

# **Concept Systems and Frames in Terminology (CSFT)**

Innsbruck, 28<sup>th</sup>-29<sup>th</sup> September 2022

## **Book of Abstracts**

Organizing Committee: ten Hacken, Pius (chair)  
Resi, Rossella  
Reiter, Sandra  
Pleschberger, Katja

Edited by: Pleschberger, Katja

Dynamic Frames and Context Representation in Terminology <i>Pamela Faber (University of Granada) – <b>Keynote</b></i> .....	3
Ontologies and knowledge representation in terminology: integrating termbases with deep conceptual models <i>Laura Giacomini (University of Heidelberg/University of Hildesheim) – <b>Keynote</b></i> .....	4
Concept System Development and Frame-Based Description. A Case Study in the Terminology of Environmental Protection and Sustainability <i>Martina Ali, Silvia Calvi, Klara Dankova (Università Cattolica del Sacro Cuore)</i> .....	5
Specialized frames and domain-specific ontologies within the context of pattern analysis: an integrative approach based on weather terminology <i>Laurent Gautier (Université de Bourgogne), Johannes Dahm (Université de Nantes)</i> .....	7
The Representation of Terminological Relations: Some Comparative Observations <i>Pius ten Hacken (University of Innsbruck)</i> .....	9
Improving decision making in neural machine translation: a cognitive look at the problem of selecting the right equivalent <i>Pertti Hietaranta (University of Helsinki)</i> .....	10
Terminology in the domain of seafood: A comparative analysis Germany-Spain <i>Irene Jiménez Alonso (University of Innsbruck)</i> .....	11
The concept of and the relationship between thesaurus and ontology <i>Maria Koliopoulou (University of Athens)</i> .....	13
The Inclusion of Culture in Terminological Knowledge Bases: The Cultural Contextualization of Wetlands in EcoLexicon <i>Pilar León-Araúz, Juan Rojas-Garcia (University of Granada)</i> .....	16
Frames as Models of Presentation for Comparison of Law in the Context of Legal Translation <i>Waldemar Nazarov (Universität Mainz), Laurent Gautier (Université de Bourgogne)</i> .....	19
Concept systems in higher education <i>Peep Nemvalts (Tallinn University)</i> .....	22
Concept systems and frames: detecting and managing terminological gaps between languages <i>Rossella Resi (University of Innsbruck)</i> .....	24
Knowledge Representation of Disarmament Domain <i>Sara Silecchia, Federica Vezzani, Giorgio Maria Di Nunzio (University of Padua)</i> .....	27

Frame Semantics in Vocabulary Acquisition

*Viktorija Tataurova, Diāna Ivanova, Jekaterina Martinova (Riga Technical University).....* 30

## **Dynamic Frames and Context Representation in Terminology**

Pamela Faber (University of Granada) – *Keynote*

Terms acquire their meaning in context, more specifically within a frame in which their role in a process, activity, or event is highlighted as well as their relations to other concepts in the same frame. This is an important type of contextual information that is key to specialized knowledge understanding and acquisition. Frames underlie terminological definitions, concept modeling, and semantic networks. It goes without saying that framing specialized knowledge concepts not only means structuring individual term entries but also capturing the relationships between them. These relations reveal the most frequent combinations and activations of specialized knowledge units, which are indicative of some type of large-scale knowledge structure. The challenge is how frames at the syntactic, semantic and pragmatic level can be incorporated in the design of specialized knowledge resources.

## **Ontologies and knowledge representation in terminology: integrating termbases with deep conceptual models**

Laura Giacomini (University of Heidelberg/University of Hildesheim) –

### ***Keynote***

Among conceptual models applicable to terminology are ontologies, i.e. complex representations of shared and stipulated knowledge related to a certain domain. The use of ontologies, widely spread in Knowledge Engineering, has been inherited in relatively recent times by terminology, in which the traditional notion of extra-linguistic entity has merged with that of terminological concept. An ontology is thus a conceptual structure that holds together all terms of a specialised field, expressing their meanings and relations. Despite several intrinsic and procedural limitations, it constitutes a powerful means of conveying specialized knowledge. A terminology database can be integrated with different types of ontology, and ontologies can interface with any component of a termbase, among others with situational knowledge provided by frames.

## Concept System Development and Frame-Based Description. A Case Study in the Terminology of Environmental Protection and Sustainability

Martina Alì, Silvia Calvi, Klara Dankova (Università Cattolica del Sacro Cuore)

In the last decades, the study of terminology has been characterised by a “cognitive shift” that has entailed the development of several approaches investigating the cognitive dimension of terms, such as Frame-Based Terminology (Faber, 2009), inspired by Frame Semantics (Fillmore, 1976). This approach is based on the conceptualisation of a specialised field through the analysis of the domain event and on the study of the behaviour of the terminological units in corpora, extracting semantic and syntactic information.

This study aims to describe the terminology of environmental protection and sustainability, a dynamic field of great interest. The descriptive method proposed by Frame-Based Terminology is adopted and adapted to a diachronic approach. More specifically, the aim of this study is to observe how this terminology has developed during the 20<sup>th</sup> and 21<sup>st</sup> centuries, paying particular attention to the different conceptualisations of the most significant domain events, such as the one of pollution. Due to the environmental problems becoming more and more evident and the consequent sustainability legislation, this domain represents an interesting field of observation for the study of diachronic variation.

In our communication, after a brief introduction on the theoretical framework, the field of reference and the methodology adopted will be presented in more detail. A French language text corpus will be built using different text types of the time period considered, among which the journal *Techniques Sciences Méthodes* (1906 - 2006). The study of the corpus will lead to the creation of conceptual description frames including a representation of syntactic-semantic relations among terms. In order to underline the conceptual development of the environmental protection and sustainability domain, for each key period in its history, a specific frame will be created. These periods will be established according to the most significant events, from the publication of the Brundtland Report (1987) containing the first official definition of sustainability to the adoption in 2015 of the UN 2030 Agenda with its Sustainable Development Goals.

This study aims at demonstrating the effectiveness of the frame-based approach for the study of terminology in diachrony: in order to provide an accurate description of the diachronic variation of terms, the construction of both semantic frames and conceptual networks has proved to be a very effective method, as it can reveal the behaviour of terms in discourse.

### References

- Faber P. (ed.), *A Cognitive Linguistics View of Terminology and Specialized Language*, De Gruyter Mouton, Berlin/Boston, 2012.
- Faber P., *The cognitive shift in terminology and specialized translation*, in «MonTI. Monografías de Traducción e Interpretación», n. 1, 2009, pp. 107-134. Available at: [https://rua.ua.es/dspace/bitstream/10045/13039/1/MonTI\\_01\\_10.pdf](https://rua.ua.es/dspace/bitstream/10045/13039/1/MonTI_01_10.pdf).

Fillmore C. J., *Frame semantics and the nature of language*, in S. R. Harnad, H. D. Steklis, J. Lancaster (eds.), *Origins and Evolution of Language and Speech*, «Annals of the NY Academy of Sciences», n. 280, 1976, pp. 20-32.

Frassi P., DIACOM-fr, une base de données terminologiques de type diachronique, « Cahiers de Lexicologie », n. 118, 2021, pp. 23-50.

*Techniques Sciences Méthodes* [journal]. Available at: <<https://astee-tsm.fr/a-propos-de-tsm/le-siecle-dhistoire/>>.

United Nations Development Programme. *The Sustainable Development Goals*. Available at: <[https://www.undp.org/sustainable-development-goals?utm\\_source=EN&utm\\_medium=GSR&utm\\_content=US\\_UNDP\\_PaidSearch\\_Br\\_and\\_English&utm\\_campaign=CENTRAL&c\\_src=CENTRAL&c\\_src2=GSR&gclid=EAiaIQobChMIx-ah2d2Q9wIVhoxRCh26RgMmEAAAYAiAAEgLf7vD\\_BwE](https://www.undp.org/sustainable-development-goals?utm_source=EN&utm_medium=GSR&utm_content=US_UNDP_PaidSearch_Br_and_English&utm_campaign=CENTRAL&c_src=CENTRAL&c_src2=GSR&gclid=EAiaIQobChMIx-ah2d2Q9wIVhoxRCh26RgMmEAAAYAiAAEgLf7vD_BwE)>.

World Commission on Environment and Development. *Our common future*, [Brundtland Report], 1987. Available at: <<https://www.are.admin.ch/are/en/home/media/publications/sustainable-development/brundtland-report.html>>.

Zanola M. T., *Che cos'è la terminologia*, Carocci, Roma, 2018.

Zanola M.T., *Terminologie diachronique : méthodologies et études de cas. Introduction*, « Cahiers de Lexicologie », n. 118, 2021, pp. 13-22.

## **Specialized frames and domain-specific ontologies within the context of pattern analysis: an integrative approach based on weather terminology**

Laurent Gautier (Université de Bourgogne), Johannes Dahm (Université de Nantes)

The aim of this contribution is an attempt at combining the two paradigms in the center of the conference and showing that the representation of domain-specific concepts and their relations to each other can be approached by ontologies on the one hand *and* specialized frames on the other, and that they (can) merge in the notion of “patterns” (Gautier/Dahm submitted). Both formats of knowledge representation (Roche 2003 for ontologies, Ziem 2008 for frames,) – which are central for (applied) terminology (Roche 2007 for ontologies, Faber 2012 for frames), – can be linked together since they function, as we argue here, on different levels of abstraction.

Ontologies generally include all the domain-specific terms and are organized through their relations. However, they do not provide any information about the grammatical or the syntactic behavior of terms in concrete communicative situations (within grammatical constructions, for example) that are most of the time subject to formal constraints (Stein/Stumpf 2018). Frames for their part – both as Verb-Frames (Fillmore 1982) and Concept-Frames (Barsalou 1992), synthesis by Varga (2021) – and beyond the mere representation of relations, shape the processes of verbalization. They give access to a multitude of information that are relevant with a view to the linguistic surface structure of specialized communication. Even if FrameNet-Frames, for example, do not necessarily consider the underlying architectural structure of a domain-specific ontology, they constitute an important resource when it comes to the instantiation of terms. Frames provide semantic and syntactic information which ontologies generally do not make available. Thus, both formats of knowledge representation could and should be linked.

In our contribution we want to show – more precisely – that the consideration of domain-specific ontologies and of the corresponding (specialized) frames is advantageous when it comes to the analysis of patterns that motivate specialized communication. In other words, we assume that there is a certain high-level pressure (Gautier 2018, in press) that emanates from the ontological level. On a lower level of abstraction, this pressure affects (specialized) frames which for their part shape domain-specific linguistic surface structures and patterns. Verb- Frames and Concept-Frames act in this sense as an interface, as a link between the rather static ontological architecture (with information about individuals, classes, attributes or relations) and the linguistic surface structure. Domain-specific concepts, as they are structured within a respective ontology in a rather static way – without any specific communicative context –, are re(arranged) in frames against the background of specific contexts of use. Attributes and relations as well as Frame elements that are owned by (in the first instance) unspecified type-frames are thereby instantiated; token-frames are generated. Semantic and syntactic restrictions instruct these processes. As a result, linguistic surface patterns manifest themselves in specialized discourse which is shaped by the respective domain-specific ontology. The use of ontologies and frames enables us to understand the nature of patterns on three different levels: ontologies, frames, linguistic surface structure.

The contribution will defend and illustrate this conception of an “ontology-frames-formal constraints interface” with regard to the domain of meteorology. On the one hand, it is shaped by several ontologies (such as the BIMERR one, <https://bimerr.iot.linkeddata.es/def/weather/>) and on the other hand some kinds of weather discourses (such as online weather forecasts) are more and more often produced semi-automatically and thus must rely on text models integrating a precise implementation of the aforementioned formal constraints.

## References

- Barsalou, Lawrence W. (1992). « Frames, Concepts and Conceptual Fields ». In: Adrienne Lehrer & Eva Feder Kittay (Eds). *Frames, Fields and Contrasts. New Essays in Semantic and Lexical Organization*. Hillsdale, NJ: Erlbaum, 21-74.
- Faber, Pamela (2012). *A Cognitive Linguistics View of Terminology and Specialized Language*. Berlin; Boston: de Gruyter.
- Fillmore, Charles J. (1982). « Frame Semantics ». In: The Linguistic Society of Korea (Ed.). *Linguistics in the Morning Calm. Selected Papers from SICOL-1981*. Seoul: Hanshin Publishing Company, 111-137.
- Gautier, Laurent (2018). « Le figement, clef d’entrée pour les discours spécialisés ». In: Laurent Gautier (Ed.). *Figement et discours spécialisés*, Berlin: Frank & Timme, 7-14.
- Gautier, Laurent (in press). « Zur Produktivität des Musterbegriffs zur holistischen Charakterisierung von Fachtextsorten. Fallstudien am Beispiel des Finanzdiskurses ». In: Johana Szczek *et al.* (Eds). *Aktuelle Trends in der phraseologischen und parömiologischen Forschung weltweit*. Hamburg: Kovac Verlag.
- Gautier, Laurent/Dahm, Johannes (submitted). « On the interplay between frames and patterns in specialized discourses on the basis of comparison patterns in two specialized fields in German ».
- Roche, Christophe (2003). « Ontology : A Survey ». In: *IFAC Proceedings Volumes*, 36/22, 187-192.
- Roche, Christophe (2007). « Le terme et le concept : fondements d’une ontoterminologie ». In : *TOTh 2007 : Terminologie & Ontologie : Théories et Applications*, Chambéry : Université Savoie Mont-Blanc, 1-22.
- Stein, Stefan / Stumpf, Sören (2018). *Muster in Sprache und Kommunikation. Eine Einführung in Konzepte sprachlicher Vorgeformtheit*. Berlin : Schmidt.
- Varga, Simon (2021). *Frames und Argumentation. Zur diskurssemantischen Operationalisierung von Frame-Relationen*. Berlin: Peter Lang.
- Ziem, Alexander (2008). *Frames und sprachliches Wissen. Kognitive Aspekte der semantischen Kompetenz*. Berlin ; Boston: de Gruyter.

**The Representation of Terminological Relations: Some Comparative Observations**

Pius ten Hacken (University of Innsbruck)

Abstract to follow.

## **Improving decision making in neural machine translation: a cognitive look at the problem of selecting the right equivalent**

Pertti Hietaranta (University of Helsinki)

Currently, there are several neural machine translation systems available to help translators in their work. A frequent problem with the systems is, however, that they are not always able to suggest the right target word or phrase equivalent if the source language text contains a homonymous item. Thus, the English *screen*, for example, may refer to a sieve or to a computer display, depending on the context, and neural machine translation systems frequently fail to figure out which equivalent they should offer in such cases.

The problem is further aggravated by the fact that neural machine systems often suggest one equivalent in one place in the text and a completely different equivalent in another place. That is, neural machine systems suffer from a certain degree of inconsistency, which, especially in the case of terminologically rich texts, is a major problem.

The present paper takes a look at the problem by considering some real-life cases of professional translation where the neural machine system did not succeed very well with regard to making the decision as to which particular alternative it should offer for a particular slot in the target text. The paper then suggests some avenues for approaching the problem in cognitive terms and proposes one conceivable way to a solution by means of frames (cf. e.g. Faber 2015).

The neural machine system examined here is the one used by Trados, but it is just as common in other NMT systems, which means that it is highly desirable that the problem can be at least mitigated if not solved. For an overview of the principles and recent developments of neural machine translation, see Stahlberg (2020).

The tentative solution to the above selection problem outlined here makes use of the notion of a frame and proposes that the algorithm(s) responsible for the decision making with regard to the selection of the target language word or phrase in these cases be supplemented by a cognition-based frame which has the ability to scan the preceding and following context for x words/phrases and/or clause or other relevant boundaries to correctly fathom the nature of the problematic homonymous item. This way, the chances of excluding the wrong choices is likely to increase as these will not have the cognitive properties the right choice is required to possess.

### **References**

- Faber, Pamela (2015), "Frames as a framework for terminology," in Hendrik J. Kockaert and Frieda Steurs (eds.), *Handbook of Terminology*, Vol. 1, pp. 14–33. Amsterdam/Philadelphia: Benjamins.
- Stahlberg, Felix (2020), "Neural Machine Translation: A Review," *Journal of Artificial Intelligence Review* 69: 343–418.

## **Terminology in the domain of seafood: A comparative analysis Germany-Spain**

Irene Jiménez Alonso (University of Innsbruck)

In the paper I will be presenting I described, represented and compared the terminological reality in the domain of seafood from an economic-culinary point of view in Germany and Spain. The terminological theories that served as basis are the Communicative Theory of Terminology (CTT) by Teresa Cabré and the Frame-Based Terminology (FBT) by Pamela Faber. Both theories propose the representation of concepts of a domain in an ontology. FBT additionally proposes a representation in frames.

Ontologies and frames serve different functions. Ontologies provide a detailed representation of the domain and are intended for experts, while frames give an overview for non-experts. Also, ontologies appear to be better suited to represent the taxonomy of a domain, while frames seem more useful for representing processes. FBT proposes to combine both in terminology work.

Since the chosen domain is mainly based on taxonomy, my focus in the representation was on the ontology. However, I also represented it in a frame to give an understandable first overview and to see to what extent this representation works in a non-process oriented domain.

### **References**

- Cabezas García, Melania (2019), *Los compuestos nominales en terminología: formación, traducción y representación*, Tesis Doctoral (Ph. D.), Universidad de Granada: Departamento de Traducción e Interpretación.
- Cabré, María T. (1993), *La terminología: teoría, metodología, aplicaciones*, Barcelona: Empúries.
- Cabré, María T. (2003), 'Theories of Terminology: Their Description, Prescription and Explanation', *Terminology* 9(2): 163-199.
- Cabré, María T. (2009), 'Communicative Theory of Terminology, a Linguistic Approximation on Terms', *Revue Française de Linguistique Appliquée* 14(2): 9- 15.
- Faber, Pamela & López Rodríguez, Clara I. (2012), 'Terminology and specialized language', in Faber, Pamela (ed.) (2012) *A cognitive linguistics view of terminology and specialized language*, Berlin, Boston: De Gruyter Mouton, pp. 9-31.
- Faber, Pamela & Vidal, M<sup>a</sup> Carmen (2017), 'Food Terminology as a System of Cultural Communication: Expressing Sensory Experience in Several Languages', *Terminology* 23(1): 155-179.
- Faber, Pamela (2015) 'Frames as a Framework for Terminology', in Kockaert, Hendrik J. & Steurs, Frieda (eds.), *Handbook of Terminology*, Vol. 1, Amsterdam: John Benjamins, pp. 14–33.

- Faber, Pamela, León, Pilar, Prieto, Juan A. & Reimerink, Arianne (2007), 'Linking Images and Words: The Description of Specialized Concepts', *International Journal of Lexicography* 20(1): 39-65.
- Faber, Pamela; León, Pilar & Prieto, Juan Antonio (2009), 'Semantic Relations, Dynamicity, and Terminological Knowledge Bases', *Current Issues in Language Studies* 1: 1-23.
- Faber, Pamela; Márquez, Carlos & Vega, Miguel (2005), 'Framing Terminology: A Process-oriented Approach', *META* 50(4).
- ten Hacken, Pius (2008), 'Prototypes and Discreteness in Terminology', in Bernal, Elisenda & DeCesaris, Janet (eds.), *Proceedings of the XIII Euralex International Congress*, IULA-UPF: Barcelona, pp. 979-987.
- ten Hacken, Pius (2015), 'Terms and Specialized Vocabulary', in Kockaert, Hendrik J. & Steurs, Frieda (eds.), *Handbook of Terminology*, Amsterdam: John Benjamins, pp. 3-13.
- ten Hacken, Pius (2022), 'Warum Termini? Warum Definitionen? Kommunikative und translatorische Überlegungen', in Hebenstreit, Gernot & Hofeneder, Philipp (eds.), *Translation im Wandel*, Berlin: LIT, pp. 179-198.

## The concept of and the relationship between thesaurus and ontology

Maria Koliopoulou (University of Athens)

Both thesauri and ontologies belong to Knowledge Organization Systems (KOSs) aiming to represent concept relations within a specific domain. Thesauri have emerged within the domain of lexicography, while ontologies originate from philosophy, and are nowadays used by terminologists. Thesauri usually represent concepts of general language, while ontologies exist to represent the relations of terms within a specialized domain. However, there is no clear cut between general and specialized language, but they rather constitute a continuum. Thesauri and ontologies have been studied thoroughly separately, but also in combination due to their common characteristics (cf. Feliu et al. 2002; Gilchrist 2003; Arano 2005; Klein & Smith 2010; Kless & Milton 2010; Kless et al. 2014; Costa, Roche & Carvahlo 2015; Vlachidis 2020). Based on these similarities there have even been discussions about converting and reusing thesauri into ontologies (Fischer 1998; Τοράκη 2009; Dextre Clarke & Zeng 2012; Li & Li 2013; Mouhin et al. 2013; Cardillo et al. 2014). In this respect, this paper examines a part of lexicography that almost overlaps with terminology (cf. Κουτσουμπάρη, Σδόκου & Βαλεοντής 2011).

The aim of this paper is to clarify the concepts of thesaurus and ontology as well as their relationship. Even though they have been extensively examined, separately or in combination, there is still obscurity as far as their notions and their relationships are concerned. Depending on the purpose of the study and the different perspectives, thesauri and ontologies have been regarded as diverse, complementary, or even overlapping concepts. Based on their similarities they can be regarded as siblings, or even twins. Their differences however in origin, purpose and scope may lead to the conclusion that they may be just “step relatives”. In order to define their art and degree of relationship, this paper aims to thoroughly examine the concepts of thesaurus and ontology. After analysing their conceptualization also on historical grounds, their similarities and differences will be discussed on the basis of specific criteria. In this respect, this paper aims to clarify two concepts that are commonly studied and compared without always being quite clear, at least in theoretical terms.

### References

- Arano, S. 2005. “Thesauruses and ontologies” [on-line], In *Hipertext.net*, num. 3. <http://eprints.rclis.org/8972/2/12.pdf> [Consulted: 17<sup>th</sup> April, 2022].
- Cardillo, E., A. Folino, R. Trunfio & R. Guarasci. 2014. “Towards the reuse of standardized thesauri into ontologies”. In *WOP'14: Proceedings of the 5th International Conference on Ontology and Semantic Web Patterns*. Vol. 1302: 26-37.
- Costa, R., C. Roche, & S. Carvalho. 2015. “Ontologies for terminological purposes: the EndoTerm project”. In *Proceedings of the conference Terminology and Artificial Intelligence* (Granada, Spain). [http://ceur-ws.org/Vol-1495/paper\\_30.pdf](http://ceur-ws.org/Vol-1495/paper_30.pdf) [Consulted: 19<sup>th</sup> April, 2022].
- Dextre Clarke, S. G. & M. L. Zeng. 2012. “From ISO 2788 to ISO 25964: The evolution of thesaurus standards towards interoperability and data modelling”. *Information Standards Quarterly* (ISQ) 24.1.

- Feliu, J., J. Vivaldi & M. T. Cabre. 2002. “Ontologies: a review” (Serie Informes, 34). Barcelona, Universitat Pompeu Fabra, Institut Universitari de Lingüística Aplicada. In *Repositori.upf.edu* <https://repositori.upf.edu/bitstream/handle/10230/1295/> [Consulted: 19<sup>th</sup> April, 2022].
- Fischer, D. 1988. “From Thesauri towards Ontologies?” *Advances in Knowledge Organisation* 6: 18-30.
- Gilchrist, A. 2003. “Thesauri, taxonomies and ontologies – an etymological note”. *Journal of Documentation* 59.1: 7-18.
- Klein, G. O., & B. Smith. 2010. “Concept Systems and Ontologies: Recommendations for Basic Terminology”. *Trans Jpn Soc Artif Intell.* 25.3: 433-441.
- Kless, D. & S. Milton. 2010. “Comparison of thesauri and ontologies from a semiotic perspective”. *Sixth Australasian Ontology Workshop AOW*, 122: 35-44.
- Kless, D., S. Milton, E. Kazmierczak & J. Lindenthal. 2014. Thesaurus and ontology structure: Formal and pragmatic differences and similarities. *Journal of the Association for Information Science and Technology* 66.7: 1348-1366.
- Κουτσουμπάρη Ν., Χ. Σδόκου & Κ. Βαλεοντής. 2011. “Ορολογία και Λεξικογραφία: Δύο θεματικά πεδία με συμπληρωματικούς στόχους, αλλά με εννοιολογικές και μεθοδολογικές διαφορές – Σημεία σύγκλισης και προτάσεις περαιτέρω εναρμόνισης [Terminology and Lexicography: Two subject fields with complementary objectives, but with conceptual and methodological differences – Convergence points and proposals for further harmonization]”. In *8ο Συνέδριο «Ελληνική Γλώσσα και Ορολογία»*, ΕΛΕΤΟ, Αθήνα, 10-12 Νοεμβρίου 2011. [http://www.eleto.gr/download/Conferences/7th%20Conference/7th\\_16-35-TorakiKaterina\\_Paper4\\_V04.pdf](http://www.eleto.gr/download/Conferences/7th%20Conference/7th_16-35-TorakiKaterina_Paper4_V04.pdf) [Consulted: 19<sup>th</sup> April, 2022].
- Li, P. & Y. Li. 2013. “On transformation from the thesaurus into domain ontology”. In *Advanced Materials Research*. Vol. 756-759: 2698-2704.
- Mouhim, S., T. Khalid, C. Cherkaoui, H. Douzi, & D. Mammas. 2013. “A methodological approach for converting thesaurus into domain ontology: application to tourism”. In *International Journal of Engineering and Innovative Technology* 3.5: 315-319.
- Τοράκη, Κ. 2009. “Από το θησαυρό στην αντίστοιχη οντολογία: μια απόπειρα προσέγγισης σε ένα ειδικό θεματικό πεδίο και τα ορολογικά ζητήματα που προκύπτουν” [From a thesaurus to the corresponding ontology: an attempt to approach the terminological problems in a subject field]”. In *7ο Συνέδριο «Ελληνική Γλώσσα και Ορολογία»*, ΕΛΕΤΟ, Αθήνα, 22-24 Οκτωβρίου 2009. [http://www.eleto.gr/download/Conferences/7th%20Conference/7th\\_16-35-TorakiKaterina\\_Paper4\\_V04.pdf](http://www.eleto.gr/download/Conferences/7th%20Conference/7th_16-35-TorakiKaterina_Paper4_V04.pdf). [Consulted: 19<sup>th</sup> April, 2022].

Vlachidis, A. 2020. “Discuss similarities and differences of Ontologies and Thesauri. Their role to modern information retrieval systems” [on-line], in <https://www.webronika.com/wp-content/uploads/2021/03/19075478-INST0038-.pdf> [Consulted: 17<sup>th</sup> April, 2022].

## The Inclusion of Culture in Terminological Knowledge Bases: The Cultural Contextualization of Wetlands in EcoLexicon

Pilar León-Araúz, Juan Rojas-García (University of Granada)

EcoLexicon (<http://ecolexicon.ugr.es>) is an electronic, multilingual, terminological knowledge base on environmental sciences that is the practical application of Frame-based Terminology (FBT) (Faber, 2012). FBT proposes a cognitive approach to Terminology that links knowledge representation directly to Cognitive Linguistics and Cognitive Semantics. More specifically, FBT applies the notion of *frame* to "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" (Evans, 2007, p. 85). However, although terms have always had a cultural dimension (Temmerman and Campenhoudt, 2014), culture has not been integrated in terminological resources (Faber and León-Araúz, 2014).

With the purpose of making EcoLexicon an inclusive resource sensitive to cultural variation, it will thus integrate different cultural views on specialized concepts of the environment. Furthermore, EcoLexicon will represent environmental problems linked to specific places on the planet by including the semantic representation of named landforms, such as named rivers (e.g., Mississippi River), bays, beaches, and wetlands. The cultural parameters with which this project begins are the following: geographical origin, variations from each environmental discipline, and degree of specialization.

For the cultural adaptation of the different modules of EcoLexicon, it is necessary to configure a new typology of frames, the cultural frames, linked to the most culture-dependent semantic categories, which range from culturally specific concepts (e.g., billabong and muskeg wetlands) to named landforms. The objective of this paper is thus to explain the cultural adaptation of the conceptual module of EcoLexicon by contextualizing the semantic networks and definitions according to the cultural parameter of geographical origin. This cultural adaptation procedure is illustrated with the WETLAND concept and named wetlands.

The influence of culture is reflected in culture-specific terms and, therefore, culture affects conceptual structures. For instance, there are specific types of wetland that only predominate in certain geographic areas that are not lexicalized in all cultures, such as the Australian *billabong*, the African *dambo*, or the Canadian *muskeg*. In these cases, the local terms are only borrowed when describing these particular wetlands. When culture is not considered, Figure 1A shows the semantic network of the WETLAND concept in EcoLexicon, which includes all its types, such as PEAT BOG, MUSKEG, VARZEA, and BILLABONG. In contrast, Figure 1B provides a contextualized semantic network of WETLAND, adapted to the Caribbean culture, since there the SWAMP and MARSH concepts are the prototypical wetlands, and only there SEAGRASS BED is categorized as a type of wetland, as indicated by the EcoLexicon English Corpus (León-Araúz et al., 2018), compiled for the development and population of EcoLexicon.



Figure 1: Semantic network of the WETLAND concept in EcoLexicon, without contextualization (A) and contextualized for the Caribbean region (B).

In addition, the inclusion of helonyms, namely named wetlands, facilitates the representation of environmental problems in semantic networks (Rojas-Garcia and Faber, 2019a; Rojas-Garcia and Faber, 2019b), such as those environmental issues taking place in the Tablas de Daimiel (Spain), Dismal Swamp (Virginia, the USA), Okavango Marshes (Africa), Bog of Allen (Ireland), Everglades (Florida, the USA), and Mamukala Billabong (Australia).

Finally, in the case of definitions, *semplates* (Burenhult and Levinson, 2008, p. 144) are used, which refer to definitional templates that include cultural themes or linguistic patterns that are imposed on the environment to create, coordinate, subcategorize, or contrast categories. Semplates are thus crafted for the culture-specific types of wetlands, by combining definition factorization of existing reference works (e.g., handbooks on wetlands) with corpus analysis (in the EcoLexicon English Corpus) based on knowledge extraction to validate the results.

## References

- Burenhult, N., & Levinson, S.C. (2008). Language and landscape: A crosslinguistic perspective. *Language Sciences*, 30, 135-150.
- Evans, V. (2007). *A Glossary of Cognitive Linguistics*. Edinburgh University Press.
- Faber, P. (Ed.). (2012). *A Cognitive Linguistics View of Terminology and Specialized Language*. De Gruyter Mouton.
- Faber, P., & León-Araúz, P. (2014). Specialized knowledge dynamics. From cognition to culture-bound terminology. In R. Temmerman, & M.V. Campenhout (Eds.), *Dynamics and Terminology: An Interdisciplinary Perspective on Monolingual and Multilingual Culture-Bound Communication* (pp. 135-158). John Benjamins.
- León-Araúz, P., San Martín, A., & Reimerink, A. (2018). The EcoLexicon English Corpus as an open corpus in Sketch Engine. In J. Čibej, V. Gorjanc, I. Kosem, & S. Krek (Eds.), *Proceedings of the 18th EURALEX International Congress* (pp. 893-901). Euralex.

- Rojas-Garcia, J., & Faber, P. (2019a). Extraction of terms for the construction of semantic frames for named bays. *Argentinian Journal of Applied Linguistics*, 7(1), 27-57.
- Rojas-Garcia, J., & Faber, P. (2019b). Extraction of terms related to named rivers. *Languages*, 4(3), 46.
- Temmerman, R., & Campenhoudt, M.V. (Eds.). (2014). *Dynamics and Terminology: An Interdisciplinary Perspective on Monolingual and Multilingual Culture-Bound Communication*. John Benjamins.

## **Frames as Models of Presentation for Comparison of Law in the Context of Legal Translation**

Waldemar Nazarov (Universität Mainz), Laurent Gautier (Université de Bourgogne)

Developed with the main purpose of establishing a system of all terms and concepts that are endemic to a specific field of expertise (Wüster 1974), terminology allows for elaborating standardized notions on the one hand (Sager 1990) and separating clearly defined specialist terms from general lexical units that are used in every-day situations on the other, with yet a wide range of vocabulary emerging in between that cannot be delimited by terminological standards (ten Hacken 2010, 2015). This is exactly the case with legal notions, and thus legal terms, because of (i) their sensitivity to a specific legal system (Sandrini 1999) and (ii) the emergence especially in European law of not sharply defined notions known as “legal standards”, i.e. a framework or a model for regulating behavior (Bernard 2010).

Terminology appears as a significant object of research for translators working with specialist texts since enabling communication between experts is considered to be its primary goal (Arntz/Picht/Schmitz 2014; Hoffmann 1993). With specialized languages traditionally divided horizontally into academic fields and vertically into their level of expertise leading to a higher homogeneity (Roelcke 2014), specialized translation mostly deals with generally homogeneous subject-matters, such as exact sciences (Šarčević 1997). The traditional standardizing terminological approach is therefore convenient for a multilingual representation of fully equivalent terms.

From a frame-semantic point of view, which has been developed as a “semantics of understanding” (Fillmore 1985), such terms pertaining to technical fields or exact sciences evoke the exact same elements of knowledge – thus including specialized and encyclopedic knowledge – when perceived by an expert of a specific field regardless of the language they are expressed in. Frame semantics have already been applied to technical terminology (Faber/Márquez/Vega 2005) and proven to be useful in legal translation as well (Engberg 2021). The translation of legal terms, however, is often insulated from the other – homogeneous – specialized fields and languages. As a legal language is always linked to a specific legal system, a transfer between two systems occurs when translating legal texts outside of a multilingual nation by means of legal comparison (de Groot 1999). Since this excludes the possibility of full equivalence, the traditional terminological approach based on referential semantics is insufficient for representing and structuring legal terms for the purpose of legal translation. Therefore, the frame-semantic approach is suggested as a format of presentation of legal terms that allows translators to make an adequate comparison of frame elements and produce a successful translation.

This will be exemplified here by the German and French labor law terms *Arbeitsgericht* and *conseil de prud’hommes*, *Arbeitnehmer* and *salarié*, *Arbeitgeber* and *employeur*, *Arbeitsvertrag* and *contrat de travail*, whose frames do not match to a full extent due to their heavy dependence on different legal systems. However, various knowledge elements are evoked when dealing with a legal term, the relevance of which can vary according to the two

legal subareas that the term is used in. The legal comparison process in the context of legal translation requires detecting an equivalent legal term in the target system. In frame semantics, the three components slots, fillers and default values constitute the basis of such frame structuring (Ziem2013). Yet, frames also appear as recursive structures with internal and external links (Busse 2013; Varga 2020). The first examples refer to similar court institutions in Germany and France, which, when granulated, bring subframes, such as *Arbeitnehmer* or *salarié*, to the fore. As these comprise their own specific frame elements, relevant for the superior frame, and are linked to other knowledge segments, frame semantics, contrary to the traditional terminological approach, allows for a very detailed comparison of legal terms and therefore for an adequate assessment of the level of equivalence between two legal concepts as a pivotal step in the legal translation process.

## References

- Arntz, R., H. Picht & K.-D. Schmitz. 2014. Einführung in die Terminologiearbeit. Hildesheim/Zürich/New York: Georg Olms.
- Bernard, E. 2010. La spécificité du standard juridique en droit communautaire, in: Droit de l'Union européenne, vol. 16, Bruxelles: Bruylant.
- De Groot, Gerard-René. 1999. Zweisprachige juristische Wörterbücher, in: Sandrini, P. (ed.): Übersetzen von Rechtstexten. Fachkommunikation im Spannungsfeld zwischen Rechtsordnung und Sprache, p. 203-227, in: Kalverkämper, H. (ed.): Forum für Fachsprachen-Forschung, vol. 54. Tübingen: Günter Narr.
- Engberg, J. 2021. Legal translation as communication of knowledge: On the creation of bridges, in: Parallèles. 33(1), p. 6-17.
- Faber, P., C. Márquez & M. Vega. 2005. Framing Terminology: A Process-Oriented Approach, in: Meta: Journal des traducteurs, 50(4).
- Fillmore, C. J. 1985. Frames and the Semantics of Understanding. In: Quaderni di Semantica 6, p. 222-254.
- Hoffmann, L. 1993. Fachwissen und Fachkommunikation. Zur Dialektik von Systematik und Linearität in den Fachsprachen. Fachsprachentheorie 2, T. Bungarten (ed.), p. 595-617. Tostedt: Attikon.
- Roelcke, T. 2014. Zur Gliederung von Fachsprache und Fachkommunikation. Fachsprache. International Journal of Specialized Communication, 36: 154-178.
- Sager, J. C. 1990. A Practical Course in Terminology Processing. Amsterdam/Philadelphia: John Benjamins.
- Sandrini, P. 1999. Translation zwischen Kultur und Kommunikation: Der Sonderfall Recht, in: Peter Sandrini (ed.): Übersetzen von Rechtstexten. Fachkommunikation im Spannungsfeld zwischen Rechtsordnung und Sprache, 9-43, in: Kalverkämper, H. (ed.): Forum für Fachsprachen-Forschung, vol. 54. Tübingen: Günter Narr.
- Šarčević, S. 1997. New approach to legal translation. The Hague/London/Boston: Kluwer Law International.

- Ten Hacken, P. 2010. The Tension between Definition and Reality in Terminology, in: Proceedings of the xiv Euralex International Congress, p. 915-927. Ljouwert: Fryske Akademy.
- Ten Hacken, P. 2015. Terms and specialized vocabulary: Taming the prototypes, in: Hendrik J. Kockaert & Frieda Steurs, Handbook of Terminology, vol. 1, p. 3-13. Amsterdam: Benjamins.
- Varga, S. (2020). Frames und Argumentation: Zur diskurssemantischen Operationalisierung von Frame-Relationen. In: Kontraste/Contrastes, vol. 5. Berlin: Peter Lang.
- Wüster, E. 1974. Die Allgemeine Terminologielehre – ein Grenzgebiet zwischen Sprachwissenschaft, Logik, Ontologie, Informatik und den Sachwissenschaften. Linguistics, vol. 12, p. 61-106. Berlin/New York: de Gruyter.
- Ziem, A. 2013. Wozu Kognitive Semantik? In Busse, D. & Teubert, W. (eds.), Linguistische Diskursanalyse: neue Perspektiven, p. 217-240. Wiesbaden: Springer.

## Concept systems in higher education

Peep Nemvalts (Tallinn University)

As all terminological work should start with a clear understanding of concept-based consistent term choices, any concept system should be composed of concepts defined as precisely as possible. This attitude of mind needs to be part of higher education for every domain.

Users of specialised language often talk about defining terms (or words), mistakenly considering the terms *concept* and *term* as synonyms, e.g. “Therefore it seems logical to turn to the definition of this word in the defining dictionaries with the aim of establishing the exact meanings of this term.” (Griniewicz 2016: 7) Still, “diversity of approaches to the notion of “term” is determined by the needs of specific applications. But needs must not lead to confusion about the nature of terms.” (Cabr  et. al. 2007: 1) The intension of the concept denoted by the term *term* is ‘a designator of a (specialised) concept’. Other proposed denoting alternatives, such as *unit of understanding* (Temmerman 2000) or *specialised knowledge unit* (Cabr  2003), or even *terminological unit* (Cabr  et. al. 2007) do not make the essence of the relation between term and concept clearer.

As every concept refers to an entity in the real or virtual world, the concept system of a field needs to be mastered by everyone willing to acquire specialist knowledge. This paper deals with the experience of teaching academic Estonian and terminology to doctoral students at Tallinn University for almost two decades. The principal ground of this course is to enhance understanding of the usefulness of concept systems for logical thinking and the designative relation between terms as linguistic units and concepts as knowledge units. Though a designator could be any symbol, it is mostly a lexical unit of a language. Therefore, knowledge of the word-formational, morphological and syntactic structure of a language used for scientific communication is crucial in any field.

A consistent conceptual system of a domain should be mirrored by an orderly system of purposefully functional terms, emerging from the language structure. One of the most essential features of a practical term in any specialised language is monosemy, combined with a monoreferential relation between a concept and an entity (Nemvalts 2018). Every specialist should understand which terms are the most appropriate to designate the concepts of their domain in the language they use. As Pamela Faber (2012: 3) has put it: “The need for rapid knowledge acquisition is one of the reasons that specialized domains and their structure are an important area of focus in Terminology in the form of scientific ontologies.” During my course, based on these theoretical considerations, every student prepares a segment of the conceptual system of their subject field, analysing relations between the concepts and the appropriateness of terms used for designating each concept.

Concept-based terminology courses at universities enable everyone to comprehend that clarity of the conceptual system of a field is reachable better by using a term system that is as unambiguous as possible in any specialised language. This is the core that “finally results in the codification of an entire knowledge” (Faber & Cabezas-Garcia 2019: 208).

## **References**

- Cabré Castellví, M. Teresa & Condamines, Anne & Ibekwe-SanJuan, Fidelia 2007. Introduction: Application-driven terminology engineering. In: *Application-Driven Terminology Engineering*, edited by Fidelia Ibekwe-SanJuan, et al., John Benjamins Publishing Company, 2007.
- Faber, Pamela 2012. Introduction. In: *A Cognitive Linguistics View of Terminology and Specialized Language*, edited by Francisco J. Ruiz de Mendoza Ibáñez, and Pamela Faber. De Gruyter, Inc., 2012.
- Faber, Pamela & Cabezas-Garcia, Melania 2019. Specialized Knowledge Representation: From Terms to Frames. In: *Research in Language*, 2019, vol. 17:2, pp. 197–211.
- Griniewicz, Sergiusz 2016. Concerning the Formation of Legal Terminology. In: *Terminologija* 23, Vilnius: Lietuvių kalbos institutas, pp. 6–20.
- Nemvalts, Peep 2018. Coping with the main terms of terminology. In: *Terminologija* 25, Vilnius: Lietuvių kalbos institutas, pp. 39–54 (<http://lki.lt/terminologija-25/>)
- Temmerman, Rita 2000. *Towards New Ways of Terminology Description: The Sociocognitive Approach*. Amsterdam/Philadelphia: John Benjamins Publishing.

## Concept systems and frames: detecting and managing terminological gaps between languages

Rossella Resi (University of Innsbruck)

My work aims at identifying Terminological Gaps (TG) within a German-Italian terminological database defined for translation purposes within the ambit of the building industry (Resi, 2022), as well as trying to find suitable ways of dealing with them during translation activities. The starting point of our analysis was investigating the debated notion of Terminological Gaps, and defining both conceptual and linguistic situations in which TGs occur.

In our initial terminological study we identified a first category of TGs on a conceptual level. This category includes first of all the traditional notion of TG, the so called *Benennungslücke* (Arntz/Picht/Mayer 2021), *notion zéro* (Van Campenhoudt, 1997) and *lacuna terminologica* (Magris, 2002), which occurs when a language either completely lacks a designation of a concept, mainly but not exclusively for cultural reasons (Lyons, 1997), or needs to find a completely different *ad hoc* strategy to express it (Larson, 1998; Bentivoglio and Pianta, 2000; Darwish, 2010). We also decided to include within the conceptual category of TGs situations where the two languages have different taxonomies and therefore it results in discrepancies between the two conceptual organizations. This has traditionally been called *corrispondenza parziale* (Magris, 2002), *Teiläquivalenz* (Drewer & Schmitz, 2017), *denotation differences* (Lo Cascio et al. 1995) and requires a restructuring of the multilingual concept system (Van Campenhoudt, 1997). Since a partial sharing of distinctive features means adding conceptual system levels to the system for which the other language does not have proper designation, it necessarily results in the occurrence of gaps (examples from our data: *Schraube* \*= *Vite*; *Bolzen* \*= *Bullone*; *Tür* \*= *porta*).

However, our translation work revealed that, even when concepts convergence exists, there may be linguistic features that change the perception of concepts by German and Italian readers when encountering their respective designations. These connotative aspects also affecting TGs were not identified during terminological study, but became evident during translation. Although some designations in German and Italian seem to refer to convergent conceptual units sharing all distinctive features, there are reasons related to the way the two language systems build and choose designations that lead to different perceptions of concepts (*Direktbefestigungsschraube* \**Turbovite*; *Gewindeschraube* \* *Vite autofilettante*). Terms have linguistic components in addition to their conceptual and socio-communicative dimensions (Cabré, 2003) and these must be taken into account while translating.

In the second part of our work we looked at how frame-based terminology (Faber, 2005 and 2007) can help dealing with such terminological gaps under a translation perspective. We decided not to consider traditional inventories of translation strategies for TGs (or *Lexical Gaps* according to Bentivoglio & Pianta, 2000; Stolze, 2013) like *borrowing*, *loan translation* or *paraphrasing* (Baker, 1992; Rogers 2015) - which fill only traditional TGs - or more terminologically oriented strategies like *generalization* and *specification* (Magris, 2002), all of which include a degree of translation residue, as these authors admit. Instead we tried to implement translation strategies focused on the transfer of frames, which carry both conceptual and connotative information, and reduce translation losses to a minimum.

The process of transferring conceptual and semantic information made explicit by frames cannot take place entirely on a terminological level, but requires zooming out to a longer textual unit, once again validating Gautier's idea (2022) that more extensive units, like segments or patterns, are much more suitable for terminological analysis in translation, rather than individual terms.

We will validate our method on the basis of examples of TGs in the language pair German-Italian, trying to prove that frames can be used to link not only “*terms in different languages to the same specialized concept*” (Faber, 2022) but *terms and larger terminological units* to account for a conceptual and/or connotative shift of compared to traditional terminological equivalence.

## References

- Arntz R. & Picht H. & Mayer F. 2021. *Einführung in die Terminologearbeit*. Hildesheim . Zürich . New York. 7. verbesserte Auflage.
- Baker M. 1992. *In Other Words: a coursebook on translation*. New York: Routledge.
- Bentivoglio L. & Pianta E. 2000. *Looking for lexical gaps*. Ninth EURALEX International Congress.
- Cabré Castellví M. T. 2003. Theories of terminology: their description, prescription and explanation. *Terminology* 9(2).
- Darwish A. 2010. *Elements of Translation*. Melbourne: Writescope
- Drewer P & Schmitz K.D. 2017. *Terminologiemanagement. Grundlagen, Methode, Werkzeuge*. Spinger Vieweg, Berlin.
- Faber P., Leòn P.A., Prieto J.A., Reimerink, A. 2007. “Linking Images and Words: the description of specialized concepts”. *International Journal of Lexicography* 20, no. 1: 39- 65.
- Faber P., Linares C.M & Expósito M.E. 2005. “Framing Terminology: A Process-Oriented Approach”. *Journal des traducteurs / Translators' Journal* 50, no. 4.
- Faber P. (2022) Frame-based Terminology. In Faber P. & M.C. L'Homme (Eds) *Theoretical Perspectives on Terminology*. John Benjamins Publishing Company. 353-375
- Gautier L. 2022. „Zur Produktivität des Musterbegriffs zur holistischen Charakterisierung von Fachtextsorten. Fallstudien am Beispiel des Finanzdiskurses.“In: Gondek A. et al.(eds) *Aktuelle Trends in der phraseologischen und parömiologischen Forschung weltweit*, Dr Kovac Verlag.
- Larson M. L. 1998. *Meaning-based translation: a guide to cross-language equivalence*. University Press of America, Boston.169-185.
- Lo Cascio V., Boraschi P. & Corda A. 1995. “Correspondence between senses and translation equivalents: automatic reversal of a bilingual dictionary”, in: Thelen M. & Lewandowska-Tomaszczyk (eds), *Translation and meaning*, part 3, pp. 221-231. Universitaire Pers, Maastricht.

- Lyons, J. 1997. *Semantics* (Vol. 1). Cambridge University Press, Cambridge.
- Magris M., Musacchio M., Rega L, Scarpa F. 2002. *Manuale di terminologia*. Hoepli, Milano.
- Resi R. (2022) “Concettualizzazione terminologica italiano-tedesco al servizio della traduzione di norme tecniche nel settore serramentistico”. In: Chiocchetti, Elena, et al. *Risorse e Strumenti per l’Elaborazione e La Diffusione Della Terminologia in Italia*. Eurac Research, Bolzano.
- Rogers M. 2015. “Terminology and Text: Closing the Gaps.” In: *Specialised Translation. Palgrave Studies in Translating and Interpreting*. Palgrave Macmillan, London.
- Stolze R. 2013 *Fachübersetzen – Ein Lehrbuch für Theorie und Praxis*. Frank & Timme: 2013.
- Van Campenhoudt M. 1997. *Le réseau notionnel interlinguistique. Réseau notionnel, intelligence artificielle et équivalence en terminologie multilingue: essai de modélisation*. Online : <http://www.refer.fr/termisti/rni.htm> (consultato il 21.11.20).

## Knowledge Representation of Disarmament Domain

Sara Silecchia, Federica Vezzani, Giorgio Maria Di Nunzio (University of Padua)

Disarmament and non-proliferation regimes mainly rely on international treaties and legally binding agreements.<sup>1</sup> To ensure the effectiveness of international efforts towards disarmament, international law provisions shall adopt a widely shared terminology, especially by virtue of the inter-linguistic translation process that international legal acts undergo (Prieto Ramos, 2017). Besides, the specificity of the textual typology of treaties of international law lies in the legally binding effects produced, which make a clear representation of knowledge of disarmament domain further needed.

In this context, as underlined by Bajcic (2011), the conceptualization of disarmament knowledge can help the process of disambiguation of the linguistic signs therein, regardless of the languages involved, beyond enabling its effective linguistic representation (and comprehension) for translation purposes.

Indeed, as stated by Gruber (1993), the describable relationships among concepts are reflected in the representational vocabulary through which knowledge is produced. The objectives set can hence be achieved by analyzing the Ontology of the domain, defined as the “explicit specification of a conceptualization” (Gruber, 1993).

Although different research on legal and nuclear terminology were conducted (see among others: Šarčević, 1991; De Groot, 1987; Prieto Ramos, 2014; Bajcic, 2011; Calberg-Challot *et al.*, 2008), the specific interest for the conceptual and multilingual linguistic representation of disarmament still remains marginal despite its high relevance and social impact.

In this context, our proposal aims at developing a new knowledge-based terminological resource framing both the conceptual and the linguistic dimension of this domain. The approach adopted for the development of this resource is based on the theoretical assumption that Terminology has a double dimension - conceptual and linguistic - which is indispensable for terminology work (Costa, 2013). Consequently, following Santos and Costa’s mixed methodology for terminological knowledge representation (2015), this study aims at elaborating both a conceptual and a multilingual linguistic representation of disarmament knowledge, in order to assess whether a language-independent concept system can be overlapped with the lexical networks retrieved from a specialized corpus purpose-built.

On the basis of this methodology, we will adopt the definitions of the “concept” and “term” entities as defined in the ISO 1087: 2019 standard: the concept is therefore considered as a “unit of knowledge created by a unique combination of characteristics” and the term as the “designation that represents a [general] concept by linguistic means”. To distinguish between concepts and terms, we will adopt the following graphical notation as promoted by Roche (2015): concepts are capitalized and written between single chevrons (for example <Chemical weapon >), whereas terms are presented in lower case and between double quotation marks (for example “chemical weapon” for English, “arma chimica” for Italian or “arme chimique” for French).

---

<sup>1</sup> United Nation, Global Issues, Disarmament, <https://www.un.org/en/global-issues/disarmament>

The corpus will be the primary object of investigation, and it will collect international treaties and agreements on disarmament in three working languages: French, English and Italian. Starting from this corpus, we will proceed with 1) the identification of the relevant terms for the working domain, and the related relationships, 2) the inference of the concepts designated by the terms previously extracted and the related conceptual relationships. In this regard, we will discuss about the interrelation of the two systems (conceptual and linguistic) and on the correspondences, in a multilingual perspective, between the three lexical networks for the languages involved. The resulting advantages and disadvantages of this approach will be examined. Finally, the data obtained from this analysis will be structured according to the terminological record model provided in the FAIRterm Web application (Vezzani, 2021), which allows to frame the two dimensions of the terminology of disarmament. This application will be used for the implementation of the new knowledge-based terminological resource on disarmament which will be freely accessible for data consultation and reuse.

## References

- BAJCIC, M., (2011), “Conceptualization of Legal Terms in Different Fields of Law: The Need for a Transparent Terminological Approach” in *Research in Language* 9(1), URL: [https://www.researchgate.net/publication/270263222\\_Conceptualization\\_of\\_Legal\\_Terms\\_in\\_Different\\_Fields\\_of\\_Law\\_The\\_Need\\_for\\_a\\_Transparent\\_Terminological\\_Approach](https://www.researchgate.net/publication/270263222_Conceptualization_of_Legal_Terms_in_Different_Fields_of_Law_The_Need_for_a_Transparent_Terminological_Approach)
- CALBERG-CHALLOT, M., CANDEL, D., BOURIGAULT, D., DUMONT, X., HUMBLEY J., JOSEPH, J., (2008), « Une analyse méthodique pour l'extraction terminologique dans le domaine du nucléaire », pp., 83-203, <https://doi.org/10.1075/term.14.2.04cal>
- COSTA, R., (2013), “Terminology and Specialised Lexicography: two complementary domains” in *Lexicographica* 29 (1), 29-42, 2013. 39, 2013.
- COSTA, R., & SANTOS, C., (2015), “Domain specificity: semasiological and onomasiological knowledge representation” in *H. Kockaert, & F. Steurs (Eds.), Handbook of Terminology (Vol. 1, pp. 153-179). John Benjamins Publishing Company*, DOI: <https://doi.org/10.075/hot.1.com1>
- DE GROOT, G.-R., (1987), “The point of view of a comparative lawyer”, in *Les Cahiers de droit*, 28(4), 793–812, URL: <https://doi.org/10.7202/042842ar>
- GRUBER, T., R., (1993), “Toward Principles for the Design of Ontologies Used for Knowledge Sharing”, In *International Journal Human-Computer Studies* 43, p.907-928. Substantial revision of paper presented at the *International Workshop on Formal Ontology*, March 1993, Padova, Italy. Available as Technical Report KSL 93-04, Knowledge Systems Laboratory Stanford University, URL: <https://tomgruber.org/writing/onto-design.pdf>
- PRIETO RAMOS, F. (2014), “Legal Translation Studies as Interdiscipline: Scope and Evolution” in *Meta*, 59(2), 260–277, URL: <https://doi.org/10.7202/1027475ar>

- PRIETO-RAMOS, F., (2017), “Global Law as Translated Text: Mapping Institutional Legal Translation” in *Tilburg Law Review*, 22(1-2), 185-214, DOI: <https://doi.org/10.1163/22112596-02201009>
- ROCHE, C., (2015) “Ontological definition.” In *Handbook of terminology*, 1. p. 128-152.
- ŠARČEVIĆ, S. (1991), “Bilingual and Multilingual Legal Dictionaries: New Standards for the Future”, in *Meta*, 36(4), 615–626, URL: <https://doi.org/10.7202/004030ar>
- STANDARD ISO 1087:2019, <https://www.iso.org/standard/62330.html>
- VEZZANI, F., (2021), « La ressource FAIRterm : entre pratique pédagogique et professionnalisation en traduction spécialisée » in *Synergies Italie n° 17 – 2021*, p. 51-64, URL : <https://gerflint.fr/Base/Italie17/vezzani.pdf>

## **Frame Semantics in Vocabulary Acquisition**

Viktorija Tataurova, Diāna Ivanova, Jekaterina Martinova (Riga Technical University)

The 21st century has brought some dramatic changes in the field of education. Currently, the use of modern technology in education is inevitable, which is especially noticeable in the field of foreign language teaching and learning. COVID-19 pandemic and the process of remote learning have pointed toward the inability to keep the attention of the learners using the coursebook-bound tasks only. The teachers should adapt to the changes and embrace the possibilities that modern technologies have to offer, as it is an indispensable skill in the 21st-century classroom. The present paper applies the theory of frame semantics, which is the idea that a person cannot infer the meaning of single words and phrases without the larger network of ideas forming the associations with these words, to facilitate the terminology acquired as part of the *Laundromat* film-related classes. The terminology presented in the movie has been previously divided into five major topics, namely money, insurance, offshore companies, financial frauds, and privacy. The present research is an example of a case study of the use of the frame-based methodology in the classification of the extracted terminology and the elaboration of the entries, carried out in close collaboration with the students. The terminological items pertaining to each of the previously mentioned topics are organised in terms of semantic frames. For the purposes of this research, the database *FrameNet* - a lexicographic project developed by Fillmore and Baker providing cognitive frames based on manually annotated text, was selected as a basis for related frames. The aim of the present paper is to portray the opportunities of employing the theory of frame semantics in supplying the learners with field-related terminology. The methodology allows for the learning of terminology not as separate vocabulary items, but as part of the system of cognitive frames which does not only provide the background knowledge of the learners, but also strengthens the comprehension of the field-related texts. The corpus developed as part of this paper serves as a means for further facilitation of the vocabulary by the students.