

# Conceptual Relationships and their Methodological Representation in a Dictionary of the Terminological Uses of Lexical Semantics

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**Abstract** For several years, a research project focused on the study of terminological uses of lexical semantics has been developed. From this investigation, in the terminographical praxis, we are observing considerably more conceptual content than could be expected, as the project is based in the creation of a lexicon of the technical uses of lexical semantics, rather than one of tecnicisms. This means that, starting from explanatory sub-indices, it is necessary to create as many terminological documents as there are different acceptions for each lexicographical entry. In this article, besides presenting the methodological procedure used for our explanatory model of terminological representation, as well as the terminological graphic interface the conceptual relations existing in lexical semantics will be highlighted. These will appear in a terminographic interface through nodes showing the type of relationship existing among terminological uses. Our main aim is to prove, by means of the analysis of a series of terms or terminological units, how the different conceptual relationships constitute a relevant rule for linguistic behaviour in the identification and establishment of the various uses and sub-uses corresponding to each terminographical entry.

**Keywords** Terminology, terminography, lexicography, lexical semantics, conceptual relationships, dictionary

## 1 Introduction

This paper is included in the I+D+i (Research, Development and Innovation Programme) excellence research project “Specialised communication and terminography: terminological uses related to the current contents and perspectives of lexical semantics” (TERLEX), funded by the MINECO (FFI2014-54609-P)<sup>1</sup>, whose ultimate goal is the compilation of a dictionary of the terminological uses of modern-day lexical semantics. However, in order to achieve this objective, we have first dealt with the following aspects from a theoretical standpoint:

<sup>1</sup> The paper is also involved in the projects “Linguistics and new information technologies: the creation of an electronic repository of linguistic documentation” (sol-201800107788-tra) and “Linguistics and digital humanities: a relational database of linguistic documentation” (PY18-2511), funded, respectively, by the Andalusian Government in the framework of the Operational Program Feder Andalucía 2014-2020 and by the I+D+i Excellence Projects in the Andalusian Research, Development and Innovation Plan (PAIDI 2020).

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- 1) defining which aspects of the classical approaches of the traditional lexicology are still wholly relevant in modern lexical semantics;
- 2) contrasting the more traditional approaches with recent paradigms, mainly by the comparison of the differing methodological positions regarding lexical semantics; and
- 3) establishing which new contents have been included in the theory of the discipline and which of them have achieved autonomy within the framework of semantic disciplines.<sup>2</sup>

Starting from this theoretical framework and within the field of terminographical praxis, we can observe in reality many more terminological uses than those we had foreseen at the outset of this research. This shows the extent of this ambitious and wide-reaching project and gives us an idea of the necessity and usefulness of this type of specialised dictionary, since it is not a lexicon of tecnicisms or terminological units, but, rather, of the technical uses of lexical semantics. For this reason, starting from explanatory sub-indices, terminological datasheets must be created, for each acception of the different terms. We must examine numerous units, since it is not a question of a simple lexicographical analysis of terms, but an analysis of terminological uses (each one having a different lexical entry). It is, therefore, a terminographical repertoire whose explanatory methodological model is based on conceptual use rather than on the term, with the aim of eliminating the ambiguity and the referential plurivocity of this terminology.

After establishing the current contents and approaches of lexical semantics (Casas Gómez/Hummel 2017) and creating a multilingual metalinguistic corpus, involving the digitisation of numerous doctrinal, documentary and lexicographical sources relevant to this area, we are in the process of completing the datasheets assigned to each member of the team, and the research groups are revising all the entries and terminological uses, in order to prepare for the publication of the dictionary. However, in order to achieve this general aim, three other specific objectives need to be addressed requiring detailed analysis:

- 1) the solution to questions relating to translatability and the conceptual adaptation of certain terminological uses, as occurs when we translate, with no further clarification, *meaning* by *significación*, *significado* or *Bedeutung*<sup>3</sup>, errors which are made worse the moment we identify the concepts of *significado* (*meaning*) and *sentido* (*sense*) in our metalanguage. In this way, the use of *sense* for *meaning* in Lyons' semantic theory (1977: 174–229) causes Cerdà (cf. Lyons 1980) to translate the English term by *sentido* when he should obviously have used *meaning* (*significado*);

<sup>2</sup> In this regard, see the results in the *Semántica léxica* volume, edited by Casas Gómez/Hummel (2017), in which the theoretical and methodological bases of modern lexical semantics are established and whose contents include the following sections: 1) limitations and new challenges in lexical semantics, 2) theoretical and methodological considerations, 3) the interfaces of lexical semantics with other linguistic disciplines, 4) the contribution of semantic theory in case studies, and 5) current approaches in lexical semantics: neology and terminology.

<sup>3</sup> Consider the different versions of some of Ullman's works (1952: 22f., 1974: 28f.), in which the denominations *meaning* or *signification* are applied indifferently to one single definition. This occurs very frequently in North American linguistics, where *meaning* normally refers to what is designated or is used as a general concept that includes designation and signified. Likewise, this justifies Alcoba's inclusion, in an article specifically dealing with this issue (Alcoba 1983: 143–152), of some considerations regarding the solutions adopted in the translation and adaptation of certain linguistic tecnicisms.

- 2) the unification of denominations in the terminographical repertoire, deriving, above all, from the widespread contraposition in linguistics of the formal and the semantic (*lexico-semantic, lexicology and semantics, lexicology or lexical semantics; lexical field, semantic field, lexical-semantic field; lexical change, semantic change, lexical-semantic change; lexical level, semantic level, lexical-semantic level; lexical analysis, semantic analysis, lexical-semantic analysis; lexical relationship, semantic relationship, lexical-semantic relationship, etc.*) as if a) forms were not the object of semantics and meaning were not a form of content, and b) lexicology were different from semantics on a lexical level (Casas Gómez 2006a and 2014); and
- 3) the study of the conceptual relationships presented in this specialised area, which will appear in the terminological interface using node diagrams indicating the type of relationship existing between terminological uses.

In this research, besides presenting the major advances in this project, we will focus on the third of the specific aims mentioned above. Our intention is to demonstrate, by means of the exemplificative analysis of a set of uses corresponding to certain terminological units of lexical semantics, that the different conceptual relationships are decisive in the determination of the existence of diverse acceptations. Therefore, they constitute a relevant rule in the identification and establishment of the different uses corresponding to each terminological entry.

## 2 Methodological proposal for terminographical representation

In recent years there have been major developments in the field of applied terminology or terminography with the assistance of auxiliary disciplines (Alcina Caudet 1997, Díaz Negrillo/Fernández Domínguez 2010, Guerrero Ramos/Anguita Acero 2004), such as documentation and information technology or terminotics, which are crucial in terminographic research. Likewise, work is being carried out on proposals for representative methodological models for the creation of the terminological document that is used as technical support for the collection of the specialised terms relating to certain subjects (specialised lexicons).

The following methodological phases were used for the creation of the data bank and the development of our project:

- 1) the formulation of our own model of a terminological database;
- 2) the creation of a multilingual metalinguistic corpus of texts on lexical semantics starting from the digitisation of 37 lexicographical repertoires and numerous doctrinal sources, approximately 6,000 documents chosen within the framework of a bibliographical repository of general and applied linguistics consisting of some 25,000 entries (Ramírez Salado/Álvarez Torres 2018); and
- 3) the design of a terminological graphic interface in order to facilitate access to a relational database centralised in a server.

As regards the current state of progress of the project, on the basis of this textual corpus of doctrinal and documentary sources and after creating certain experimental tests for the selection of potential terms and the existence of doubts regarding the terminological units that border on lexical semantics, we have carried out an initial selection of terminological units and uses in lexical semantics (523 terminological units, distributed among the researchers using a strict criterion of scientific adequacy), as well as a second list, containing 100 doubtful can-

didates for inclusion as terms and terminological uses, being borderline elements with lexical semantics.

2.1 *Our own model of terminological document*

In previous models of terminographical representation (Auger/Rousseau 1977, Cabré 1993 or Dubuc 1999) or in more recent platforms, such as the TERMINUS station (<http://terminus.iula.upf.edu>), we can observe the existence of certain registers that are absolutely necessary for the elimination of some specific terminological problems but which have not been taken into account in the creation of the terminological document, which is, in some cases, excessively simplistic and biased towards applied objectives and the obtention of immediate results.

With regard to the terminological document proposed for linguistic terminology, we have created our own model, which has been reformulated at different stages of our work (Casas Gómez 1999a, 2003 and 2006b), and which currently consists of the following registers:

Table 1: *Proposal of terminological document*

<b>Entry term</b>	
<b>Subindex</b>	Identification as a technical use with the corresponding explanatory subindex.
<b>Linguistic category of term</b>	
<b>Source of term</b>	Procedence of term: dictionary, written corpus of specialised texts, oral corpus, etc.
<b>Status of term</b>	Standardise, documented in dictionaries or texts, suggested for a specialist or translator, etc.
<b>Variation mark</b>	
<b>Subject area(s)</b>	
<b>Etymology</b>	Etymological content.
<b>Formation mechanism of the term</b>	The latter two registers will be included whenever this information is useful in explaining the concept.
<b>Definition</b>	Description of the content corresponding to that terminological acception.
<b>Doctrinal source of the definition</b>	Work or dictionary in which it appears.
<b>Level of metalanguage of the terminological use</b>	
<b>Representative context(s) of each technical use</b>	It is not a mere testimonial use in which its presence is documented in a text, but, rather, a definitory or metalinguistic context, providing information on the content or giving a linguistic explanation of its use as a terminological unit of the discipline.
<b>Source of each context</b>	Author and complete reference of the work.
<b>Examples in different languages</b>	Example that help to clarify the concepts concerned.

<b>Referrals to synonymous or parasyonymous terms</b>	As it happens in the terms <i>word-vocable-lexeme-semantic-lexical morpheme</i> , etc.
<b>Referrals to hyperonymous-hyponymous terms</b>	As the relations between <i>word-term, moneme-morpheme, polysemy-synchretism, semantics-semasiology, interdiction-taboo, semantics-axiology, lexical field-terminological field</i> , etc.
<b>Referrals to antonymous terms</b>	Such as <i>euphemism/dysphemism, onomasiology/semasiology</i> , etc.
<b>Establishment of terminological coincidences</b>	
<b>Their equivalences in other languages</b>	Indicating the language and establishing a field for each one.
<b>Sources of these equivalences</b>	Likewise, establishing a field for each one, according to the information contained in some linguistic dictionaries or references made by an author.
<b>Documentary sources of the term</b>	Linguistic dictionaries that may or may not consign the stated technical use.
<b>Recommended bibliography</b>	Bibliographic references for each technical use, enabling the user to supplement the information contained in this lexicon.
<b>Observations and notes</b>	Regarding unforeseen information which turns out to be of linguistic or technical interest.
<b>Information on the management of the database</b>	Author of the document, identification code and date of creation.

This terminographical model is based not only on the quantitative aspect of including a greater number of fields in the technical datasheet (a total of 25 registers), but also, above all, from a qualitative point of view, on the inclusion of a new explanatory procedure that introduces several relevant innovations regarding the interrelated information that must be registered in the terminological document. These innovations are as follows:

- 1) identification as a technical use, specifying, in each article, the name of the author whose conceptual value is used, by means of an explanatory subindex. In this way, despite the intended referential univocity of terminological theory, different polysemic specialisations and ambiguous expressions of linguistic technicisms will all be analysed;
- 2) level of metalanguage of the terminological use, above all, the school or author to which it belongs, that is, if it belongs to the general metalanguage of linguistics, to the specific metalanguage of a particular school, or to that of the researcher, given the existence of these levels in our field of study, arising from the publication of general linguistics dictionaries, of terminological lexicons regarding a particular trend or school or of technical glossaries regarding certain authors or explaining some linguistic works, all of which provide us with a notion of the greater or lesser degree of normalisation of the terminological use in question;
- 3) conceptual relationships established among different terminological uses (referrals to synonyms, parasyonyms, hyperonyms–hyponyms, meronyms or antonyms);

- 4) the establishment of terminological coincidences as an essential aspect of this specialised lexicon. This refers to equivalents or correlates among the different metalinguistic uses of the discipline (*potential designation* by Coseriu = *denotation* by Lyons, *real designation* or *denotation* by Coseriu = *reference* by Lyons, *Semasiology* by Reisig = *Semantics* by Bréal, etc.); and
- 5) an attempt to solve the problems of conceptual adaptation in the translation of certain linguistic technicisms, within the area of traductological equivalences.

## 2.2 Terminological graphic interface

One of the many and varied reasons for which terminology has become one of the most attractive and interesting areas of applied linguistics is, undoubtedly, its transdisciplinary nature, together with its political connections, its impact on industrial and social structures, and its projection in business for knowledge transfer. In this regard, if the relevance of the role of information technology in human sciences is becoming increasingly evident (Auger/Drouin/L'Homme 1991), terminology shows this interrelation even more clearly (justifying the denomination of *terminotics*) as a strategic line of research applied within the field of the new knowledge society.

Thus, in the sphere of language sciences, terminology has gained importance and influence in modern linguistics, especially in its applied aspect (Guerrero Ramos/Pérez Lagos 2002), in parallel with IT development and the creation of terminological databases for the collection of terms. As Cabré (2005) predicted, the present phase of terminology is characterised by the use of integrated work platforms that allows the automatic or semi-automatic compilation of a lexicon or a specialised glossary, from the moment of its conception until its publication. Even before this, Cabré (1993) had pointed out that the terminographer's work did not consist of inventing denominations for a series of previously established concepts, but, rather, identifying and collecting the terms actually used by specialists. Hence, the terminographer has two options: a) direct consultation with specialists, or b) the detailed study of the linguistic production created by specialists to communicate among themselves or with the rest of society (i. e. in a metalinguistic corpus).

Having put into practice the new model of terminological document, whose representative database is an attempt to widen and improve previous terminographic procedures, the terminological graphic user interface for the TERLEX project was created (cf. Figure 1). This starts from the basis that a single term acquires different terminographic variations and acceptations, due to the great terminological dispersion of present-day lexical semantics and the specialised values acquired by its units depending on the conditions of each situation of metalinguistic use. Therefore, the terminologist, in order to demonstrate the uses of the corresponding terminological units, has had to resort to marking the semantic terms consigned in a multilingual metalinguistic textual corpus of doctrinal sources. To this end, we have created this graphic interface, which structures methodologically the information and the terms and uses contained in the terminological documents. Although the entry method is semasiological, the graphic interface is of onomasiological nature, since it focuses on the description of the conceptual relationships established among the different terminological uses in this specialised lexicon (Tebé 2002). In fact, as Cabré (2005) rightly points out, terminological work is an onomasiologically-oriented activity, in which the conceptual knowledge of a subject precedes the selection of the most adequate denominations and the concepts that are to be organised

systematically by means of relating them to other concepts (Pérez Hernández 2002). In this regard, the proposed application allows us to develop an ontology as understood by Gillam/Tariq/Ahmed (2007) for the conceptualisation of the terminology of lexical semantics.

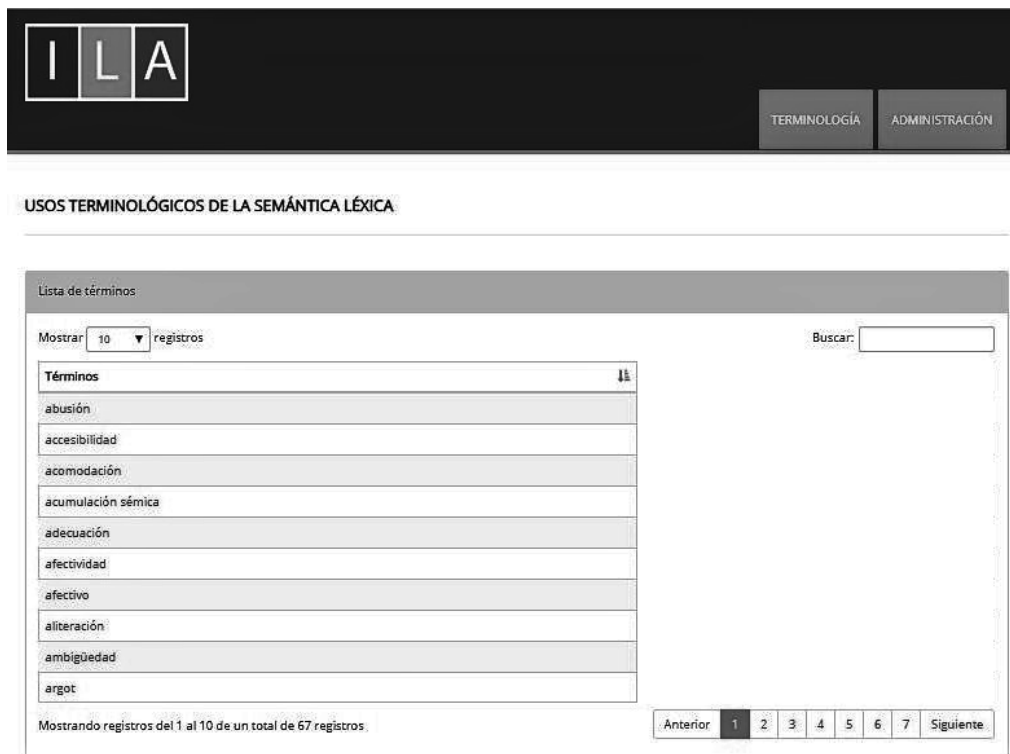


Figure 1: Main user interface of the TERLEX database

The TERLEX interface is an application, whose usability will be measured in terms of effectiveness, efficiency and satisfaction (ISO 9241, 1998), which will be accessible using any internet browser, so that the terminologist will only need a computer terminal to start work. This platform, which fulfils the technical requirements of the University of Cadiz, aims to be easy to use and appropriate for the users' needs (cf. Figure 2). Furthermore, it speeds up the process of documentation and terminological formalisation, as it enables the terminologist to combine his onomasiological and semasiological processes. In order to guarantee an effective adaptation to these final users, terminologists are involved in the design and creation processes of the work station, which means that the platform will undergo constant evaluation and modification arising from the observation of problems and incidents, so that the final result will be fully adapted to the users' (terminologists') needs and this knowledge will be adaptable to future experiences (Hornbæk 2006).

USOS TERMINOLÓGICOS DE LA SEMÁNTICA LÉXICA

Ficha terminológica de carga sémica<sup>1</sup>

Información básica   Definición   Contextos   Relaciones conceptuales   Equivalencias

Fuentes documentales y doctrinales   Otros datos

<p><b>Término</b></p> <p>carga sémica</p>	<p><b>Categoría lingüística</b></p> <p>sustantivo</p>	<p><b>Fuentes</b></p>	<p><b>Estatus</b></p> <p>estandarizado</p> <p>documentado</p> <p>lexicográficamente</p>
<p><b>Áreas temáticas</b></p> <p>semántica</p> <p>semántica léxica</p>	<p><b>Nivel de metalengua</b></p>		

Figure 2: Example retrieved from the TERLEX platform

### 3 Conceptual relationships and terminological uses

We begin from the hypothesis that lexical semantics has experienced a considerable increase in content and approaches for study (Casas Gómez/Hummel 2017, L’Homme 2019), even though there is no up-to-date lexicographical work including all these new terminological uses. There is, therefore, a need for an updated lexical work containing these new terms and uses, functioning as an actualisation of the different terminological acceptations of all the terms and semantic concepts related to this extended lexical semantics. In this regard, *lexical semantics* can be understood mainly from four specialised contents:

- 1) as a synonym for *semantics* in the origin and historical tradition of studies on meaning. Being defined as the science of the meaning of the word, it is limited to a lexical level:

$$\text{Lexical Semantics}_1 = \text{Semantics}$$

- 2) as a synonym for *lexicology*, which has, in theory, given rise to certain inappropriate distinctions, represented by conceptual labels such as *lexicology and semantics* or *lexico-semantics*, when in fact there is no difference between lexicology and semantics on a lexical level:

$$\text{Lexical Semantics}_2 = \text{Lexicology}$$

- 3) as a hyperonym of *lexematics* as used by Coseriu (1977), in which its action is reduced to a series of intrinsic characteristics that separate it from lexical semantics or lexicology in its broadest sense, by means of limits regarding what belongs or does not belong to linguistic structure, and, above all, to the concept, valid in theory, but restricted and fruit-



less in practice, of “functional language” as a syntopic, synstratic and synphasic discourse technique. This means it is homogeneous and unitary from a single point in space, a single level of language and a single style of language:

Lexical Semantics<sub>3</sub>



Lexematics (Coseriu)

- 4) as a general discipline which includes, as well as all the aspects studied in traditional lexicology (semantic changes, signification relationships, explanatory models of the sign, its components and the essence of meaning, semantic features and oppositions, units of content, lexical fields, onomasiological and semasiological perspectives, levels of signifying, etc.), the new contents and recent perspectives of current lexical semantics. These include the wide field of word formation, the extensive range of aspects that fall within the scope of linguistic variation from a semantic standpoint, the well-deserved attention given to the syntagmatic aspect of the lexicon (lexical-syntactic interface), the conceptual bases of terminology (terminological units) and the methodological techniques of terminography, semantico-phraseological study and phraseographic treatment of idioms as equivalent units to words, the creation and analysis of neologisms, research into the neurocognitive dimension of the lexicon (neurosemantics), and the relationship between lexicon and text, some of which are fully integrated in their own right as semantic disciplines:

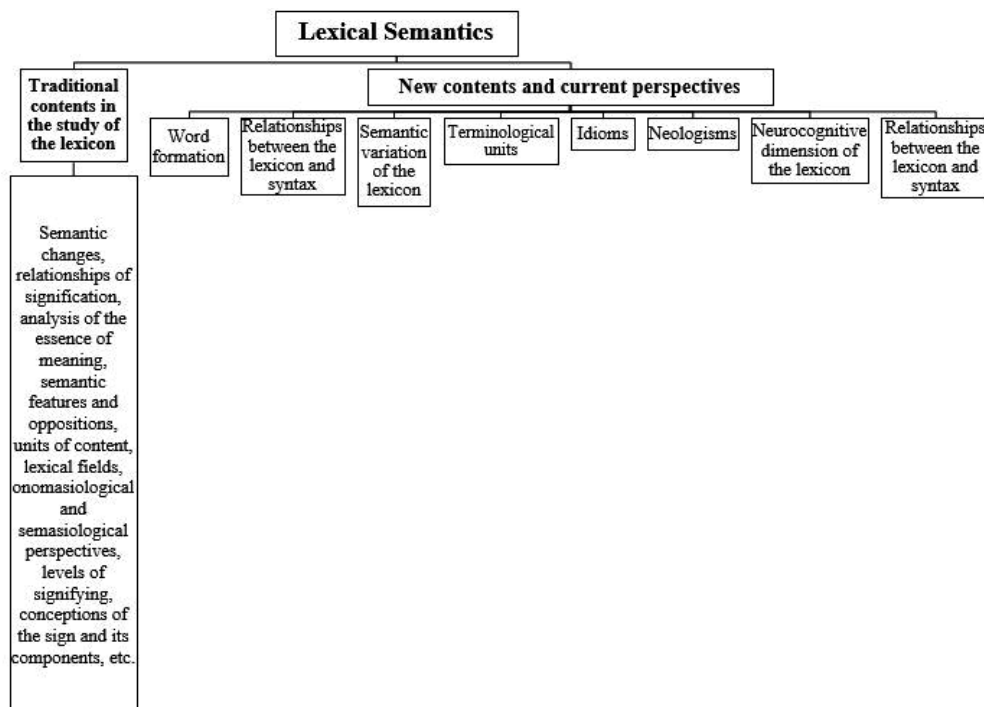


Figure 3: Contents and new perspectives of Lexical Semantics<sub>4</sub>

All these terminological uses can be represented in the following conceptual node:

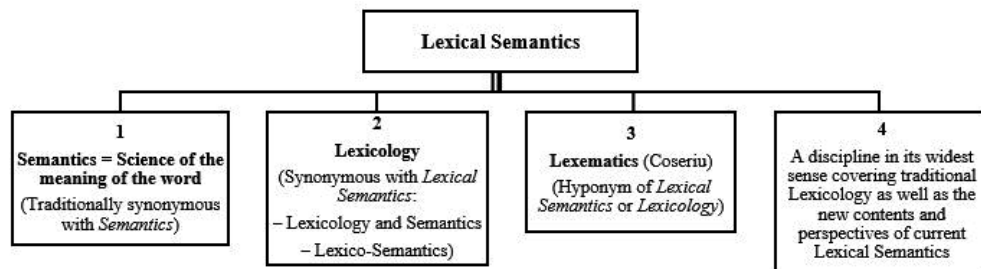


Figure 4: Conceptual node of Lexical Semantics

As we have already explained in our methodological proposals, the compilation of this terminological lexicon is based on use rather than terms, since, in general, each terminographical entry acquires different acceptions which require the creation of their corresponding terminological datasheets. In linguistic terminology it is quite common for one single term to have two acceptions, one hyperonymic and the other hyponymic, as occurs with the term *terminology* itself. It has, on the one hand, a general content, as the denomination of the discipline, integrating theoretical, methodological and practical components in the analysis of specialised languages, and, on the other, a specific content, indicating only the aspects of language theory and the conceptual bases of terminological units as a complementary correlate of *terminography* being the area dealing with other methodological and practical problems relative to these specialised languages. Thus, terminology is differentiated from terminography in a complementary manner, in that the former covers the theoretical aspects and epistemological bases of specialised language, whereas the latter deals with methodological and practical aspects, more specifically the criteria used in the treatment of terminological data and in terminological documentation (creation of terminological documents and specialised lexicons).

The different conceptual relationships that are established in both terms depending on each acception or use, of hyperonymy–hyponymy, in the first case (*terminology*<sub>1</sub>/*terminography*), and of complementary antonymy (*terminology*<sub>2</sub>/*terminography*), in the second, can be represented in the following graphics:

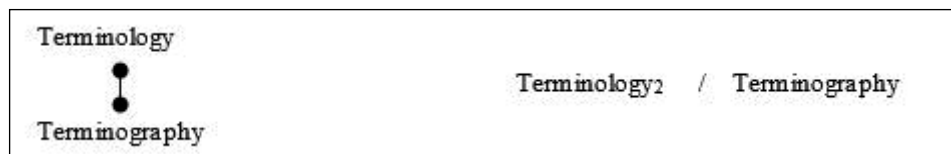


Figure 5: Conceptual relationships between Terminology and Terminography

We can observe how the examples of *lexical semantics*, *terminology* and *terminography* show that conceptual relationships underpin the existence of different terminological uses, and, more specifically, how they constitute a rule for the linguistic behaviour of these uses. In other words, the identification of a certain use or acception of the term analysed corresponds to a certain established conceptual relationship, as occurs, very clearly, with the seven terminological uses of *semasiology*:

- 1) *Semasiology*<sub>1</sub>: science dedicated to the study of meaning and the principles that govern its development (Reisig 1839, Bréal 1897), a general acceptance in which there is a synonymous relationship between *Semasiology*<sub>1</sub> = *Semantics*<sub>1</sub>, and a terminological coincidence between *Semasiology*<sub>1</sub> (Reisig) and *Semantics*<sub>1</sub> (Bréal). Two further sub-uses arise from the German vision of this content: *Semasiology*<sub>2</sub> (Stern 1931) and *Semasiology*<sub>3</sub> (Firth 1935):

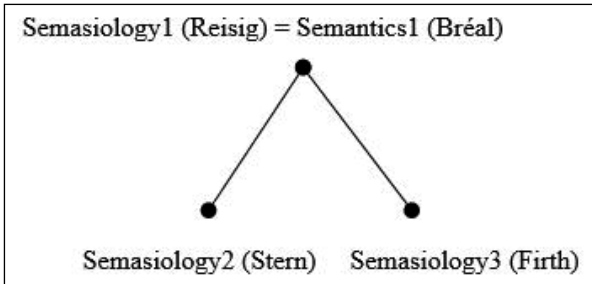


Figure 6: Use and sub-uses of *Semasiology*<sub>1</sub>

- 2) *Semasiology*<sub>2</sub>: the linguistic study of meaning, as opposed to the extralinguistic conceptions of semantics (attempt by the Swedish linguist, Stern [1931], to make a conceptual separation between *semasiology* and *semantics*), as a specific sub-use of the previous acceptance in which an antonymous relationship is established between *Semasiology*<sub>2</sub>/*Semantics*<sub>2</sub>:

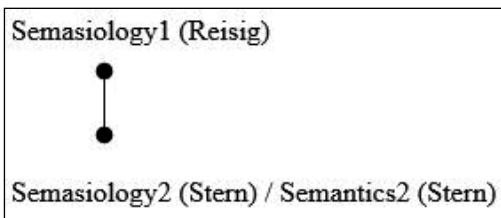


Figure 7: Antonymous relationship between *Semasiology*<sub>2</sub> and *Semantics*<sub>2</sub>

- 3) *Semasiology*<sub>3</sub>: a historic discipline dedicated to the study of semantic change, in that semantics is defined as the science of meaning, albeit from a pragmatic standpoint (Firth's attempt [1935] to make a conceptual separation of the identification between *semasiology* and *semantics*), as another specific sub-use of the first acceptance in which we observe a hyperonymous–hyponymous relationship between *Semantics*<sub>3</sub> and *Semasiology*<sub>3</sub>:

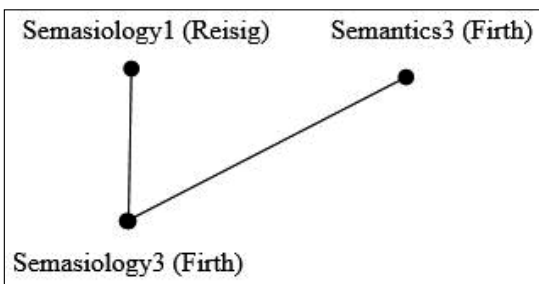


Figure 8: Hyperonymous–hyponymous relationship between *Semantics*<sub>3</sub> and *Semasiology*<sub>3</sub>

- 4) *Semasiology<sub>4</sub>*: a semantic methodology which studies significations based on the signifier or material form (development of the content of a particular sign or *semasiological field* or *field of significations*), in a sense that is correlatively complementary to that of onomasiology or the study of signs starting from the concept or the thing (multiplicity of designations of a particular concept that form a set or an *onomasiological field* or a *field of designations*). Here, according to Baldinger’s concept (1970, 1984), a relationship of hyperonymy–hyponymy is established between *Semantics<sub>4</sub>*–*Semasiology<sub>4</sub>*, which, in turn, is hyperonymous with *Semasiology<sub>5</sub>* (Heger 1974) and antonymous with *Onomasiology<sub>2</sub>*:

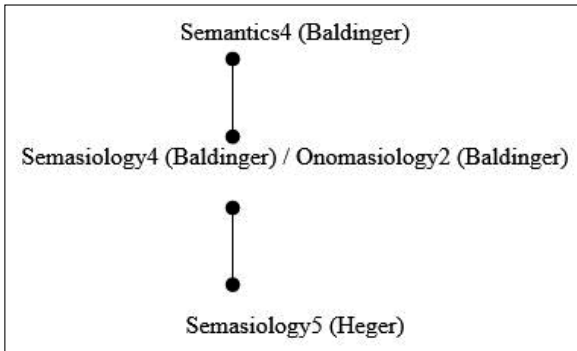


Figure 9: Relationships arisen from *Semantics<sub>4</sub>*

- 5) *Semasiology<sub>5</sub>*: semasiology starts from meaning (for which reason onomasiology cannot be considered as a simple inversion of the semasiological method) and examines the different significations or sememes differentiating the semes or *differentiae specifica*e, as a substantial modification towards Heger’s structural approach (1974), with regard to Baldinger, especially concerning this semasiological procedure, which corresponds exactly with the method used by Pottier, as a hyponym (*Semasiology<sub>5</sub>*) of *Semantics<sub>4</sub>* and *Semasiology<sub>4</sub>*, which are, respectively, hyperonyms on two hierarchical levels of classification. Thus, in Hegerian theory, *Semasiology<sub>5</sub>* constitutes a hyponymous relationship with *Onomasiology<sub>3</sub>*, which is, in turn, a hyponym of *Onomasiology<sub>2</sub>*:

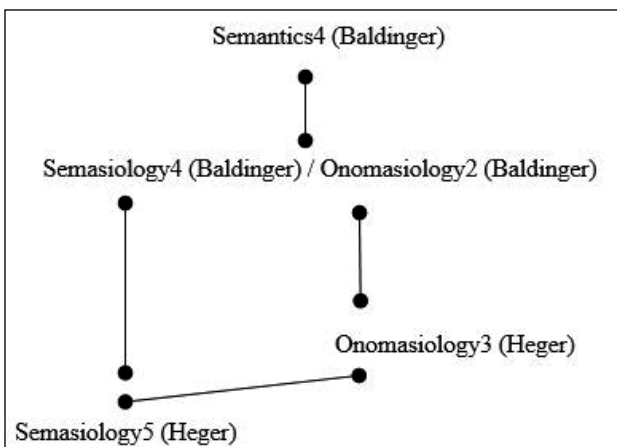


Figure 10: Other relationships arisen from *Semantics<sub>4</sub>*

- 6) *Semasiology*<sub>6</sub>: in analyses of the general theory of the communication act, semasiology, contrary to onomasiology (from speaker to hearer), is understood as the communicative process or path from hearer to speaker, in which the hearer carries out a significant interpretation or decodification of the message (Casas Gómez 2011), in which we can observe an antonymous relationship between *Semasiology*<sub>6</sub> and *Onomasiology*<sub>4</sub>:

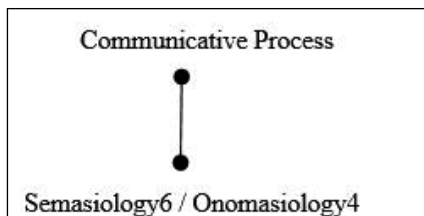


Figure 11: Antonymous relationship between *Semasiology*<sub>6</sub> and *Onomasiology*<sub>4</sub>

- 7) *Semasiology*<sub>7</sub>: as an application to the lexicographical field, the term *semasiology* is used as a method of metalexical analysis, which is complementary to onomasiology, and is used in the compilation of semasiological dictionaries containing both formal macrostructures and microstructures. Therefore, they start from the alphabetical ordering of lexical entries in order to analyse the different significations or acceptations of their corresponding lemmas or lexicographical units (Casas Gómez 2011), establishing a relationship of hyperonymy between *Lexicography – Metalexigraphy* (on two hierarchical levels) and *Semasiology*<sub>7</sub>, and of antonymy between *Semasiology*<sub>7</sub>/*Onomasiology*<sub>5</sub>:

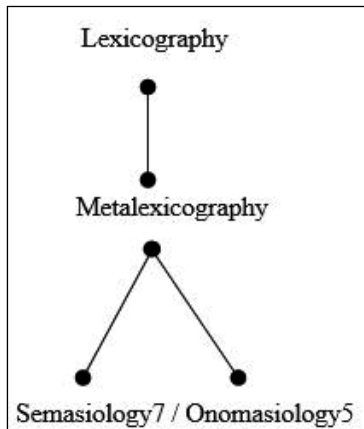


Figure 12: Relationships arisen from *Lexicography*

These seven terminological uses of *semasiology* can be synthesised in the following conceptual node:

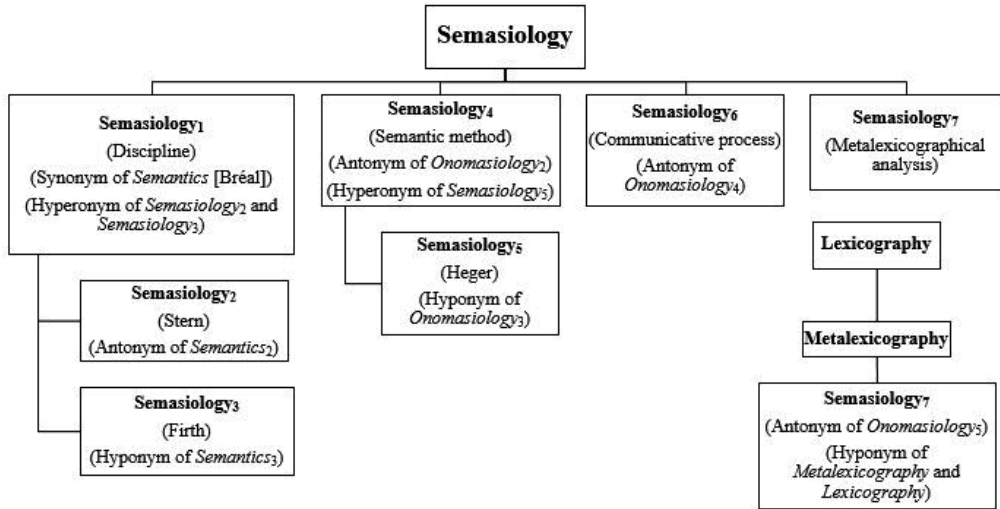


Figure 13: Conceptual node of Semasiology

In contrast to these terminological uses of *semasiology*, observe the following five corresponding uses of *onomasiology*:

- 1) *Onomasiology*<sub>1</sub>: a discipline dedicated to the study of concepts and their methodological research (Tappolet 1895, Quadri 1952) as a hyponym (*Onomasiology*<sub>1</sub>) of *Semantics*<sub>4</sub> (Baldinger) and a hyperonym of *Onomasiology*<sub>2</sub> and *Onomasiology*<sub>3</sub>, respectively:

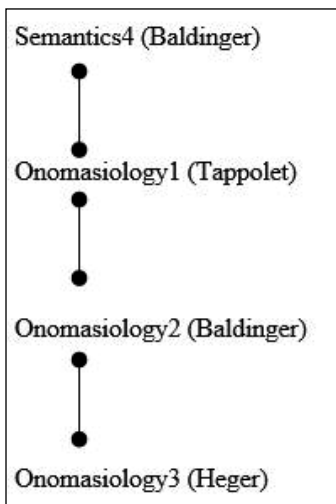


Figure 14: Relationships from *Semantics*<sub>4</sub> to *Onomasiology*<sub>3</sub>

- 2) *Onomasiology*<sub>2</sub>: semantic methodology focusing only on the study of signs starting from the concept or the thing (a multiplicity designations of a particular concept constituting a set or *onomasiological field* or *field of designations*) in a sense that is correlatively complementary to that of *semasiology* or the study of significations starting from the signifier or material form (development of the content of a particular sign or *semasiological field*

or *field of significations*) (Baldinger 1970) as a hyponym, on two hierarchical levels, of *Onomasiology*<sub>1</sub> and *Semantics*<sub>4</sub>, an antonym of *Semasiology*<sub>4</sub>, and, in turn, a hyperonym of *Onomasiology*<sub>3</sub>:

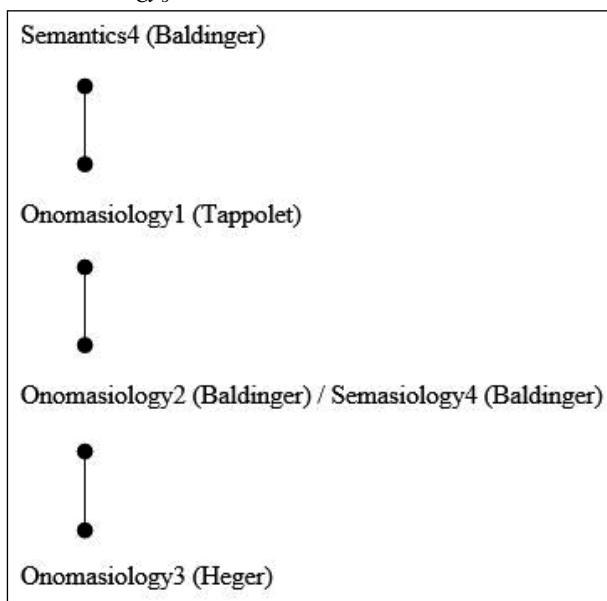


Figure 15: Other relationships from *Semantics*<sub>4</sub> to *Onomasiology*<sub>3</sub>

- 3) *Onomasiology*<sub>3</sub>: the study of conceptual systems, independent of a language, and the designations used for them in different linguistic systems. As a substantial modification towards Heger's structural focus (1974), onomasiology can no longer be considered as a simple inversion of the semasiological method, given that the distinction between meaning and sememe has no relevance, since both are linked to the concept by the same relationship of species to genre. Rather, this requires the pre-existence of a partial pyramid of concepts or some other logical system of relationships, as a hyponym of *Onomasiology*<sub>2</sub>, *Onomasiology*<sub>1</sub> and *Semantics*<sub>4</sub> (at different hierarchical levels of classification) and a hyperonym, in Hegerian theory, of *Semasiology*<sub>5</sub>:

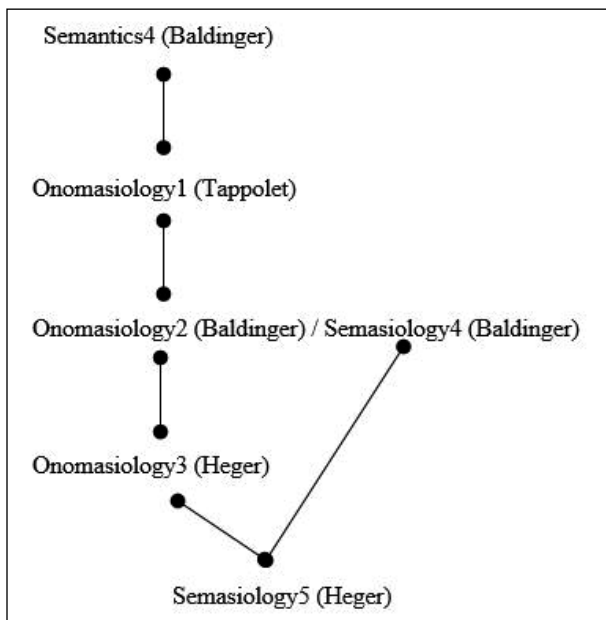


Figure 16: Relationships from Semantics<sub>4</sub> to Semasiology<sub>5</sub>

- 4) *Onomasiology<sub>4</sub>*: in analyses of the general theory of the communication act, onomasiology, which works in the opposite direction to semasiology (from hearer to speaker), is understood as the communicative process or path going from the speaker to the hearer, in which a communicative choice or codification of the message is made by the speaker (Casas Gómez 2011), where a relationship of antonymy is established between *Onomasiology<sub>4</sub>* and *Semasiology<sub>6</sub>*:

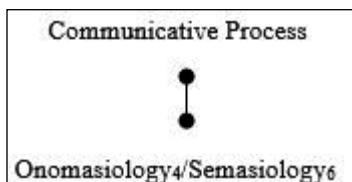


Figure 17: Antonymous relationship between *Onomasiology<sub>4</sub>* and *Semasiology<sub>6</sub>*

- 5) *Onomasiology<sub>5</sub>*: as an application to the area of lexicographics, the term *onomasiology* is used as a method of metalexicographical analysis, a complement to semasiology, for the compilation of onomasiological dictionaries containing both conceptual macrostructures and microstructures which start from an ideological or conceptual organisation of the entries for the corresponding lexicographical units (Casas Gómez 2011), as a hyponym of both *Lexicography* and *Metalexicography*, and an antonym of *Semasiology<sub>7</sub>*:



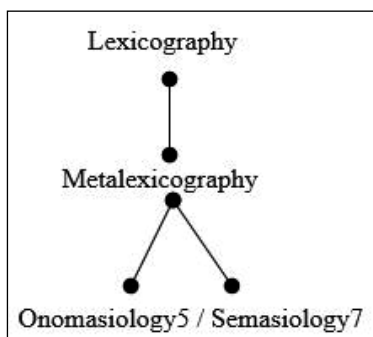


Figure 18: Relationships arisen from Lexicography

These five terminological uses of *onomasiology* can be synthesised in the following conceptual node:

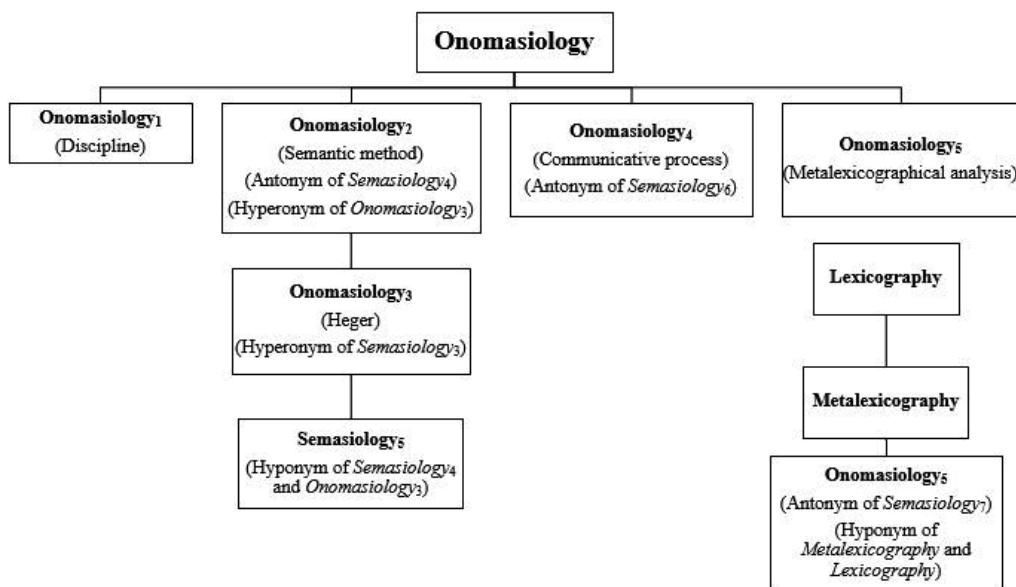


Figure 19: Conceptual node of Onomasiology

All these cases demonstrate the existence of a direct link, in the plurivocal establishment of polysemic contents, between the conceptual relationship and the terminological use. Semantic studies of common language (Casas Gómez 1999b, 2008, Gutiérrez Ordóñez 1981, 1989, Muñoz Núñez 1999) have shown the existence of different types of criteria (basically morphological, lexical or syntactic) in the determination of different meanings of polysemic signs, this being especially prevalent with adjectives.<sup>4</sup> Consider, for example, the semantic *changes of*

<sup>4</sup> It is quite usual for the polysemic signifiers of adjectives to belong to different semantic paradigms. In both cases we can establish the existence of various signs using the criteria for determining the meaning indicated by Gutiérrez Ordóñez (1981: 159 and 1989: 53 f.). In the case of *agudo* [sharp] we find two

*application* as the polysemic source of adjectives such as *agudo* [*sharp*], which maintains both synonymous and antonymous relationships with different signs:

*agudo*<sub>1</sub> = *afilado/romo* (“palo agudo”) [*sharp*<sub>1</sub> = *keen/blunt* (“sharp stick”)]

*agudo*<sub>2</sub> = *inteligente/tonto* (“persona aguda”) [*sharp*<sub>2</sub> = *intelligent/stupid* (“sharp person”)]

*agudo*<sub>3</sub> = *intenso, fuerte/débil* (“dolor agudo”) [*sharp*<sub>3</sub> = *intense, strong/faint* (“sharp pain”)],

or *seco* [*dry*] which forms antonymous relationships with different signs:

*seco*<sub>1</sub> / *mojado*; *seco*<sub>2</sub> / *graso*; *seco*<sub>3</sub> / *verde*; *seco*<sub>4</sub> / *gordo*; *seco*<sub>5</sub> / *agradable*; *seco*<sub>6</sub> / *dulce*; *seco*<sub>7</sub> / *húmedo*; *seco*<sub>8</sub> / *jugoso*; *seco*<sub>9</sub> / *fértil*; *seco*<sub>10</sub> / *juicioso*; *seco*<sub>11</sub> / *caudaloso*; *seco*<sub>12</sub> / *suave*, etc.

[*dry*<sub>1</sub> / *wet*; *dry*<sub>2</sub> / *greasy*; *dry*<sub>3</sub> / *green*; *dry*<sub>4</sub> / *fat*; *dry*<sub>5</sub> / *pleasant*; *dry*<sub>6</sub> / *sweet*; *dry*<sub>7</sub> / *wet*; *dry*<sub>8</sub> / *juicy*; *dry*<sub>9</sub> / *fertile*; *dry*<sub>10</sub> / *wise*; *dry*<sub>11</sub> / *copious*; *dry*<sub>12</sub> / *soft*, etc.]<sup>5</sup>

According to Gutiérrez Ordóñez (1981: 82), these examples show that “synonymy and antonymy are themselves semantic acts, but in these cases they can also be considered as acts created by the language in order to differentiate homonymic signs”<sup>6</sup>.

Likewise, just as in the common lexicon semantic relationships constitute an important linguistic factor in the identification and semantic determination of meanings as a rule used to solve the problem of polysemy, as occurs with the synonymous and antonymous contents of the adjectives analysed, the same applies in the terminological lexicon, despite the fact that some authors, starting from the principle of the [non-]contradiction of nomenclatures, have insisted that these connections do not exist. For this reason, we have long been expressing our disagreement (Casas Gómez 1994: 100–104 and 1999b: 192–195) with Coseriu’s idea (1966: 182, 1977: 97, 1987: 177 f.) of not establishing conceptual relationships other than exclusion in the area of terminology, which means that he did not contemplate the existence of relationships of hyperonymy–hyponymy or antonymy. According to Coseriu, in terminological classifications the elements are exclusive in accordance with the application of this principle, since 1) at each level of classification each term is different from all the rest and 2) it is inconceivable that one term should be the opposite of another, and, at the same time, subsume said term.

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different linguistic signifiers which form “synonymous relationships with different signs of the language” [“relaciones de sinonimia con signos diferentes de la lengua”]: *agudo*<sub>1</sub> = *afilado* / *agudo*<sub>2</sub> = *inteligente* [*sharp*<sub>1</sub> = *keen* / *sharp*<sub>2</sub> = *intelligent*] whereas in the case of *seco* [*dry*] we can observe meanings that “have antonymous relationships with different signs that are lexicalised in Spanish” [“mantienen relaciones de antonimia con diferentes signos lexicalizados por el castellano”] (Gutiérrez Ordóñez 1981: 82).

<sup>5</sup> We can observe the wide range of antonymous relationships of this adjective, to which we could add a considerable number of figurative uses (*dejar seco* ‘to kill somebody’, *estar seco alguien de alcohol* ‘to be dry, not drinking alcohol’, *dejar seco a alguien* ‘to leave somebody high and dry’ or *estar seco alguien de dinero* ‘to be broke’, etc.), other *changes of application* (one of the sources of polysemic creation in “traditional” semantics; cf. Ullmann 1964: 159–161) according to the contextual use of this adjective (such as *seco/jugoso* [*dry/juicy*], *seco/juicioso* [*dry/wise*], *seco/caudaloso* [*dry/fast-flowing*], *seco/suave* [*dry/soft*], *seco/fértil* [*dry/fertile*], etc.).

<sup>6</sup> “sinonimia y antonimia son en sí hechos semánticos, pero en estos casos pueden considerarse asimismo hechos conformados por la lengua para diferenciar signos de expresión homonímica”.

This author's postulate, which he holds to be a general feature for the technical-scientific sphere, that terminological 'oppositions'<sup>7</sup> are *exclusive* according to the principle of [non-]contradiction is identified in its characterisation with the inadequate Saussurean formulation of *value*<sup>8</sup> applied to the signs of the linguistic system. Thus, Coseriu distinguishes technical language from common language in which oppositions are frequently *inclusive*, that is, the unmarked element can encompass the marked one (as occurs with *day/night*). Nonetheless, Trujillo (1974: 207 f.) has rightly suggested that this distinction "does not formally establish a clear border"<sup>9</sup>, since it is only one feature that linguistically characterises many, but not all, lexical oppositions, as there are exclusive oppositions that are "strictly linguistic", in the structured lexicon (this is the case of the semantic relationship between pairs like *bueno/malo* [*good/bad*], *alto/bajo* [*tall/short*], etc.).

However, here we are providing numerous examples of inclusive relationships in language science, which could, at first, appear to be another characteristic of linguistic terminology. But the partial modification of the aforementioned postulate of [non-]contradiction is by no means exclusive to this metalanguage, since it also affects other fields of science. In fact, with reference to this idea that technical-scientific vocabulary is organised according to logical distinctions based on exclusive oppositions, Wolf (1974: 58) had already pointed out, using examples from the linguistic field and, above all, material taken from his thesis on the terminological vocabulary of the printing press in French (Wolf 1979), how extremely problematic this affirmation is. This is because, on the whole, inclusive oppositions are also documented within the terminological sector. Likewise, he insists that the absence of inclusive oppositions or the sole presence of exclusive oppositions cannot be considered as a characteristic of special terminologies, and so these must not be identified with the so-called enumerative nomenclatures, which are based on exclusive differentiations. In this regard, Jakobson (1984: 355–361) has tried to show that the limits established by Coseriu between terminologies and common language do not really exist. What we do have is a "continuum where we find lexemes based strictly on extralinguistic reality at one pole and lexemes based on purely linguistic structuring (as when day includes night) at the other" (Jakobson 1984: 356). Among the many examples included in the three types of terminologies that he proposes, he cites some further cases of inclusive relationships in the technical lexicon, such as *terminological field* as a hyponym of *lexical field*, the four levels of use of the term *antonymy*, represented in a table that is analogous to Palmer's (1981: 86) diagram for the hierarchical classification of the lexeme *animal* in common language:

<sup>7</sup> We use single marks when Coseriu refers to this type of oppositions in terminology because, in fact, if, in his conception, the terms possess no values or meanings, we cannot speak strictly of significative oppositions, but rather of designative relationships or logical classifiers of 'objects'.

<sup>8</sup> In fact, the Saussurean concept of *value* is not correctly characterised (Casas Gómez 1999b: 42, n. 11), as is shown by the fact that its formulation for the signs of the system actually coincides with this Coserian *principle*, which is generally applied to technical-scientific terminology. In fact, neither does this postulate function in the sphere of terms, as we are attempting to explain in this research.

<sup>9</sup> "no llega a establecer formalmente la frontera de una manera precisa".

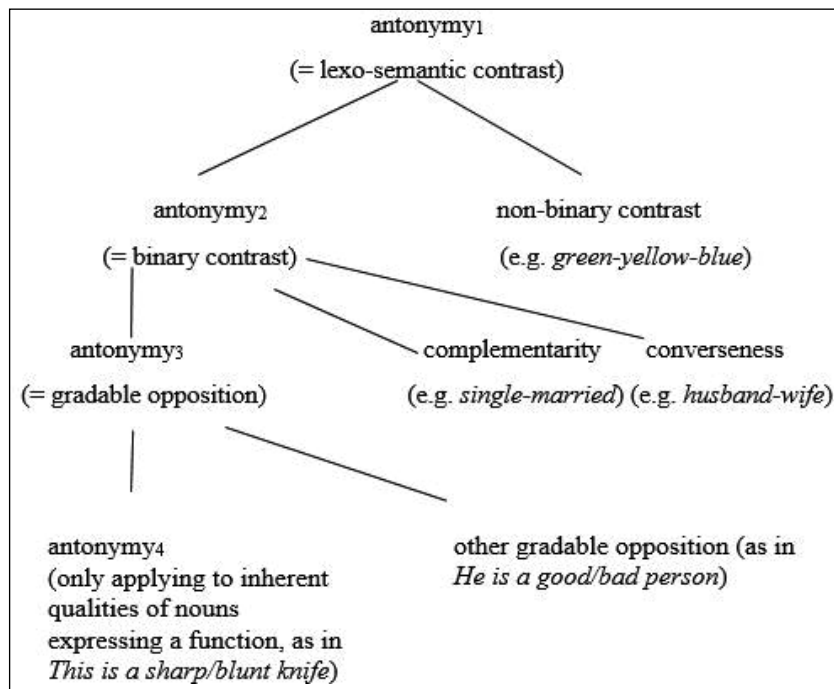


Figure 20: Terminological uses of Antonymy

Another possible example could be this one, taken from the field of electrical energy, reproduced graphically by the terms *electron*<sub>1</sub>, *electron*<sub>2</sub> (with its synonym *negatron*) and *positron*, in which the first term can be used as a hyperonym or unmarked term that covers the rest of the marked terms:

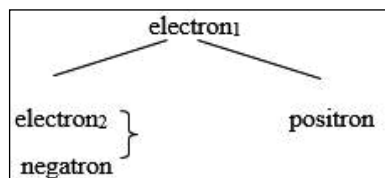


Figure 21: Conceptual scheme for Electron

Similarly, in different articles published in *Langages* (compiled by Mortureux 1990) on the monographic theme of *L'hyponymie et l'hyperonymie*, Lerat (1990: 79–86) and Jacobi (1990: 103114) highlighted the importance of hyperonymy–cohyponymy–hyponymy, as well as other logical and semantic relationships, in the general structure of terminologies and in the discourse of scientific vulgarisation, with examples from such diverse fields as “forestry development”<sup>10</sup> and “cellular immunology”.

Finally, the relevance and typologisation of conceptual relationships have played a central role in the analysis of specialised knowledge from the standpoint of the communicative theory

<sup>10</sup> Lerat takes his model of analysis from Auger/Rousseau (1977: 18).

of terminology (Cabré 1993, 2002, Feliú 2000, 2004), as García Antuña (2017) has recently shown in her review of different attempts to classify the relationships that are established between terms, in particular, as well as the aforementioned studies belonging to the widespread theory of Cabré's school, and the proposals of Wüster (1979), Arntz/Picht (1995) or Casas Gómez (2005, 2014), and their application to specific examples taken from the specialised corpus related to the language of leather goods (García Antuña 2011).

To sum up, all the examples that have been analysed here are more than enough to show that the strict limit proposed by the Romanian linguist regarding the nature of the oppositions formed by these two types of signs has not been proved to be a prerequisite in all linguistic terminology, at least in that which concerns certain terminological sectors in which hyperonymy ranks a whole superordinate series of successive inclusive relationships among certain technical or scientific lexical units. As regards the principle of [non-]contradiction in particular, we maintain our critical position, but can, however, observe, after the practical analysis of the cases examined here, that Coseriu was right in the first part of his axiom, that is, in his intuitive affirmation that each terminological unit is different from the rest on each level of classification. This feature acquires greater relevance the moment the function of the conceptual uses differs, as has been shown in the examples, according to a certain hierarchy and a different level of classification.

#### 4 Conclusions

As its main contribution to scientific knowledge, this project aspires to compile a digitally-supported dictionary that will serve as a virtual tool for the management and distribution of semantic terminology. This lexical repertoire will represent a major innovation with regard to existing ones, not only for its contents, but also because of the possibility of accessing it through an online server, which will enable specialists and teachers in national and international universities to consult it. Furthermore, the results will contribute to the theoretical classification and normalisation of the use of semantic terminology, since they will fill an important gap in repertoires of linguistic terminology, as there is no existing specific lexical work on the terminological questions of semantics. They will also help to solve problems related to translation, terminological variation and neological creation, among others. It is, therefore, a solid and innovative scientific challenge for applied research in lexicography, terminology and lexical semantics, responding to the need for a rigorous study that covers the wide terminological field of lexical semantics, reflecting its current contents and perspectives and giving a global vision which is superior to the incomplete nature of the works carried out thus far.

As well as these results and general applications, regarding the specific theoretical, methodological and practical aims of this work, we can draw the following conclusions:

- 1) From a theoretical point of view, modern lexical semantics is very different from traditional lexicology, with the addition of new contents and updated perspectives, which form the theoretical base for semantic disciplines such as word formation, terminology, neology and, at least in part, phraseology (such as the field of idioms).
- 2) From the methodological standpoint, we have proposed a model of terminographical representation, starting from explanatory sub-indices and including relevant information which is not present in previous models. In this method, we start, not from the term, but from the use and, therefore, there must be as many datasheets as there are uses, with the aim of clarifying polysemic ambiguity and the lack of referential univocity.

- 3) By applying this theoretical-methodological perspective, we believe that we have proved, by means of illustrative examples (*terminology, terminography, lexical semantics, semantics, onomasiology* or *antonymy*), that there is a direct link between conceptual relationship and terminological use, to the point that there will be a different significative relationship (Casas Gómez 2005, 2014) that determines the existence of a new acception of the term. Consequently, conceptual relationships are a decisive factor in the existence of various acceptations: they constitute a rule for linguistic behaviour in the identification and the differential establishment of their conceptual functioning – on different levels of hierarchical classification – of the respective terminological uses and sub-uses of the different lexical entries, represented in conceptual nodes in the terminological user interface.

With the analysis of these units and their terminological uses of the linguistic field, the materials of which form part of the future dictionary of the terminology of lexical semantics that we have presented in this article, we have examined certain conceptual relationships in this terminological sphere, with the aim of reflecting on the semantic aspects that are characteristic of this technical lexicon in relation to the governing principles of other scientific terminologies. Therefore, with regard to a science of culture such as linguistics, we can highlight that, apart from its capacity for synonymy, which is common to other types of nomenclatures, its peculiar characteristic of establishing inclusive relationships among technical terms and, above all, its conceptual ambiguity and polysemic specialisation (which cause problems of adaptation in the translation of its technical uses) reveal that this type of terminologies very frequently is situated half-way between general language and univocal terminology [“se trouve à mi chemin entre le langage général et la terminologie univoque”] (Baldinger 1984: 195), an idea held by this author for all scientific terminologies in general<sup>11</sup>, although his examples refer exclusively to linguistic nomenclature, or, as Hummel (2009: 112) states, referring to social sciences, “descriptive terminology has to deal with almost the same vagueness or diversity of concepts as common language”.

For all the above reasons, terminographical praxis shows 1) that these designative connections of a terminological nature function as identifying elements of different terminological uses and 2) that their conceptual functioning varies according to the established “level of classification”, that is, there are terminological uses and sub-uses that maintain different conceptual relationships on each hierarchical level.

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<sup>11</sup> In his opinion, only artificial languages contain univocal units, in contrast (by definition) to scientific terminologies which are based on natural languages [“seules les langues artificielles contiennent des unités univoques, à l’opposé (par définition) des terminologies scientifiques qui se servent des langues naturelles”] (Baldinger 1984: 195).

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