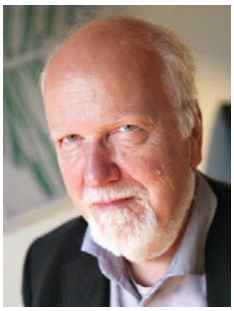
Terminology†

Birger Hjørland

University of Copenhagen, Faculty of Humanities, Department of Communication, South Campus, building 14, 2. Floor, Karen Blixens Plads 8, 2300 Copenhagen S, Denmark, <birger.hjorland@hum.ku.dk>



Birger Hjørland holds an MA in psychology and PhD in library and information science. Since March 2020, he has been Professor Emeritus at the Department of Communication, University of Copenhagen and formerly professor in knowledge organization at the Royal School of Library and Information Science/Department of Information Studies (2001-2020) and at the University College in Borås (2000-2001). He is a member of the editorial boards of Knowledge Organization, Journal of the Association for Information Science and Technology and Journal of Documentation. His h-index on 2020-114 is fifty in Google Scholar and twenty-nine in Web of Science.

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Abstract. This article introduces the field of terminology, which often considers the Austrian engineer Eugen Wüster as its founder in the 1930s, although important principles go back in time, in particular to 18th and 19th century botanists, zoologists and chemists. The contributions of Wüster are presented, as well as the alternative theories, with their criticism of Wüster's position, which came to influence the field after 1990. The article further suggests that domain-analytic studies based on epistemological studies of knowledge domains seems to have been overlooked. The relations between terminology and knowledge organization are addressed, and closer cooperation between the two fields is called for.

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1.0 Introduction

The term "terminology" has two senses: (1) the body of "terms" used within a discipline (2) the field of study devoted to the study of terminology in the first sense. Sometimes the first sense is written in lowercase letter and the second sense with capitalization, but since the *Chicago Manual of Style* (University of Chicago Press 2017) recommends that academic subjects should not be capitalized [1] this practice of distinguishing the terms in a discipline and the field of study is not followed or recommended here.

A widely accepted definition of the field comes from Sager (1990, 2):

> Terminology is the study of and the field of activity concerned with the collection, description, processing and presentation of terms, i.e. lexical items belonging to specialized areas of usage in one or more languages. In its objectives it is akin to lexicography which combines the double aim of generally collecting data about the lexicon of a language with providing an information, and sometimes even an advisory, service to language users. The justification of considering it a separate activity from lexicography lies in the different nature of the data traditionally assembled, the different background of the people involved in this work, and to some extent to the different methods used.

Bowker (2019, 580) wrote about the applied side of the field:

> Terminological work, sometimes known as applied terminology or terminography, refers to activities associated with identifying and describing concept-term units in a specialized field. Although it can be practiced in a monolingual setting, for example in the context of technical writing, terminology has a long-standing close association with translation.

Terminology as a field of study is closely related to other minor fields such as translation studies, language for special purposes, lexicography, etc., as well as to major fields such as linguistics, cognitive studies, sociology, and philosophy (of science).

Cabré Castellví (1999b, 7-8) wrote:

> The aim of terminographers is to assign names to concepts; i.e. they move from the concept to the term (an onomasiological process). By contrast, lexicographers start with the word—the dictionary entry—and characterize it functionally and semantically; i.e., they move from the word to the concept, precisely in the opposite direction (a semasiological process).

This article aims at a brief introduction to the field of terminology and its object of study, its associated theoretical approaches as well as to illuminate the relations between terminology and knowledge organization.

2.0 Term and terminology

Terminology is vocabulary associated with a certain domain (discipline, profession, or activity), and is therefore part of the domain's special language. Knowing the terminology is an important part of being able to communicate and understand knowledge in a given domain. Kageura (2015, 48) discussing the concept "term" wrote:

> It is a matter of choice whether we should include extra-linguistic symbols that represent concepts or objects in a specialized domain such as chemical formulae or mathematical symbols and there is no inherent reason to exclude these and limit the range of designations to linguistic items. Systematic nomenclature such as the Latin names of fungi can also be regarded as a type of term.[2]

Thus, while some terminology researchers (e.g., Bessé, Nkwenti-Azeh and Sager 1997) limit "terms" to be "linguistic symbols" Kagura argues that there is no inherent reason to exclude non-linguistic signs from representing terms.

Sager (1990, 19) wrote about the meaning of "term" and "terminology":

> The lexicon of a special subject language reflects the organizational characteristics of the discipline by tending to provide as many lexical units as there are concepts conventionally established in the subspace and by restricting the reference of each such lexical unit to a well-defined region. Besides containing a large number of items which are endowed with the property of special reference the lexicon of a special language also contains items of general reference which do not usually seem to be specific to any discipline or disciplines and whose referential properties are uniformly vague or generalized. The items which are characterized by special reference within a discipline are the 'terms' of that discipline, and collectively they form its 'terminology'; those which function in general reference over a variety of sublanguages are simply called 'words', and their totality the 'vocabulary'.

However, not all terminologists find the distinction between "word" and "term" fruitful. Faber and López Rodríguez (2012, 22) wrote: "[I]t [frame-based terminology] also maintains that trying to find a distinction between terms and words is no longer fruitful or even viable, and that the best way to study specialized knowledge units is by studying their behavior in texts".

3.0 Terminology as a field of study

3.1 Before Wüster

Eugen Wüster is often recognized as the founder of terminology. A dissertation about the reception of his work (Campo 2012, iii) thus found:

> Wüster is recognized as an important founding figure in modern terminology, as a pioneer of terminology standardization, and as the first author to propose a theory of terminology.

Before we look at Wüster's views and later developments in terminology, we shall provide a glimpse of what came before as presented by Cabré Castellví (1999b, 1)

> Although the systematization of terminology and its scientific status are recent developments, activities in the field date from much earlier. In the 18th century research in chemistry by Lavoisier and Berthollet or in botany and zoology by Linné exemplify the interest that the naming of scientific concepts has always had for the real protagonists, the specialists. Due to the growing internationalization of science in the 19th century the need for scientists to have at their disposal a set of rules for formulating terms for their respective disciplines became apparent. Botanists (in 1867), zoologists (in 1889) and chemists (in 1892) expressed this need at their respective international meetings.
> In the 18th and 19th centuries scientists were the leaders in terminology; in the 20th century engineers and technicians have become involved.

Budin (2006, 91-4) provided a brief but valuable overview of the philosophical foundations of terminological studies prior to Wüster, but the "prehistory" of terminological studies is complex and in need of more studies.[3]

3.2 Eugen Wüster (1898–1977)

Cabré Castellví (2003, 165) introduced Wüster this way:

> It is fair to say that all Wüster's life was devoted to terminology. With his work he pursued a number of objectives, intended:
> 1. To eliminate ambiguity from technical languages by means of standardisation of terminology in order to make them efficient tools of communication.
> 2. To convince all users of technical languages of the benefits of standardised terminology.
> 3. To establish terminology as a discipline for all practical purposes and to give it the status of a science.

Wüster began his work in the 1930s. His doctoral dissertation (Wüster 1931) formed an important basis. According to Campo (2012, 54) Wüster's doctoral dissertation laid the foundations for terminology as an independent discipline and afterwards established terminology science. It may be the first systematic model of terminology and the first description of language for specific purposes, focusing on standardizing technical language. Cabré Castellví (1999b, 225) wrote, citing Picht (1984), that the Russian translation of Wüster's work led the ISA (International Standardization Association) to establish its Technical Committee 37 for unifying the methods and presentation of specialized terminologies. World War II stopped the work of TC 37, but it was resumed in the 1950s, thanks (again) to Wüster's interest in the subject. Wüster showed from the beginning a great interest in language planning, which includes standardization of terminology and the use of artificial languages such as Esperanto, Volapük and Interlingua, and he contributed much to both areas. During World War II (1939 to 1945) his terminological activities were paused.

Among his later works is Wüster (1968) *The Machine Tool. An Interlingual Dictionary of Basic Concepts*, which is a systematically arranged French and English dictionary of standardized terms, intended as a model for future technical dictionaries. It comprises an alphabetical dictionary and a classified vocabulary of machine tools with definitions and illustrations systematically organized according to the UDC system.

The main work to establish terminology as a discipline took place in the 1970s. Wüster (1974a) is an article in the journal *Linguistics* with the title "Die allgemeine Terminologielehre - ein Grenzgebiet zwischen Sprachwissenschaft, Logik, Ontologie, Informatik und den Sachwissenschaften". The title expresses which related disciplines Wüster saw terminology as drawing on. Because the version of linguistics existing at the time (Chomsky's and structuralist theories) did not study the relations between objects and concepts, Wüster included ontology and special sciences in terminology, and he found that language specialists as well as domain specialists need to be involved in terminology work.

The final version of Wüster's principles was published posthumously as Wüster (1979), edited by Helmut Felber based on an unfinished manuscript and his lecture notes. It is often referred to as the General Theory of Terminology (GTT). However, according to Cabré Castellví (2003, 166) "The title *The General Theory of Terminology* only appeared in later references to this work in French, English and Spanish," whereas Wüster himself never spoke of a "Theorie", although the German word exists and is widely used, but always of "Lehre" which implies practical guidelines rather than a purely theoretical approach to a subject.[4] (An extensive list of Wüster's work is given in Felber 1998 [5]).

Cabré Castellví (2003, 167) described Wüster's position as follows:

> If we take Wüster's posthumous book as point of reference, it is obvious that it represents an attempt to sharpen the distinction between terminology and linguistics in order to arrive at an autonomous discipline the object of which are no longer terms considered as units of natural language, but concepts considered as clusters of internationally unified features which are expressed by means of equivalent signs of different linguistic and non-linguistic systems. The key to this position lies, it appears, in the supposition that a concept is universal, independent of cultural differences and that consequently the only variation possible is that given by the diversity of languages. For Wüster the scientists and technicians of a particular language characterised — or rather, should characterise — a subject field in the same way so that the only differences that might arise would be the result of their different languages or their use of alternative designations for the same object. Both divergences could disrupt professional communication and hence Wüster was a staunch advocate of a single language for scientific and technical communication. Once he had abandoned the idea that Esperanto could be used to this end, he saw the only solution to the problem of inter- and intralingual synonymy of designations in standardisation.

Among the critiques of Wuster's theory is Smith, Ceusters and Temmerman (2005), which focuses on a critique of Wüster's concept theory. Although it rightly criticizes

Wüster's definition of concepts in terms of lists of necessary and sufficient conditions, Smith et al.'s "realist" alternative to concept theory is problematic by suggesting that "entities in reality" can replace concepts. The authors wrote (2005, 651; italics in original), referring to medical diseases: "Almost all disorder terms are introduced, not because we already have a clear definition reflecting known characteristics, but because we have a *pool of cases*". Certainly, but how cases are pooled together varies among researchers and cannot be taken for an objective process, but something that presupposes a conception of the characteristics shared by the cases. Therefore, we still need to talk of conceptions and concepts in classification processes (see further in Hjørland 2021).

Felber (1984, 98) mentioned three characteristics specific to the theory of terminology:

1. Any terminology work starts with concepts. It aims at the strict delimitation of concepts. The sphere of concepts is independent of the sphere of terms.
2. Only the terms of concepts, i.e. the terminologies, are of relevance to the terminologist, not the rules of inflections and the syntax.
3. The terminological view of language is a synchronic one, i.e. for terminology the present meanings of terms are important. For terminology the system of concepts is what matters in language.

3.3 After Wüster

3.3.1 Overview

According to Faber and L'Homme (2022, 1-2) "there is one year that stands out as a turning point that transformed Terminology forever. This watershed moment was at the beginning of the 1990s. The period before 1990 is strongly associated with the General Theory of Terminology (GTT) whereas the period after 1990 witnessed a host of new approaches to Terminology". Some scholars now refer to GTT as "traditional terminology" or the "Vienna" school.[6]

Cabré Castellví (2003, 171-2) found that the critique of traditional terminology comes from three sides: from cognitive science, from the language sciences and from the communication sciences.

> Cognitive psychology and philosophy have stressed the difficulty of drawing a clear separation between general and specialised knowledge and have shown how general knowledge contributes to the acquisition of specialised knowledge. They have also pointed out the important part interlocutors play in the construction of knowledge through discourse and the omnipresence of culture (even scientific culture) in the perception of reality.
>
> The language sciences, especially linguistics and sociolinguistics, have questioned the rigid division of general and specialised language and thoroughly examined the social bases of special languages and they have formulated generalised hypotheses which may lead to models in which the general and the specialised can be integrated. In this type of language science semantics and pragmatics play an important role. Beside the formal aspect of language, linguistic models suitable for terminology must account for the cognitive and functional aspects. Text linguistics and corpus linguistics provide a grammatical framework which extends beyond the sentence limits of structural linguistics and the standard generative models.
>
> The communication sciences have developed diversified situational scenarios of communication and have proposed models in the form of frames in which specialised communication is integrated as a set of options inside a single schema, rather than treating it as a different type of communication. Discourse analysis is increasingly interested in specialised discourse and its social representation and distribution.

Faber and López Rodríguez (2012, 11-31) classified theories of terminology in this way:

1. General terminological theory (i.e., Wüster's approach, see above 3.2)
2. Social and communicative terminology theories
   - Socioterminology (see below 3.3.2)
   - The Communicative theory of terminology (see below 3.3.3)
3. Cognitive-based theories of terminology
   - Sociocognitive terminology (see below 3.3.4)
   - Frame-based terminology (see below 3.3.5)

(We follow this classification below, but add 3.3.6 Dynamics of terminology)

3.3.2 Socio-terminology

Socio-terminology seems to be a large family of approaches to terminology, which emphasizes the broader study of discourses and corpora for the study of terminology. The term is mostly associated with the French university city of Rouen. Delavigne and Gaudin (2022, 179) wrote:

> The dawn of Socioterminology also coincided with that of other terminology theories described in this volume. Different voices began to propose alternative models, such as the Communicative Theory of Terminology (Cabré 2000) and the Sociocognitive The-

> ory of Terminology (Temmerman 2000, [2022] this volume). These theoretical principles are either consistent with Socioterminology or are at least compatible with the socioterminological approach. Textual Terminology (Bourigault and Slodzian 1999; chapter by Condamines and Picton in this volume [2022]), which is close to socioterminological in terms of theoretical stances and methodologies, is regularly mentioned (see Condamines 2018b, 2018a; L'Homme 2020c). Other approaches, which did not catch on, include Psychoterminology (psychoterminologie) (Kim 2017, see supra [7]). Other branches of Terminology are Cultural Terminology (Diki-Kidiri 2008, this volume [2022]), Ethnoterminology (Depecker 2013) and Pragmaterminology, which in many respects are similar to Socioterminology (Delavigne and Vecchi 2016; Vecchi 2016; Parizot 2014). Some contributions in this book bear witness to this.

Humbley (2018, 469) evaluated this approach: "In conclusion it would appear that socioterminology does not constitute a branch of terminology in its own right, but that it has been a useful excursion".

3.3.3 The Communicative theory of terminology (CTT)

According to Bowker (2009, 287) "Sager (1990) was perhaps the first scholar to actively call for the addition of a communicative dimension to terminology, with the consequence that terms are now studied in texts rather than being considered as context-independent labels". Cabré Castellví (1999a, 2003 and elsewhere) took up this call and developed a theory named the *Communicative theory of terminology* (CTT). Marzá (2008, 121) wrote about this theory:

> CTT not only takes into account the linguistic, pragmatic and communicative aspects of the specialised lexical units, but also designates the specialised text as the base unit for its analysis. In this way, terminological research acquires a textual dimension that allows the terminologist to observe texts in context, which at the same time leads to the adoption of a phraseological dimension. Thanks to this, not only single terms have been studied in this research, but also other kinds of combinations of terms that work within the specialised text.

Faber and López Rodríguez (2012, 16) evaluated CTT in this way:

> At this time the Communicative Theory of Terminology is probably the best candidate to replace the General Theory of Terminology as a viable, working theory of Terminology. It has led to a valuable body of research on different aspects of Terminology such as conceptual relations, terminological variation, term extraction, and the application of different linguistic models to Terminology. This has helped Terminology as a field to get its act together, and begin to question the premises of General Terminology Theory, which previously were not open to doubt or criticism.
> However, the Communicative Theory of Terminology is not without its shortcomings. Despite its clear description of the nature of terminological units and the fact that it mentions a term's "syntactic structure and valence", the Communicative Theory of Terminology avoids opting for any specific linguistic model. The relation of the Communicative Theory of Terminology to Linguistics is more in the nature of a light flirtation with various models than a monogamous relationship with any one model in particular. Its view of conceptual semantics is also in need of clarification. Although in a very general way, the Communicative Theory of Terminology bases its semantics on conceptual representation, it is more than a little vague when it comes to explaining how such representations are created, what they look like, and what constraints they might have ...

CTT is based on a deep study of various theoretical positions and is probably the most elaborate proposal in the field. Importantly, it is open for the different needs in different contexts and represent a very informed approach. However, the issue of how epistemological views represent the ultimate view on how terminology might be standardized, as we return to in Section 3.3.7.1 and in the general conclusion (Section 5), is not recognized.

3.3.4 Socio-cognitive terminology

Temmerman (1997, 2000) argued for a new position in terminology, called "socio-cognitive terminology" which is contrasted to "traditional terminology". The most important analysis by this author is the relation of traditional terminology with the philosophy of logical positivism. Under the headline "The objectivist model of traditional Terminology", Temmerman (1997, 54) wrote:

> In traditional Terminology the full potential of the three elements of the semantic triangle was deliberately not explored nor exploited. [...]
> Underlying all this is logical positivism's belief that for clear thinking natural language is an obstacle. A calculus, i.e. a formal axiomatic system, would be ideal. In formalising an existing axiomatic system var-

> iables are replaced by meaningless symbols. In doing so one obtains a logical system without meaning which allows for the objectification of several purely formal deductions. A calculus allows for a sum up of existing theoretical systems in short symbolic representations which permits more insight in the purely logical relations between diverse statements. Natural language is treated as a necessary evil which one tries to constrict.

However, Temmerman's criticism of objectivism and her alternative philosophical position seems unclear and to represent pure philosophical idealism. She wrote, for example:

> The Saussurian structuralist principles of language description are in line with objectivism, i.e. the belief that there is an objective world independent of and regardless of human observation and experience.

How can Temmerman seriously deny that an objective world exists? There is an important difference between claiming that something exists objectively and that it can be described objectively, and Temmerman has misunderstood Lakoff, from where the distinction between objectivism and experientialism was obtained.[8] Recent developments in, for example, biological taxonomy, makes it clear that there is no agreement about how to define a species or which properties to prioritize in descriptions and classifications, but this does not mean that the biological world does not exists objectively. Therefore, what the criticism of positivism has accomplished is the need to consider how different human needs and interests affect the way we describe things.

According to Faber and López Rodríguez (2012, 20) sociocognitive theory has begun to focus on ontologies for implementing conceptual relations, which now use the term *termontography* as a combination of terminology, ontology and terminography, however (21):

> Even though termontography was initially a brainchild of Sociocognitive Terminology, over the last few years, it seems to have evolved far beyond it to the extent that it now seems to have acquired a life of its own, and to have become a totally different entity. The sophisticated knowledge engineering techniques and ontology creation processes described in articles, such as Kerremans, Temmerman, and Zhao (2005), have little or no relation to the cognitive model analysis first described by Temmerman (2000, 2001: 84–85). As it stands now, termontography seems to have undergone a complete metamorphosis to the point of bearing little resemblance to the initial premises of Sociocognitive Terminology.[9]

The sociocognitive view in terminology can be understood as a part of an interdisciplinary cognitive metatheory, which has also been influential in information science, and has a limited presence in KO (see Hjørland 2013, Section 9). This view is based on some problematic assumptions (ibid.), and although the term "socio" is added in the approach suggested in terminology, and the approach provided some valuable principles, the basic problems remain unresolved. This seems implicitly to be recognized by Temmerman, because, as stated by Faber and López Rodríguez, her approach seems to have become something completely different from its point of departure.

3.3.5 Frame-based terminology

Frame based terminology is an approach to terminology based on "frame semantics" (e.g., Fillmore 1976) which is again related to frame theory in cognitive psychology (see e.g., Whitney 2001; see also Whitney et al. 1995 for a critical discussion of frame theory). A leading researcher in the field of terminology is Pamela Faber, and a main collection on the subject is Faber (2012). Faber and López Rodríguez (2012, 27) wrote:

> One of the basic premises of this approach is that the description of specialized domains is based on the events that generally take place in them, and can be represented accordingly (Grinev and Klepalchenko 1999). Each knowledge area thus has its own event template (see Figure 1 [here omitted]), which provides a frame for the organization of more specific concepts. The specific concepts within each category are organized in a network where they are linked by both vertical (hierarchical) and horizontal (non-hierarchical) relations.

One of the most interesting things about frame-based terminology is the conceptualization of specialized domains in a goal-oriented, functional way that to a certain degree depends on the task to be accomplished. By implication, certain kinds of semantic relations play a more important role compared to traditional approaches. Faber and López Rodríguez (2012, 115):

> [R]esearch results in this area indicate that knowledge acquisition requires simulation of human interaction with objects, and this signifies that non-hierarchical relations that define the goal, intended purpose, affordances, and result of the manipulation and use of an object (e.g. has_function, affects, has_result, etc.) are just as important as hierarchical ones, such as type_of or part_of.

It should be said that the terminological resource *EcoLexicon* (LexiCon Research Group, n.d.) is developed from the theory of frame-based terminology.

3.3.6 Dynamics of terminology

Kageura (2002) is the study of a specific terminology from the field of documentation,[10] which suggested some novel principles (250):

> The present work started by examining the definitions of terms and related notions, as well as the basic characteristics of terms and terminology. Through this, we arrived at an essential contention for this study, namely that the study of terminology should first and foremost target the terminology of a domain in its totality and should not just deal with individual terms or arbitrarily selected examples of terms. This is a minimum requirement for a theoretical study of terms — as distinct from a theory of something applied to describing some exemplar terms — because a theory of terms or terminology must reflect the essential nature not only of terms as empirical objects but also of the very categories term and terminology. Closely related to this is the contention that "concept" cannot be an essential consolidating factor of terminology.

Araúz, Faber and Martínez (2012, 114) describe and evaluate the broader field of dynamic representations. For now, it shall just be suggested that such an approach (dynamic, historical, genealogical) has proven itself important for knowledge organization and therefore should be given further attention.

3.3.7 Conclusion of Section 3

3.3.7.1 The relative neglect of philosophy of science

Although important insights have been gained in the field of terminology, much indicates that its theoretical basis is still in an unsatisfactory state. Faber (2012, 249), for example, wrote:

> As a discipline, Terminology started out as a practical activity without an explicit theoretical component. For some time now, Terminology has been in search of a theory, which can account for specialized knowledge representation, category organization, and description, as well as the semantic and syntactic behavior of terminological units in one or various languages. Over the last twenty years or so, Terminology has tried on theories and progressively shed them.

Faber (ibid.) continued: "Our position, as reflected in this book, is that Terminology is essentially a linguistic and cognitive activity". In a way, this is a trivial claim, but in another way, it is not. If the claim is understood as the proper theory of terminology should be sought among general linguistic or cognitive theories, it is not a view that is generally accepted in KO nor is it shared by the present author.[11] From the start, terminology was an activity focusing on different scientific and technological domains. The strange thing is that the logical implication seems not yet to be recognized in the field: Theories of terminology should first be sought in theories of science (and other domains), as suggested by the paradigm-analytic approach in LIS (see Hjørland 2017). If we, for example, take the field of biological systematics, the different schools tend to develop competing views and terminologies, not just the naming of the single species, but also about the species concept itself (see Minelli 2022). Another example is Art studies (Ørom 2003), where different "paradigms" develop different principles of terminology and classification of works of art.[12] Therefore, a general theory of terminology must claim that the terminology in a given domain reflects the assumptions and conceptualizations that have dominated in that domain, and that competing paradigms tend to develop competing concept systems and terminologies. Still, this is in accordance with Faber's claim, "that Terminology is essentially a linguistic and cognitive activity", but acknowledging that researchers in different "paradigms" tend to develop *different* linguistic and cognitive activities.[13] Whereas linguistics is mostly focusing on given natural languages, such as English, and often understand semantics as tied to the individual language,[14] terminology is focusing on special languages. In the general conclusion (Section 5) we shall return to this understanding by briefly considering the view developed by philosopher of science, Thomas Kuhn.

Just as the domains studied by terminology are influenced by underlying philosophical assumptions, so is the field of terminology itself. These assumptions have, in the literature referred to in Section 3, mostly been termed "theories of terminology", but have only marginally been considered in the perspective of different epistemologies or philosophies of science. Although "socio-cognitive terminology" considered Wüster "positivist" and by contrast considered itself "experientialist", we saw in Section 3.3.4 that this was not a well-considered position, and that the socio-cognitive terminologist Temmerman seeming left her own theoretical foundation. A clear analysis of, and alternative to, "positivism" seems not to have been developed in terminology, somewhat in contrast to the closely related field of translation, where pragmatism, critical theory, hermeneutics, semiotics, and feminist epistemology are among the alternative views (see, e.g., Baker and Saldanha 2020).

Very few researchers in terminology have considered such questions. An exception is Antia (2000, 89) (citing Budin), writing:

> It has been argued by Budin (1994) that an epistemological position for a terminological object theory must transcend the naive realism inherent in Neo-Positivism and the solipsism epitomised by Radical Constructivism (see note 7).[15] [...]
> To give salience to these intermediary positions, or to adopt a broad epistemological outlook, is to subscribe to ontological pluralism, rather than to ontological unity, which in practical terms means that object representations as reflected in disciplines or terminologies are no more than ontological heuristics or hypotheses whose adequacy is determined ultimately by pragmatic considerations.

Such ontological and epistemological questions are in my view essential to address to make progress in terminological studies as well as in KO.

3.3.7.2 Prescriptivism vs. descriptivism

Faber and López Rodríguez (2012, 12) wrote about this dichotomy:

> As a rule, terminology theories can be classified as either prescriptive or descriptive. General Terminology Theory, which has the virtue of being the first theoretical proposal in this area, is essentially prescriptive in nature. As shall be seen, the theories that subsequently arose in reaction to the General Terminology Theory are descriptive ...

However, Myking (2001, 63) had formerly discussed this view. Considering arguments put forward by 'socio/cogni tive/terminology,' he wrote:

> Several broad questions emerge from this discussion, as well as some answers.
> – Identifying traditional terminology with 'prescriptivism': is it justified? On 'loyal' reading the answer is no, but there have admittedly been some legitimate reasons for this impression.
> – Do prescriptive objectives constitute an obstacle to a sound terminology? The main answer is no. Nevertheless, there is a little "yes", in the same way as general language planning in most communities also constantly runs the risk of neglecting sociolinguistic evidence.
> – Has traditional terminology been 'cut off' from society? The answer is of course that this question is largely based on misconceptions. The social dimension and the descriptive tasks of terminology have not always, however, been explicitly integrated and thematised in the theory of terminology, leaving terminology with the image of a purely 'technical tool'.

Oaks (2021) discusses the problem of prescriptivism vs descriptivism in linguistics. He rejects the claim made by Trask (1999, 47-8) that modern linguists utterly reject prescriptivism, and instead base their investigations on descriptivism (except in certain educational contexts). Trask also claimed (ibid.) that prescriptivism, in great contrast to descriptivism, is not a scientific approach. Oaks (2021, 4), however pointed out that prescriptivism exists, for example, in the work of lexicographers and even descriptive grammarians. He also mentions several problems in considering this dichotomy, citing Greenbaum (1986, 192), that the "the dichotomy is not valid for another reason: a descriptive grammar embodies value judgments" and citing Bruthiaux (1992, 225) that "the paradox of descriptive linguistics, namely that the problem of describing a language without providing a standard has yet to be solved".

This dichotomy in terminology reminds us about the distinction between "natural classifications" and "artificial classifications" in KO. As terminology also classify concepts, this distinction is also relevant in this field, and puts the issue of prescriptivism and descriptivism in a new light because it constitutes an alternative: neither prescriptivism nor descriptivism corresponds to a natural classification. Terminology should be evaluated according to whether the terms reflect contemporary theory and knowledge, so the problem of descriptive or prescriptive terminology corresponds to the problem of controlled vocabulary (CV) in KO (see Rowley 1994 for a review). There is no overall answer about the relative benefits of controlled vocabulary compared to "natural language",[16] but specific CVs may serve in valuable ways depending on specific contexts and the same may be the case of a prescriptive vocabulary. The most important task is, in all cases, to examine a given terminology in relation to the current state of knowledge in a given domain.

4.0 Terminology and knowledge organization (KO)

Ambiguous terminology including issues such based on polysemy, synonymy, and homonymy, which obviously presents obstacles to scientific and scholarly communication, and this problem is shared by the field of terminology and KO, for example, in relation to CVs.

The similarities between the fields of terminology and knowledge organization are striking. Both fields tend to take their point of departure in theories of concepts, in rela-

tions between concepts, in knowledge organization systems and in knowledge organization processes such as defining terms or clarify their meaning, which includes determine their relations to other terms. Both fields have the same ambition of being practically relevant (i.e., they are practice-oriented) as well as being a theoretical and empirically based scholarly field. In a way, the object of study of both knowledge organization and terminology are terms in documents belonging to different domains and genres. Both fields consider their contribution to information retrieval as among their goals.

Cabré Castellví (1999b, 8-9) wrote:

> Information science uses terminology to order concept fields that subsequently provide access to information about the documents. In Wüster's view, writing thesauri is a terminological activity because it focuses on the characteristics and structuring of content. Thesaurus descriptors are terms and characteristics at the same time, and the relationships established by terms in documents are considered to be logical relationships.

Almeida (2021) wrote (in Portuguese) about the relationship between terminology and knowledge organization. The English abstract (26-7) said:

> This article assumes that the tools used for knowledge organization purposes (e.g., thesauri, classification schemes...) may be understood as terminological resources. We investigate the relationship between terminology and knowledge organization from the double-dimension perspective (both linguistic and conceptual) of terminology as a field of study. Then, we propose an analysis of the concepts underlying designations such as 'documentary language', 'controlled vocabulary' and 'knowledge organization system' in specialized texts. We conclude with an overview of SKOS (Simple Knowledge Organization System), a model to represent knowledge organization systems in the semantic web, which is evaluated in terms of its ability to model terminological resources according to the double-dimension approach and the main elements of the ISO 1087[2019] standard.

KO is about terminology and the founder of the study of terminology, Australian engineer Eugen Wüster (1898–1977), was, with Ingetraut Dahlberg, among the founders of the journal *International Classification* (now *Knowledge Organization*).[17] There have been sporadic relations between members of the two communities during their history, such as Dahlberg's relation to *Infoterm* (see Appendix 1) and her later article on KO and terminology (Dahlberg 1992). Other connections include the terminologists Verplaetse and Wermuth's (2019) contribution to an ISKO conference, presenting knowledge organization systems which also are of great interest for the field of knowledge organization (see also Wermuth and Verplaetse 2019). Recently, Golub et al. (2014) considered terminology registers in the context of information science and Ramos wrote a PhD considering the topic of cork from the perspective of KO and terminology.

One person contributed, in particular, combining KO and terminology: the French linguist and information scientist Jacques Maniez (see Hudon and Mustafa El Hadi 2022). He devoted much of his professional life to what in French is called langages documentaires (documentary languages, corresponding to the common English equivalent "indexing languages" or "classification and indexing languages").[18] In this connection he also considered the differences, as well as the similarities between terminologies and information science tools such as classification systems and thesauri (see Maniez 1977).

In this Section 4, we have argued that KO and terminology are closely related fields. Unfortunately, however, they tend to be institutionally separated. This can be observed, for example, in separate educational programs, separate scientific conferences, separate journals and separate reference books. One reason for this separation is the different educational and professional structures. Terminology has often been part of translation studies and the education of translators and associated with applied linguistics at business schools or universities, whereas KO has mostly been part of library and information science (LIS) (with their separate schools or university departments). LIS itself is a merger of library science and information science, and whereas information science was originally, like terminology, focusing on scientific communication, this aspect has decreased (with exceptions such as bibliometrics), probably because the main task of LIS schools has been the education of librarians for public libraries as opposed to scientific libraries and databases, and because of difficulties attracting students to this area.

The conclusion of Section 4 is therefore that we should try to overcome the institutional separateness and to a higher extent try to learn from each other's experiences in developing the two fields.

5.0 General conclusion

Wüster is an influential figure in the history of terminology. He contributed immensely to the institutionalization of the field and provided what he termed "eine Lehre",[19] which had a very practice-oriented emphasis and represented the dominant "paradigm" in terminology studies from the 1930s and until about 1990. A core issue for Wüster was to

standardize the meaning of terms (to have a one-to-one correspondence between terms and concepts). This is the same goal that information science and KO try to solve by construing controlled vocabularies (CVs) and it shows the very related nature of terminology studies and KO. A fundamental problem in both fields is the problem caused by synonyms, homonyms, and polysemous words. Wüster's main goal seems to have been questioned by later researchers, cf., the title of Temmerman (1997) "Questioning the Univocity Ideal". In both the field of terminology and the field of LIS/KO the initial view of the possibility and necessity to provide standardized vocabularies of a universal nature has been challenged by subsequent theoretical positions.[20] These alternatives have focused much more on cognitive, social, and linguistic issues, but seems in terminology not to have found a satisfactory solution, as described above. In LIS/KO the present author has suggested "the domain analytic approach" mentioned in Section 3.3.7.1.

A brief description of the domain-analytic position in relation to terminology can be described the following way. At the time where both terminology studies and information science were established, the dominant position in the philosophy of science was "positivism" (a polysemous term, which shall not be discussed here, where it is used about the position that Kuhn (1962) attacked and to which he developed an alternative.)[21] The main difference between "positivism" and Kuhn's theory is that the latter stressed the import of shared background assumptions in the production of knowledge, that reality is not presented for us by a passive and objective observation of the world or by pure logical deduction, but our observations and deductions are theory-laden and influences by categorical assumptions, measurement theory, etc.

In relation to terminology, Kuhn demonstrated, for example, how astronomical terms changed meaning following the Copernican revolution, beginning about 1543, which changed the view of the solar system from having the Earth as the center (the geocentric model) to having the Sun as the center (the heliocentric model). The geocentric model, represented by Ptolemaic astronomers was by Kuhn (1962) understood as one paradigm, supplanted a new paradigm, the heliocentric model, represented by Copernican astronomers. So:

- In paradigm one: Ptolemaic astronomers might learn the concepts "star" and "planet" by having the Sun, the Moon, and Mars pointed out as instances of the concept "planet" and some fixed stars as instances of the concept "star".
- In paradigm two: Copernicans might learn the concepts "star", "planet", and "satellites" by having Mars and Jupiter pointed out as instances of the concept "planet", the Moon as an instance of the concept "satellite", and the Sun and some fixed stars as instances of the concept "star".

Thus, the concepts "star", "planet", and "satellite" got a new meaning and astronomy got a new classification of celestial bodies.

Although Kuhn's theory is not without problems, it provides a clear alternative to "positivism" and an important new way to understand terminology as well as KO.

The present article provides evidence of the relevance of terminological studies for the field of knowledge organization (or broader library and information science), which hopefully will inspire some interdisciplinary research between the fields. For both terminological studies and KO, the emphasis on the theory of science is stressed as important for further advancement.

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Endnotes

1. *Chicago Manual of Style* (University of Chicago Press 2017, § 8.85) recommends that academic subjects should not be capitalized (unless they form part of a department name or an official course name or are themselves proper nouns).
2. Kageura's quote (2015, 48) continued: "Whatever the choice is, it is important to bear in mind that the nature of individual terms is bound by the nature of the terminology to which they belong. Thus it may not be fruitful, as can be understood intuitively, to try to establish a grandiose theory of terms encompassing linguistic items, chemical formulae, mathematical symbols and artificial nomenclature". But is semiotics (especially Peirce's version) not an attempt to establish a grandiose theory of all kinds of signs? And many people believe today that semiotics can provide a fruitful basis for information science and terminology studies. (See also Galinski and Picht 1996).
3. One contributor omitted by Budin is the American philosopher Charles S. Peirce, who, besides his main work, or integrated with it, worked as a professional lexicographer and defined more than 11,000 terms for various dictionaries and was well aware of the importance that the creatin of a technical vocabulary has in establishing a field of research (Annoni 2014, 310). He also wrote theoretically about terminology (e.g., Peirce [1903]). His main contribution to terminology lies,

however, in his general contributions to semiotics and pragmatic philosophy, and has so far largely been neglected.

4. Cabré Castellví (2003, 166) wrote: "Unfortunately most critiques of the traditional theory of terminology take this book as the most representative of Wüster's ideas and address their objections and reservations to this text". She does not, however, provide a detailed analysis of how the consideration of Wüster's other texts would have modified the objections and reservations.
5. The bibliography includes non-published works and has the following main classes (subclasses not shown here): 1. Terminologie; 2. Dokumentation; 3. Klassifikation, Thesauren; 4. Sprachwissenschaft (with Lexikologie, Wörterbucher, Plansprachen – Esperanto); 5. Normung allgemein, 6. Organisation; 7. Technik; 8. Bibliographien; 9. Buchbesprechungen; 10. Hochschulwesen; 11. Veröffentlichungen über Wüster; 12. Würdigungen; 13. Persönliches.
6. In 1993, Laurén and Picht compared different theories, including the so-called Vienna School, the so-called Soviet School and the so-called Prague School and several other research traditions such as Canada, Germany, Scandinavia, and some more recent efforts. They found that these traditions have much in common and that these "terminology schools" never really existed as sharply separated and isolated traditions. (Picht 2006 is a later presentation of terminological traditions and theories including chapters on terminological studies in Russia (Shelov and Leitchik 2006), the Nordic Countries (Pilke and Toft 2006), Canada L'Homme 2006), Romance language Countries (Costa 2006), German–speaking communities (Budin 2006), and Anglo-Saxon countries, Rogers and Wright 2006).
7. Delavigne and Gaudin (2022, 182): "The socioterminological approach often comes into play when greater emphasis is placed on describing variation for purposes of language policy. Kim (2017) argues that socioterminological factors of implantation coincide with these criteria and are not consistent with terminological, psychoterminological, and extraterminological factors".
8. Lakoff (1987, xv): "I will refer to the new view as *experiential realism* or alternatively as *experientialism*. The term *experiential realism* emphasizes what experientialism shares with objectivism: (a) a commitment to the existence of the real world, (b) a recognition that reality places constraints on concepts, (c) a conception of truth that goes beyond mere internal coherence, and (d) a commitment to the existence of stable knowledge of the world."
9. The quote by Faber and López Rodríguez (2012, 20) continues: "For example, the conceptual representations proposed are in the form of computer-implemented ontologies. No mention is made of prototypes, idealized cognitive models, or radial categories, all of which seem to have been overridden. This is not necessarily a bad thing since, if the truth be told, cognitive linguistics representations, with the possible exception of frames, do not work well in computer applications. Nevertheless, it is extremely difficult to reconcile the ontology engineering described in recent articles with the conceptual representation advocated in Sociocognitive Terminology. The examples of termontographic conceptual relations mentioned by Kerremans, Temmerman and Zhao (2005) (e.g. *has_subtype* and *is_kind_of*) appear to be rather similar to generic-specific relations of the traditional sort, which Sociocognitive Terminology eschews".
10. Kageura's study (2002) was based on comparing the terminology of Wersig and Neveling (1976, Japanese translation 1984) with the terminology published by Japan Society of Library Science (1997).
11. Dahlberg (2011, 69) argued against understanding concepts as word-meanings and wrote: "Against this view I must underline that KO deals with language only incidentally as it primarily deals with concepts representing Knowledge Units". There need not be, however, a conflict here because concepts can be understood as knowledge units established by scientific research and theory, whereafter these concepts are lexicalized in scientific communication and thus the meaning of scientific words represent concepts.
12. In the field of chemistry, Bawden (2017) wrote: "... particularly to someone like myself who studied chemistry, it is interesting to reflect on the extent to which information representation and communication has gone hand-in-hand with the development of concepts and theories in chemistry, so that it is difficult to tell where the one ends and the other begins".
13. Ammon (1977) contains an important introduction to language for special purposes ("Fachsprache"), unfortunately only available in German and Danish.
14. For example, the Danish structural linguist Louis Hjelmslev (1943) found that the individual languages (e.g., Danish, French, German, and Spanish) put a classificatory net, that provided somewhat different meanings of them such as "tree". Another example is that Hedlund, Pirkola and Järvelin (2001) in the title of their document used the phrase "Swedish morphology and semantics" as if Swedish has a semantics of its own.
15. Antia (2000, 88, footnote 7): "7. A reading of Budin (1996: 21) suggests that this neglect of ontological issues is actually widespread, that is, in fields other than linguistic ones where there has similarly been contentment with simplistic working models that situate at the

extreme poles of Neo-Positivism (naive realism) and Radical Constructivism. The former posits that the world is structured, and perceived cognitively along lines indicated by this structure. The latter claims that the world is no more than our construction of it, denying in effect the existence of an external reality (Budin 1994)".

16. The term "natural language" is in KO the standard term for the language found in texts to be retrieved as opposed to classification and indexing attributed to the texts. However, the texts in, for example, chemical literature, is a special language opposed to a general language such as English. Natural languages, such as Danish and Norwegian differ in their degree of standardization (e.g., in spelling), and may change in this respect over time. The term "natural language" is therefore a vague term as we should not expect the difference between CVs and natural language to be independent of the kind of natural language in question.
17. The journal *International Classification*, founded in 1974, included in 1978 the phrase "Systematic Terminology" in its subtitle. This was, however, removed in 1993.
18. The terms "documentary languages", indexing languages etc., were criticized by the Danish engineer, linguist, and information scientist Henning Spang-Hanssen, who found (1974, 40), that systems for representing subjects such as classification systems and thesauri cannot form texts [or languages] but constitute inventories from which the subject representation happens by election.
19. Wüster always used the term "Lehre", but his followers subsequently called it "theory" (the General Theory of Terminology, GTT). Perhaps the difference between these two words is not great. Darwin's theory of evolution, for example, is often used as synonymous with "Darwin's Lehre." The word "theory" has different meanings, but an important trend is to consider it in a very broad sense, e.g., in relation to theory-ladenness and "theory-theory" about even implicit assumptions. An important argument for considering Wüster's "Lehre" a theory is also that it gave rise to many alternative theories.
20. About theoretical developments in LIS see Hjørland (2018.a+b).
21. Whether Kuhn (1962) represented an alternative to positivism or part of that position has been questioned; Bird (2003, 131-2), for example wrote: "Kuhn was only partially aware of what was and what was not a positivist doctrine. As such he was not able to see that his views represented a continuation of positivism as much as a departure from it". So, as said, "positivism" is a polysemous term, and any person may agree or disagree to be considered positivist, depending on which claims are considered central. My own position should be clear, that Kuhn's view represents a clear alternative to what is considered positivism, such as the idea of the neutrality of controlled vocabularies in relation to the knowledge they classify.
22. Dahlberg's endnote 2: "COCTA = Committee on Conceptual and Terminological Analysis of the ISSC (International Social Science Council), IPSA (International Political Science Association), and ISA (International Sociological Association".
23. Dahlberg's endnote 3: "See the report about INTER CONCEPT in Intern. Classificat. 5 (1978) No.2, p. 102".
24. Dahlberg's endnote 5: "E. Wüster's first edition of (2) appeared in 1931. Afterwards he was highly influential in starting international and national standardization activities in terminology (and other fields as well)".
25. Dahlberg's endnote 6: "To mention just the most important ones in this context: ISO/R 704 [1968] 'naming principles' and ISO/R 1087[1969] 'Vocabulary of terminology'. [ISO/R 704:1968 is now withdrawn and replaced by several later editions, the newest being ISO 704:2022 *Terminology Work - Principles and Methods*. ISO/R 1087:1969 has been withdrawn.]"

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Appendix 1:
"Infoterm" and Dahlberg's concept theory

Infoterm (International Information Center for Terminology) is a non-governmental organization founded in 1971 based on a contract between UNESCO and the Austrian Standards Institute (ASI). It emerged from the activities of a terminology research center created by Eugen Wüster. The headquarter is in Vienna and the homepage is: http://www.infoterm.info/ The history, current activities, members etc. are described on the homepage. Wüster (1974b) wrote about it in *The Road to Infoterm.*

Dahlberg (1978, 142) described that the background for developing her concept theory is associated with Infoterm:

> By contrast [to COCTA[22]], the starting point of INTERCONCEPT was UNESCO's need to establish norms and facilities in order to support its General Information Program and, more specifically, to implement its planned Social Science Information Program[23]. Within the latter context, the theoretical and methodological framework of INTERCONCEPT was provided by Infoterm, the pioneer work of the late Eugen Wüster,[24] and by the recommendations of Technical Committee 37 of the International Standardisation Organisation (ISO/TC 37) as reflected especially in its draft standards on the theory and metaconcepts of terminological work.[25]

The concept theory itself is presented by Dahlberg (1978). The abstract (142) wrote:

> The concept theory presented, meant to serve as a basis for conceptual analyses of all terminological efforts, implies that every concept has a referent (be this a set of objects, a single object, an activity, a fact, a topic, etc.) about which verifyable [sic!] statements determining the properties and relationships of the referent in question can be made. The totality of all the verifiable and necessary statements on a referent may be summarized and/or synthesized by a term which will then represent a concept in any communication process. A concept is thus regarded as a knowledge unit, and the statements about its referent are found to be the knowledge elements, also known as the characteristics, of the given concept. The possibility of thus determining the characteristics of concepts permits the analysis, construction, reconstruction, correlation, categorization and definition of concepts as well as the formation and control of adequate terms and the construction and comparison of concept systems.

In the conclusion (ibid., 150) envisioned how her theory can solve the messy terminological situation when different schools of thought develop their own terminologies:

> It has been frequently stated that the terminological situation in the different schools of thought - including Marxism - and in the different subject areas is 'a mess'. In my opinion this 'mess' is mostly due to the fact that the metaconcepts of the concepts outlined above have been confused to a very large extent in everybody's mind, since no theoretical framework for their understanding and correct use has been available so far.
>
> This referent-oriented, analytical concept theory outlined is based on the assumption that man is able to formulate correct statements about the items of his direct and indirect cognition of the world. ...

Dahlberg was thus confident that her concept theory could solve the problem of incommensurability due to differences in the taxonomic structures of different approaches (concerning incommensurability see, e.g., Oberheim and Hoyningen-Huene 2018). A very clear example of incommensurable concepts and classification systems is biological taxonomy, where different taxonomic schools, for example, define "species" differently (see Minelli 2022). However, the reason for this terminological "mess" cannot be solved just by having scientific observations verified, as Dahlberg claimed. The problem is that any natural object (a bird, for example), has an unlimited number of properties, and that different schools of biological taxonomy give different priorities to different properties (the classical approach relies on the morphology of the bird, molecular taxonomy relies on DNA-sequences, etc.). Because such sets of properties often provide conflicting results, the terminological problem cannot be solved disregarding the theoretical issues in the species problem and the epistemology of biological taxonomy.