the

[3]This subset corresponds to part of a single concept and the frames that it can activate. If the semantic potential is polysemic, i.e., it contains more than one concept, it is customary to create at least one definition per concept.

[4]Functional constraints determine the content of the definition according to the context of the definition as a communicative act itself (and not the potential contexts of the defined term, which is the precontext). Functional constraints include what the intended users of the definition are and their specific needs. They also comprise the resource in which the definition will be inserted and the role of the definition in it, including the relation of the definition to other elements (images, hyperlinks, concept maps…).

[5]The effects of thematic variation in environmental terms were studied in San Martín (2016, p. 282–289) and three types of thematic variation were specified, depending on whether they affect necessary traits (subconceptualization), prototypical traits (perspectivization), or none (modulation).

participants and the social situation influence the configuration of discourse.

Leaving aside the elements already covered in the discursive context and those unlikely to greatly influence terminological meaning construction, the two components most relevant to the terminological definition are culture and ideology. Many authors (Boulanger, 1991; Gambier, 1991; Wußler, 1997; Lara, 1999; Diki-Kidiri, 2000; Gaudin, 2003; Temmerman, 2007; Faber and León-Araúz, 2014; inter alia) have emphasized their importance to denominative and conceptual variation. An example of cultural variation would be *termite*. This insect is considered a pest in Western cultures, but in many African cultures they are a food. Therefore, depending on cultural constraints, the premeaning of *termite* represented in the definition will differ. Regarding ideological constraints, an example would be *nuclear energy* will be defined as a green energy or not depeding on ideological factors.

It is important to note that cultural and ideological constraints can overlap with thematic constraints. It follows that, within the same thematic area, there may coexist different points of view that may or may not be due to cultural and ideological differences (Tebé, 2005, p. 17).

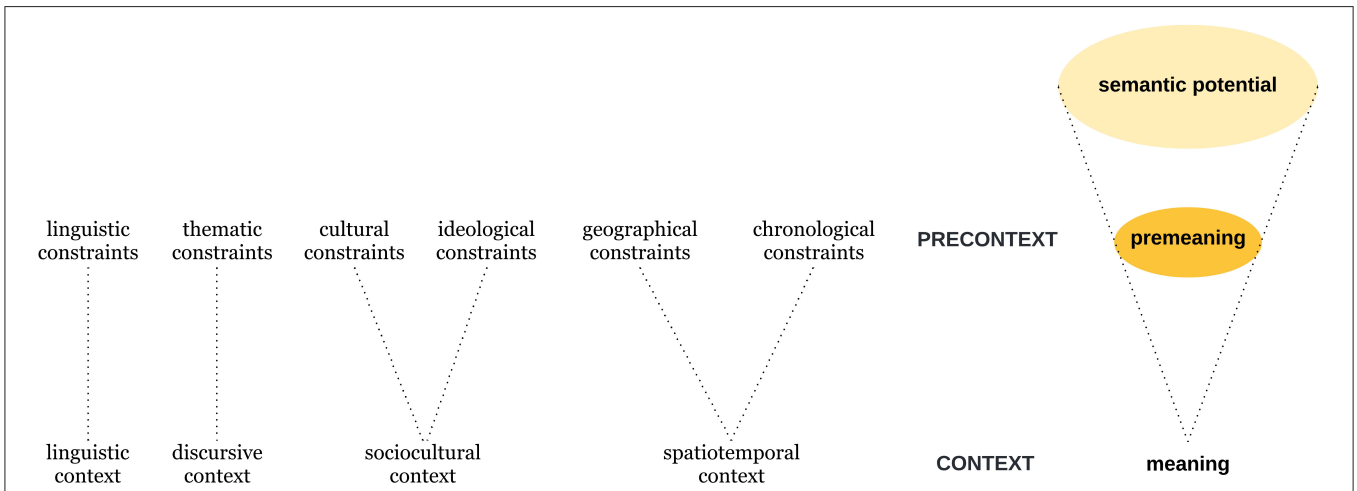

FIGURE 1 | Types of context and the contextual constraints in terminological definitions.

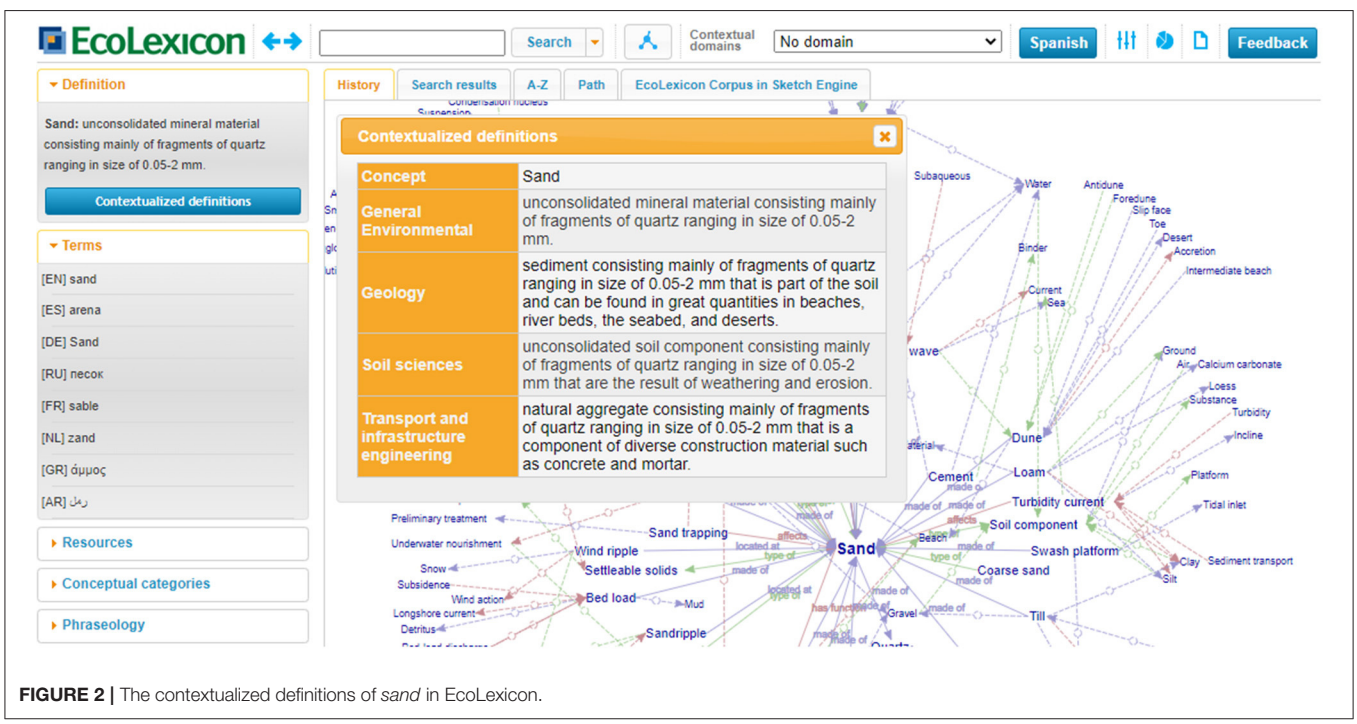

FIGURE 2 | The contextualized definitions of *sand* in EcoLexicon.

From Spatiotemporal Context to Geographical and Chronological Constraints

In the spatiotemporal context, the spatial aspect refers to where the communication occurs, particularly what the participants perceive in their immediate environment (Croft and Cruse, 2004, p. 103). However, as far as the terminological definition is concerned, it is necessary to broaden the reach and consider geographic constraints whose extension can be as small or as large as necessary. For instance, *recyclable waste* will include different types of matter depending on the geographical area, and these differences can be even present in neighborhoods of the same city. The geographical and cultural contexts may overlap but should not be confused. Several cultures may also coexist in a single geographical area. It can therefore be useful at times to refer to geocultural constraints instead.

As for the temporal context, this refers to when the communication occurs. While in actual usage events, the time and date may be very relevant, in terminological definitions, the important factors are synchrony and diachrony. Given the dynamism of specialized knowledge, the semantic potential of terms varies over time. Authors such as Temmerman (2000) and Picton (2018) defend the importance of the diachronic dimension of terms. Given that the historical evolution of terms can be studied and represented in a definition, chronological constraints are part of the precontext.

DISCUSSION

The contextual constrains included in the precontext of terminological definition are represented in **Figure 1**.

It is important to note that precontext has a macrostructural and microstructural dimension. The terminological definition can inherit the precontext from the resource in which it is inserted (macroprecontext). The precontext can also be completely or partly specific to the definition (microprecontext). For instance, in EcoLexicon (San Martín et al., 2017; Faber and León-Araúz, 2021), all the definitions are restricted to the environmental domain, given that it is a terminological knowledge base on the environment. However, each definition can be further limited to a given environmental subdomain if they present significant thematic variation. In fact, a term can have more than one definition with different thematic precontexts. An example is the term *sand*, which refers to a single concept but is defined differently in EcoLexicon depending on the domain (**Figure 2**) (San Martín and León-Araúz, 2013, p. 4).

It is important for terminologists to consciously apply precontexts and be explicit about it to users (using labels or other means)[6]. Given that there is no meaning without context, when a speaker is presented with a lexical unit without a context, they will unconsciously create a context for it based on past usage events (Coulson, 2001, p. 25). In the same vein, even when a terminologist creates a definition without previously determining the precontext, they will unconsciously apply one by default. This can lead to inconsistencies. In addition, the default precontext applied by the terminologist may not necessarily match the one expected by the user. As a result, the user's needs may not be met.

Regarding geocultural constraints, consciously considering them helps to avoid bias. In terminological resources, the geocultural precontext is rarely made explicit. Presumably, the intention in most cases is to define terms from a culture-independent point of view. However, since the scientific literature is mostly produced in the West, the risk of introducing Western-centric biases is high.

Regarding thematic constraints, moving away from NSCs-based definitions allows for more helpful definitions for users. For example, the classical approach would lead the terminologist to try to define *chlorine* by its chemical formula in a resource devoted to air quality management terminology. This entails the risk of leaving out relevant content, namely chlorine's role in stratospheric ozone depletion.

In San Martín (2022), we present a corpus-based methodology for the extraction and representation of contextualized specialized knowledge by means of terminological definitions. With the appropriate choice of corpora and the use of techniques such as contextonym analysis and knowledge patterns, it is possible to extract the premeanings to be represented in the definitions.

It is important to note that the different contextual factors that make up the terminological definition precontext are interrelated and difficult to delimit precisely. Classifications different from the one presented here and with different levels of granularity are possible. We believe that the parameterization of the context for any kind of knowledge representation should ultimately depend on the task. Finally, we consider that the interaction between the different contextual constraints as well as with the functional constraints requires further research.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

AUTHOR CONTRIBUTIONS

The author confirms being the sole contributor of this work and has approved it for publication.

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[6]In terminological resources, the same term associated with different domains has been traditionally considered a casa of homonymy (different unrelated concepts), rather than contextual variation (one concept). The problems that this approach produces are explained in detail in San Martín.

REFERENCES

Allwood, J. (2003). "Meaning potentials and context: Some consequences for the analysis of variation in meaning," in *Cognitive Approaches to Lexical Semantics*, eds H. Cuyckens, R. Dirven, and J. Taylor (Berlin: Mouton de Gruyter), 29–66. doi: 10.1515/9783110219074.29

Asher, N. (2011). *Lexical Meaning in Context: A Web of Words*. Cambridge; New York, NY: Cambridge University Press.

Auer, P. (2009). "Context and contextualization," in *Key Notions for Pragmatics*, eds J. Verschueren and J. O. Östman (Amsterdam; Philadelphia, PA: John Benjamins), 86–101. doi: 10.1075/hoph.1.05aue

Barsalou, L. W. (2008). Grounded cognition. *Annu. Rev. Psychol.* 59, 617–645. doi: 10.1146/annurev.psych.59.103006.093639

Barsalou, L. W. (2010). Grounded cognition: past, present, and future. *Top. Cogn. Sci.* 2. 716–724. doi: 10.1111/j.1756-8765.2010.01115.x

Barsalou, L. W. (2020). Challenges and opportunities for grounding cognition. *J. Cogn.* 3:31. doi: 10.5334/joc.116

Boulanger, J. C. (1991). Une lecture socioculturelle de la terminologie. *Cahiers de Linguistique Sociale* 18, 13–30.

Bowker, L. (1997). "Multidimensional classification of concepts and terms," in *Handbook of Terminology Management. Volume 1: Basic Aspects of Terminology Management*, eds S. E. Wright and G. Budin (Amsterdam, Philadelphia, PA: John Benjamins), 133–143. doi: 10.1075/z.htm1.16bow

Cabré, M. T. (1999). *La terminología: representación y comunicación*. Barcelona: Institut Universitari de Lingüística Aplicada, Universitat Pompeu Fabra.

Cabré, M. T. (2000). "Sur la représentation mentale des concepts: bases pour une tentative de modélisation," in *Le sens en terminologie*, eds H. Béjoint and P. Thoiron (Lyon: Presses Universitaires de Lyon), 20–39.

Carston, R. (2002). *Thoughts and Utterances: The Pragmatics of Explicit Communication*. Oxford; Malden: Blackwell Publishing. doi: 10.1002/9780470754603

Clark, H. (1996). *Using Language*. Cambridge; New York, NY: Cambridge University Press.

Coulson, S. (2001). *Semantic Leaps: Frame-Shifting and Conceptual Blending in Meaning Construction*. Cambridge; New York, NY: Cambridge University Press. doi: 10.1017/CBO9780511551352

Croft, W., and Cruse, A. (2004). *Cognitive Linguistics*. New York, NY: Cambridge University Press. doi: 10.1017/CBO9780511803864

Diki-Kidiri, M. (2000). Une approche culturelle de la terminologie. *Terminologies nouvelles* 27, 27–31.

Dubuc, R. (2002). *Manuel pratique de terminologie*. Brossard: Linguatech.

Evans, V. (2007). *A Glossary of Cognitive Linguistics*. Edinburgh: Edinburgh University Press. doi: 10.1515/9780748629862

Evans, V. (2009). *How Words Mean: Lexical Concepts, Cognitive Models, and Meaning Construction*. Oxford: Oxford University Press. doi: 10.1093/acprof:oso/9780199234660.003.0007

Evans, V. (2019). *Cognitive Linguistics: A Complete Guide*. Edinburgh: Edinburgh University Press.

Faber, P. (2011). The dynamics of specialized knowledge representation: Simulational reconstruction or the perception–action interface. *Terminology* 17, 9–29. doi: 10.1075/term.17.1.02fab

Faber, P., and León-Araúz, P. (2014). Specialized knowledge dynamics: From cognition to culture-bound terminology," in *Dynamics and Terminology: An Interdisciplinary Perspective on Monolingual and Multilingual Culture-Bound Communication*, eds R. Temmerman and M. van Campenhoudt (Amsterdam, Philadelphia, PA: John Benjamins), 135–158. doi: 10.1075/tlrp.16.08fab

Faber, P., and León-Araúz, P. (2016). Specialized knowledge representation and the parameterization of context. *Front. Psychol.* 7, 196. doi: 10.3389/fpsyg.2016.00196

Faber, P., and León-Araúz, P. (2021). "Designing terminology resources for environmental translation," in *The Oxford Handbook of Translation and Social Practices*, eds M. Ji and S. Laviosa (Oxford: Oxford University Press), 586–615. doi: 10.1093/oxfordhb/9780190067205.013.7

Fargas, F. X. (2009). *La definició terminològica. Edited by Termcat*. Barcelona: Eumo.

Fernández Silva, S. (2011). *Variación terminológica y cognición: factores cognitivos en la denominación del concepto especializado* (PhD thesis). Pompeu Fabra University, Barcelona, Spain. Available online at: http://hdl.handle.net/10803/22638 (accessed March 17, 2022).

Fillmore, C. (1982). "Frame Semantics," in *Linguistics in the Morning Calm*, ed The Linguistic Society of Korea (Seoul: Hanshin), 111–137.

Freixa, J., and Fernández-Silva, S. (2017). "Terminological variation and the unsaturability of concepts," in *Multiple Perspectives on Terminological Variation*, eds P. Drouin, A. Francœur, J. Humbley, and A. Picton (Amsterdam; Philadelphia, PA: John Benjamins), 155–180. doi: 10.1075/tlrp.18.07fre

Gambier, Y. (1991). Présupposés de la terminologie: vers une remise en cause. *Cahiers de linguistique sociale* 18, 31–58.

Gaudin, F. (2003). *Socioterminologie: une approche sociolinguistique de la terminologie*. Bruxelles: Duculot. doi: 10.3917/dbu.gaudi.2003.01

Geeraerts, D. (1993). Vagueness's puzzles, polysemy's vagaries. *Cogn. Linguist.* 4, 223–272. doi: 10.1515/cogl.1993.4.3.223

Gregory, M., and Carroll, S. (1978). *Language and Situation: Language Varieties and Their Social Contexts*. London: Routledge & Kegan Paul.

ISO (2009). *ISO 704:2009 (Terminology Work — Principles and Methods)*. Geneva: ISO.

Kageura, K. (1997). "Multifaceted/multidimensional concept systems," in *Handbook of Terminology Management. Volume 1: Basic Aspects of Terminology Management,* eds S. E. Wright and G. Budin (Amsterdam; Philadelphia, PA: John Benjamins), 119–132. doi: 10.1075/z.htm1.15kag

Kecskes, I. (2014). *Intercultural Pragmatics*. Oxford; New York, NY: Oxford University Press. doi: 10.1093/acprof:oso/9780199892655.001.0001

Lakoff, G. (1987). *Women, Fire, and Dangerous Things : What Categories Reveal About the Mind*. Chicago: University of Chicago Press.

Langacker, R. W. (2008). *Cognitive Grammar. A Basic Introduction*. Oxford; New York, NY: Oxford University Press. doi: 10.1093/acprof:oso/9780195331967.001.0001

Lara, L. F. (1999). "Término y cultura: hacia una teoría del término," in *Terminología y modelos culturales*, eds M. T. Cabré and M. Lorente (Barcelona: Institut Universitari de Lingüística Aplicada), 39–60.

Laurence, S., and Margolis, E. (1999). "Concepts and cognitive science," in *Concepts: Core Readings*, eds E. Margolis and S. Laurence (Cambridge, MA: MIT Press), 3–81.

León-Araúz, P. (2009). *Representación multidimensional del conocimiento especializado: el uso de marcos desde la macroestructura hasta la microestructura*. Available online at: http://hera.ugr.es/tesisugr/18059545.pdf (accessed March 17, 2022).

Miller, G. A., and Leacock, C. (2000). *Lexical Representations for Sentence Processing*. Hove: Psychology Press. 152–160.

Pavel, S., and Nolet, D. (2001). *Précis de terminologie*. Gatineau: Bureau de la traduction.

Pezzulo, G., Barsalou, L. W., Cangelosi, A., Fischer, M. H., McRae, K., and Spivey, M. J. (2013). Computational grounded cognition: a new alliance between grounded cognition and computational modeling. *Front. Psychol.* 3, 612. doi: 10.3389/fpsyg.2012.00612

Picton, A. (2018). Terminologie outillée et diachronie : éléments de réflexion autour d'une réconciliation. *ASp* 74, 27–52. doi: 10.4000/asp.5255

Räcanati, F. (2004). *Literal Meaning*. Cambridge; New York, NY: Cambridge University Press.

Rogers, M. (2004). Multidimensionality in concepts systems: a bilingual textual perspective. *Terminology* 10, 215–240. doi: 10.1075/term.10.2.04rog

Rosch, E. (1978). "Principles of categorization," in *Cognition and Categorization*, eds E. Rosch and B. B. Lloyd (Hillsdale, NJ: Lawrence Erlbaum Associates), 27–48.

Rosch, E., Mervis, C. B., Gray, W. D., Johnson, D. M., and Boyes-Braem, P. (1976). Basic objects in natural categories. *Cogn. Psychol.* 8, 382–439. doi: 10.1016/0010-0285(76)90013-X

San Martín, A. (2016). *La representación de la variación contextual mediante definiciones terminológicas flexibles* (PhD thesis). Granada: University of Granada. Available online at: http://hdl.handle.net/10481/43423 (accessed March 17, 2022).

San Martín, A. (2022). A flexible approach to terminological definitions: representing thematic variation. *Int. J. Lexicogr.* 35, 53–74. doi: 10.1093/ijl/ecab013

San Martín, A., Cabezas-García, M., Buendía, M., Sánchez-Cárdenas, B., León-Araúz, P., and Faber, P. (2017). Recent advances in EcoLexicon. *J. Dictionary Soc. N. Am.* 38, 96–115. doi: 10.1353/dic.2017.0004

San Martín, A., and León-Araúz, P. (2013). "Flexible terminological definitions and conceptual frames," in *International Workshop on Definitions in Ontologies (DO 2013)*, eds S. Seppälä and A. Ruttenberg (Montreal: Concordia University), 1–7. Available online at: http://www2.unb.ca/csas/data/ws/semantic-trilogy-workshops/papers/definitions/do2013_submission_3_final.pdf (accessed March 17, 2022).

Seppälä, S. (2012). *Contraintes sur la sélection des informations dans les définitions terminographiques: vers des modèles relationnels génériques pertinents*. Available online at: http://archive-ouverte.unige.ch/unige:21874 (accessed February 11, 2013).

Seppälä, S. (2015). An ontological framework for modeling the contents of definitions. *Terminology* 21, 23–50. doi: 10.1075/term.21.1.02sep

Sperber, D., and Wilson, D. (1996). *Relevance: Communication and Cognition, 2nd Edn*. Oxford; Cambridge: Wiley-Blackwell.

Tebé, C. (2005). *La representació conceptual en terminologia: l'atribució temàtica en els bancs de dades terminològiques*. Available online at: http://hdl.handle.net/10803/7499 (accessed March 17, 2022).

Temmerman, R. (2000). *Towards New Ways of Terminology Description: The Sociocognitive Approach*. Amsterdam; Philadelphia, PA: John Benjamins. doi: 10.1075/tlrp.3

Temmerman, R. (2007). "Sociocultural situatedness of terminology in the life sciences: the history of splicing," in *Body, Language, and Mind. Volume 2: Sociocultural Situatedness*, eds R. Dirven, T. Ziemke, E. Bernardez and R. M. Frank (Berlin: Mouton de Gruyter), 327-360.

van Dijk, T. (2008). *Discourse and Context: A Sociocognitive Approach*. Cambridge: Cambridge University Press. doi: 10.1017/CBO9780511481499

Vézina, R., Darras, X., Bédard, J., and Lapointe-Giguère, M. (2009). *La rédaction de définitions terminologiques*. Montréal: Office québécois de la langue française.

Wußler, A. (1997). "Terminologie und Ideologie: Überlegungen aus Translatorischer Sicht," in *Text, Kultur, Kommunikation: Translation als Forschungsaufgabe*, eds N. Grbić and M. Wolf (Täbingen: Stauffenburg), 117–133.

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