“GEORGE EMIL PALADE” UNIVERSITY OF MEDICINE, PHARMACY, SCIENCES AND TECHNOLOGY OF TÂRGU MUREȘ
DOCTORAL SCHOOL IN LETTERS, HUMANISTIC AND APPLIED SCIENCES. FIELD: PHILOLOGY

THESIS

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THE PARTICULARITIES OF THE MEDICAL LANGUAGE FROM THE FIELD OF *CARDIOLOGY*

ABSTRACT

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ABSTRACT

The first researches on specialized languages focused on the onomasiological meaning of the terms. The study of specialized languages from a descriptive-linguistic perspective has become an area of wide interest, recognized in the academic community. The terms, the designated units of the concepts, were considered simple “labels". Theoretical research, starting with Maria Teresa Cabré from the Quebec School, addresses the status of terms not only from an onomasiological perspective, but also from a semasiological point of view.

The role of medicine in human evolution, the development of *Cardiology*, the subdomain we decided to work on in our doctoral thesis - are not the only arguments that support the choice of topic. The terminology of this sub-domain modern, in terms of international and national dynamics. The study of the vocabulary of *Cardiology* presupposes an interdisciplinary approach by reference to classical philology, to the field of language sciences, to etymology, to modern languages, to culture etc.

In the first chapter, entitled *Theoretical Preliminaries*, we addressed topics regarding specialized language and general language, researching the term-concept and term-word report, but also the way of elaborating the definitions. A first observation is that the language has undergone many historical, economic, political and cultural changes in society, a process that has continued today. These changes in the social and cultural paradigm cause linguistic changes in vocabulary. The functional styles of the Romanian language are addressed in the specialized literature. Ion Coteanu[1] issued the hypothesis that the Romanian language has few functional styles: scientific, legal, journalistic, etc. Researches on scientific language registers perform the necessary dichotomy between the general vocabulary(which is considered unprofessional) and professional language. Alexandru Graur[2] consideres that the general lexicon of the Romanian language includes approximately 1500 words, and Marius Sala[3] mentions the fact that the general vocabulary of the Romanian language contains approximately 2581 words.

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[1] Ion Coteanu, *Stilistica funcțională a limbii române: Stil, stilistică, limbaj*, Volumul I, București, Editura Academiei Republicii Socialiste România, 1973.
[2] Alexandru Graur, *Încercare asupra fondului lexical principal,* București, Editura Academiei, 1954.
[3] Marius Sala, *Vocabular reprezentativ al limbilor romanice*, București, Editura științifică și enciclopedică, 1988.

Studies on the two types of language, general and specialized, were carried out by other researchers. We dwell on the theories of two linguists, Angela Bidu-Vrănceanu and Maria Teresa Cabré. The professor from Bucharest focused on the migration of lexical units from the general lexicon to the specialized lexicon, but also from the lexicon specialized in the general lexicon, by determinologisation, aspects that we considered in our doctoral thesis. The common denominator of these two types of language is that both are open to innovation. Maria Teresa Cabré[4] compares specialized languages with sub-assemblies that overlap, in certain circumstances, the lexico-semantic spheres of the common language. There are other similarities, recorded in the specialized literature: the graphic system of expression, the phonological system, the morphological system are the same, Maria Teresa Cabré noting that the differences between the two codes need to be made in terms of purpose, nature and specific elements of the specialized lexicon.

The differences between the specialized lexicon and the general lexicon are determined by the functional criteria, the user and the specialization level. The general lexicon has a high degree of freedom in the combination of lexical units, as the specialized lexicon is conditioned by rules of a cognitive, logical nature etc. The latter is motivated, cannot be spontaneous, artificial, invented and is used in scientific communication. Linguist Yves Gentilom[5] mentions that specialized language is - above all - a specialized lexicon. The researcher motivates this theory by arguing that the man initially knows the common language, then he completes it with scientific information. Specialized languages can be used by three categories of speakers(experts, semi-experts and non-experts) and take the form of varieties, codes, "registers ", but should not be considered as separate languages.

In order to understand the characteristics of the specialized lexicon and the general lexicon, we approached the concept of terminology, starting from its meanings, given in the sources used by us: terminology includes scientific terms used in a particular professional field, in order to send a non-ambiguous and unambiguous message, as opposed to lexicology, focused on the general aspects of a language.

Terminology as a science was formed over time, an important contribution in its development being brought by the *Schools of Terminology*, whose object of study differs from one organization to another. We considered the researches of linguists, terminologists(Eugen

[4] Maria Teresa Cabré, *Terminology. Theory, methods and applications*, Amsterdam/Philadepphia, John Benjamins Publishing Company, 1999, pp. 62-73.
[5] Yves Gentilhomme, *Termes et textes mathématiques. Réflexions linguistiques non standard*, în „Cahier de lexicologie", Nr. 76, Editura Classiques Garnier, Paris, 2000 , pp. 57-60.

Wüster[6], Maria Teresa Cabré[7], Louis Guilbert[8] , C. Dubois[9], J.-C. Boulanger[10], F. Gaudin[11] , Alain Rey[12], Loïc Depecker[13]) on the definition and specificity of terminology. Eugen Wüster, the representative of the Vienna School, supports the need to standardize terminology. In this way, any factor that affects the non-ambiguous and monosemantic character of the term is eliminated, such as synonymy, homonymy, polysemy etc. In Maria Teresa Cabré's[14] conception, the terminology is supported by: planning(of terminological resources), standardization(designation of concepts and elaboration of definitions) and dissemination of terms.

The concept of terminology cannot be addressed outside the notions of *terminologisation* and *determinologisation*. The migration of terms from the common lexicon to the specialized lexicon is called terminologisation. Medical language is no exception to this process. For example, the word *heart* has both specialized and stylistic meanings(fig. "headquarters of human feelings; character, wires; center, interior, middle".) *Heart* becomes an interdisciplinary term, being used in many scientific fields such as *Technique*, *Botany, Cardiology* etc. Determinologisation, on the other hand, is the process of migration of terms from lexicon specialized in the general lexicon. We identified the concept of *syncope*, which in the *Cardiology* discourse designates "the current cessation or reduction of brain circulation"[15] . Entering the journalistic language, the term is used with the meaning of pause, interruption: *economic syncope, social syncope, politic syncope* etc.

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[6] Eugen Wüster, *Introduction à la théorie générale de la terminologie et à la lexicographie terminologique. Edition française préparée par Edmond Brent*, Québec, Canada, 1979.

[7] Maria Teresa Cabré, *Terminology. Theory, methods and applications*, traducere din catalană de Janet Ann DeCesaris, Amsterdam/Philadelphia, John Benjamins Publishing Company, 1998, pp. *5-6*

[8] Louis Guilbert, *La créativité lexicale,* Paris, Larousse, 1975.

[9] C. Dubois, *La spécificité de la définition en terminologie(par comparaison avec la définition en lexicographie)*, în „Actele celui de-al 6-lea colocviu internaţional de terminologie", Québec, Editeur officiel du Québec, 1979.

[10]J.-C. Boulanger, *Problématique d'une méthodologie d'identification des néologismes en terminologie*, în „Néologie et lexicologie, colecţia Langue et langage", Paris, Larousse Université, 1979.

[11] F. Gaudin, *Socioterminologie: une approche sociolinguistique de la terminologie"*, https://journals.openedition.org/praxematique/2188, accesat în 09.02.2023.

[12] Alain Rey, *La terminologie : noms et notions*, Paris, Presses Universitaires de France, Collection Que sais-je ?, 1979.

[13] Loïc Depecker, *Entre signe et concept: éléments de terminologie générale*, Sorbonne, Presses Sorbonne Nouvelle, 2002.

[14] Maria Teresa Cabré, *Terminology. Theory, methods and applications*, traducere din catalană de Janet Ann DeCesaris, Amsterdam/Philadelphia, John Benjamins Publishing Company, 1998, p. 32, „The word terminology refers to at least three different concepts: the principles and conceptual bases that govern the study of terms; the guidelines used in terminographic work; the set of terms of a particular special subject".

[15] Valeriu Rusu, *Dicționar medical. Ediția a II-a revizuită și adăugită*, București, Editura medicală, 2004, p. 921.

We studied in our paper the changes in the language code, due to the development and modernization of society, the expansion of human knowledge, with application on the lexicon of *Cardiology*. In Maria Teresa Cabré's [16] opinion the interdisciplinarity of terminology is given by its linguistic, cognitive and communicative character. Angela Bidu-Vrănceanu[17] considers that interdisciplinarity, the characteristic of modern science, is reflected by the migration of terms from one specialized language in another specialized language, or from a specialized language in the common lexicon and vice versa. For example, the term *flow* refers in the field of technique "the amount of fluid or fine powder which passes, in a unit of time, through a section of a riverbed, of a pipeline or channel" [18], in the economic field designates the concept of "column in an accounting register or in an extract from such a register, which includes asset increases or liability reductions"[19], respectively. In general medical language, the term flow refers to "the amount of blood expelled by each ventricle in one minute". [20] .

The interdisciplinarity of terminology, a topic addressed in numerous studies and researches(Gheorghe Zaman și Zizi Goschin[21], Olga Cosovan[22]), designates the relationship between scientific content and conceptualization. In the case of terminology, interdisciplinarity paves the way for innovation and creativity and emphasizes the specificity of terms operating in different scientific disciplines. *Cardiology*, for example, needs *Technology*, so there is a lasting relationship between medical terminology and the field of engineering in medical technology. Elements of the lexicon of the technique appear in the medical vocabulary, depending on the requirements of each discipline or medical subdomains(see defibrillator).

Depending on the user and the vision regarding the term, the distinction between internal terminology and external terminology is made in the specialized literature. Angela Bidu Vrănceanu[23] defines the internal terminology(T1), an expert terminology, a concept by which

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[16] Maria Teresa Cabré, *Terminology. Theory, methods and applications*, Amsterdam/Philadepphia, John Benjamins Publishing Company, 1999, p. 25, „This interdisciplinarity of terminology is determined by the characteristics of termi- nological units, which are simultaneously language units(linguistics), cognitive elements(logic and ontology, i.e. part of cognitive science) and vehicles of commu- nication(communication theory)."

[17] Angela Bidu-Vrănceanu, *Lexic comun, lexic specializat,* Editura Universității din București, București, 2000, http://ebooks.unibuc.ro/filologie/vranceanu/part32.htm, accesat în 10.03.2023.

[18] Academia Română. Institutul de Lingvistică „Iorgu Iordan-Al. Rosetti", *Dicționarul explicativ al limbii române*(DEX), București, Editura Univers Enciclopedic, 2016, p. 298.

[19] *Idem.*

[20] *Idem*.

[21] Gheorghe Zaman, Zizi Goschin, *Multidisciplinariate, interdisciplinaritate și transdisciplinariate: abordări teoretice și implicații pentru strategia dezvoltării durabile postcriză*, în „Economie teoretică și aplicată". Volumul XVII, Numărul 12(533), 2010, p. 5.

[22] Olga Cosovan, *Conceptul de inter- și transdisciplinaritate a terminologiei*, în Revista „Didactica Pro…", Numărul 4(122), 2020, https://ibn.idsi.md/ro/vizualizare_articol/111217, accesat în 29.07.2022.

[23] Angela Bidu-Vrănceanu*, O perspectivă lingvistică asupra terminologiei / terminologiilor*, https://pdfcoffee.com/bidu-vranceanu-galati-2010-o-perspectiva-lingvistica-pdf-free.html, accesat în 11.03.2023.

scientific, domain and sub-domain, branch information is designated etc. Having a conceptual and cognitive character[24], the internal terminology respects the rules of a certain field of professional activity, having, at the same time, a nonambiguous nature. For example, the term *pulsation*(cf. fr. *pulsation*) is defined in *Cardiology* as „ each pulse movement ", and in *Physics* has the meaning of „ totality of periods performed of a periodic size, in certain time units" [25] . As mentioned in specialized literature(Maria Teresa Cabré[26], H. Béjoint, Ph. Thoiron[27], Loïc Dépecker[28]), internal terminology aims to decode and use the specialized meaning for several levels of communication.

External terminology(T2), or socioterminology is a descriptive direction of specialized languages, focused on linguistic aspects, in which research is carried out by using terms in real situations, in texts, in usage. Terminology is approached as a "natural phenomenon" and not conventionally, as is the case with internal terminology. François Gaudin[29] and William Bright[30] address the issue of external terminology, believing that the object of study of socioterminology is the movement of terms in synchrony and diachrony. External terminology implies the presence of synonyms, antonyms, polysemy etc. at the semantic level. The place of a term in external terminology depends on its level of popularization in media discourse or in general language.

The human brain designs –at a conceptual level – objects and classifies them according to similar or recurrent characteristics, through a process of abstraction, highlighting the relationship between term-concept. Jean Dubois *et all*...[31] considers the concepts as symbolic linguistic expressions, with a common general and valid meaning for concrete objects and phenomena. Another relationship we have focused on, in our research, is that between term and word. In this sense, numerous studies have been carried out(François Rastier[32], Angela Bidu-

[24] Pierre Lerat, *Les langues spécialisée*, Presses Universitaires de France, Paris, 1995, pp. 20, 61.
[25] DEX, *op.cit.*, p. 989.
[26] Maria Teresa Cabré, Terminology. Theory, methods and applications, John Benjamins Publishing Company, Amsterdam/Philadepphia, 1999.
[27] H. Béjoint, Ph. Thoiron, Le sens en terminologie, Presses Universitaires de Lyon, Lyon, 2000.
[28] Loïc Dépecker, *Entre signe ey concept. Élements de terminologie générale*, ed.cit..
[29] François Gaudin, *Socioterminologie: une approche sociolinguistique de la terminologie"*, https://journals.openedition.org/praxematique/2188, accesat în 11.03.2023
[30] William Bright, *Introduction: the dimensions of sociolinguistics*, https://www.degruyter.com/document/doi/10.1515/9783110856507-003/pdf, accesat în 11.03.2023.
[31] Jean Dubois *et all…*, *Dictionnaire de linguistique*, Paris, Editura Larousse, 2002, p. 107; „Orice reprezentare simbolică, de natură verbală, având o semnificație generală potrivită pentru o serie întreagă de obiecte concrete care posedă proprietăți comune se numește concept."(traducere proprie).
[32] François Rastier, *Le terme: entre ontologie et linguistique*, http://www.revue-texto.net/Inedits/Rastier/Rastier_Terme.html, accesat în 16.03.2023.

Vrănceanu[33], Eva Papamihali[34] etc.) on the term migration process, from the language specialized in common lexicon and from the general lexicon in specialized languages. We considered the stages by which a word becomes a term: 1. terminologisation; 2. derivation with prefixes and suffixes; 3. decontextualization; 4. use of the term by specialists.

In this context, our research is based on the semantic analysis of the terms subject to the phenomenon of migration from one language code to another. We considered the concepts of intention - the totality of the intrinsic characteristics that underlie a concept- and extension- the set of objects to which a concept applies. In the study of semantics, of the specialized meanings we considered – in the tradition of studies conducted by Maria Teresa Cabré[35]- the intrinsic properties- representative properties for a certain class- and extrinsic properties of the concepts in the field of *Cardiology*. Extrinsic features are always external to the definition of the concept. To be compared: *myocarditis*: a) intrinsic characteristics: inflammation; heart disease; unsystematised manifestations; various aetiology; inflammatory infiltrate; b) extrinsic characteristics: located in muscle fibres, interstitium and intramural vascular elements.
Other theoretical aspects addressed in our thesis are: the relationship of terminology-terminography, lexicography-lexicology, and the scientific definition in terminology.

In the second chapter, *The onomasiological dimension of terminology in the field of Cardiology*, we studied the internal terminology, appealing to the specialized literature. Following the corpus of terms that make up the approached scientific field, we researched(selectively) lexical units belonging to the specialized language(*heart, endocarditis, myocarditis, pericardium, stenosis, valvulopathy* etc.), but also terms that belong to or have entered the general lexicon, being accessible to non-specialists(*atrium, electrocardiogram, heart, heart attack, pulse, tension, ventricle* etc.).

We addressed the issue of the formation of nomenclatures in the field of *Cardiology*, starting from a brief history of general medical terminology. The formation of the internal terminology of cardiological speech was a complex process, carried out over the centuries. The

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[33] Angela Bidu-Vrănceanu, Lexicul specializat în mișcare. De la dicționare la texte, București, Editura Universității, 2007, p. 39.

[34] Eva Papamihali, *Laws and Their Inaction with Socioterminology - The Case of Urban Terminology*, în „European Journal of Social Sciences", Volume 1, Issue 2, May-August 2018, pp. 19-20, https://revistia.org/files/articles/ejss_v1_i2_18/Eva.pdf, accesat în 16.03.2023; „1. cuvinte ale limbii generale sau ale dialectelor sale; 2. cuvinte copiate din limbi străine; 3. împrumuturi, atunci când nu este posibil să se utilizeze pentru denumirea unui cuvânt în limba nativă; 4. termeni noi de creat pe baza cuvântului limbii materne sau pe calea modificării semnificațiilor cuvintelor cunoscute în limbă, pe calea trecerii denominației, cu lexiconul – formarea semantică"(traducere proprie).

[35] Maria Teresa Cabré, *Terminology. Theory, methods and applications*, Amsterdam/Philadepphia, John Benjamins Publishing Company, 1999, p.98, „Depending on the relationship they have with the object they represent, the char- acteristics of concepts can be intrinsic or extrinsic".

language of *Cardiology* is experiencing a remarkable development through the appearance of William Harvey's work in Latin, *Anatomical Exercitio of Motu Cordis et sanguinis in animalibus*[36]. This work is of particular importance both for cardiologists through onomasiological aspects and for linguists, terminologists and bibliographers through Greco-Latin terminology. For the first time, a complete description of blood circulation appeared

The evolution of terminology in the field of *Cardiology* cannot be approached outside the term *cardia*, cf. gr. *cardio, cardie*(ή καρδία, ας) = "heart", fundamental both in terms of structure, as well as in terms of the conceptual field it generates. From a structural perspective, *cardio-* is the concept around which the terminology of the field develops, being found in the dictionaries of European languages: en. *cardiopathy*; fr. *cardiopathie*; germ. *kardiopathie*[37], ru. *кардиопатия*[38] etc. The *cardio-* root is used in many neoclassical compounds, which designate: a) a place inside the heart (*epicard, myocardial, pericardium* etc); b) conceptual features, by categorical adjectives (*cardiac, cardioauditive, cardiocele* etc.) medical technique (*electrocardiograph, electrocardiograph, sphygmocardiograph* etc.); d)tests (*echocardiography, echocardiogram, electrocardiography* etc) diseases (*cardiosclerosis, cardiospasm, cardioptosis* etc.); e) surgeries-invasive and non- invasive (*cardioversion* etc.); g) pharmacology (*cardioaccelerator, cardiolipine* etc .); h) processes (*cardionector, cardioselectivity* etc.); professions, branches (*cardiologist, nuclear cardiology* etc.); j) structures of the human body (*endocard, endomyocardium, myocardial* etc); k) pathogens (*nocardia* etc.); l) abnormalities (*dextrocardia, ectocardia, levocardia* etc.).

An important role for establishing connections at international level is played by harmonizing and standardizing terms. Harmonization begins conceptually and continues at the terminological level, being an integral part of standardization. The purpose of harmonization is to improve communication. The terms harmonized within the same language are synonymous or variants of terms. Standardization focuses on the transfer and exchange of data and concepts and aims to harmonize terminology in the process of developing international borrowings, in different specialized and natural languages. The terms in the field of *Cardiology* go through the standardization process after the decisions. Thus, the terms designating devices, processes appear in official acts such as: EN 1060-3: 1997 + A2: 2009 Non-invasive sphygmometers; EN

[36] William Harvey, *Exercitatio anatomica de motu cordis et sanguinis in animalibus*, Francofurti, Sumptibus Guilielmi Fitzeri. 1628, https://books.google.ro/books?id=CchqAAAAMAAJ&printsec=frontcover&hl=ro&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false, accesat în 07.07.2022.
[37] https://dictionary.cambridge.org/translate/, accesat în 07.07.2022.
[38] *Idem.*

ISO 5840: 2009 Cardiovascular implants; EN 60601-2-4:2003 Electromeric devices. Part 2-4- for cardiac defibrillators; EN60601-2-25: 1995 Electromeric devices. Part 2-25- for electrocardiography; EN 60601-2-27: 2006 Electromeric devices. Part 2-27-on electrocardiographic monitoring[39]. Standardization and harmonization are two key issues in *Cardiology*, as demonstrated by internationally established links. Among the many examples of harmonization of terms we mention: ro. *angiocardiografie*, fr. *angiocardiographie*, en. *angiocardiography*, sp. *angiocardiografía*; ro. *angiotensină*, fr. *angiotensine*, en. *angiotensin*, sp. *angiotensina*.

In the third chapter of our research, we addressed issues related to *external terminology* in the field of *Cardiology*. We stopped at two semantic ways to create terms: *terminologisation* and *meaning transfer* used in the formation of specialized metaphor. In the same place we focused on the aspect of determining and migrating medical terms in the common lexicon. We approached the mentioned subchapters from the perspective of theoretical and practical aspects. Our observations focused on the differences between the two ways of forming the terms: *terminologisation* and *metaphorization*. *Terminologisation* is a semantic process that consists of the extension of meaning, in the modification and addition of new conceptual features, to the words in the general lexicon, without the use of an analogy, included in the dynamics of neological means of creation (Ileana Busuioc and Mădălina Cucu[40]). In the general medical lexicon, each term formed by terminology keeps particular semes of the basic word, but receives new meanings by adding other semes. Lexemes that have become *terms* are subject to a process of transition from a general to a particular, specialized meaning. For these reasons, specialized literature refers to the polysemantic nature of the terms, to the phenomenon of semantic "overload" (Verónica Vivanco Cervero[41]) of lexical units. However, the polysemantic character is annulled in the context, where the disambiguation occurs.

Although a clear boundary between terminologisation and metaphorization cannot be established in all communication situations, there are criteria on the basis of which the differences between the two processes can be marked. *Terminologisation* is a process of modifying and adding new conceptual meanings to the words in the common lexicon without the use of an analogy. The terminological metaphor, on the other hand, is formed on the basis of a pre-existing cognitive pattern (in the source domain) and a transfer of meaning to the target

[39] *Ibidem*.
[40] Ileana Busuioc, Mădălina Cucu, *Introducere în terminologie,* București, Editura Credits, 2001, p. 60.
[41] Verónica Vivanco Cervero , *Homonimia y polisemia: teoría semántica y aplicación lexicográfica*, Córdoba, Ediciones del sur, 2003, p. 97.

domain. It is a designation process, carried out in at least three stages - to identify the type of analogy, to make the analogy and to transfer the meaning - as opposed to terminologisation, which knows a single stage of realization-transition from general to private. The metaphor thus created has no subjective, emotional, stylistic value, but only cognitive value.

The medical terminology formed on the basis of a cognitive model is characterized by a high degree of scientificity, respecting the functions of the terminological metaphor, theorized in literature by Isabelle Oliveira[42]: *the denominative function, the heuristic function, the hermeneutics function, the explanatory function, the didactic function*. This last function of the terminological metaphor in the field of *Cardiology* is ubiquitous in the courses addressed to students, especially to those at the beginning of studies. The presence of the metaphorization process in courses, seminars, glossaries is due to the fact that for a student it is much easier to understand a certain phenomenon or a certain sign, if it is compared to a reality he already knows.

In terms of language structure, the metaphor in the field of *Cardiology* is not unitary. In the case of clothing metaphors such as the *heart shirt, the heart tunic*, the first term is the metaphorical centre of the structure, as in the case of metaphors of the human being, such as *the head of the chest*. For the habitat model we identified few terms (*heart chamber*). This category of cardiologic metaphors includes monolexical terms, themselves being formed on the basis of preconceptual models, belonging to the Greek and Roman house. The category of metaphors comprising household elements develops structures with metaphor at the second lexical unit (*heart in carafe, bellows sound*), but structures in the first category (*chest basket*) may also occur. The class of metaphors formed on the basis of elements belonging to culture and religion is also productive in the language of *Cardiology*. And in the case of metaphors formed on the basis of the war model (Lakoff and Johnson) the key element of metaphorization appears in the second lexical unit of the metaphorical phrase (*aorta on horseback…, soldier's heart, flat heart, gallop rhythm* etc.). In terms of morphological class, most metaphors from the field of study are made up of nouns in different cases.

[42] Isabelle Oliveira, *Nature et fonctions de la métaphore en science. L'exemple de la cardiologie*, Paris, L'Harmattan, 2009.

Cardiology metaphors are not a simple "ornament"[43] of the act of speech, but create a *metalanguage*, through which an object receives a new concept. Alessandra Rollo[44] emphasizes the difference between *dead metaphors* and *vivid metaphors*. The first category includes the mandatory metaphors, which designate a reality that could not be expressed by a term. For example, the metaphor of *white robe tension* expresses the state of agitation, accompanied by an inexplicable increase in blood pressure in the presence of a doctor. Reality takes on new meaning through *vivid metaphors*. In this case we mention the metaphor *cat tongue*, used by specialists to refer to the appearance of the *pericardium* (med. *fibrous pericarditis*).

In the tradition of studies conducted by Lakoff & Johnson, Alessandra Rollo, Isabel Oliveira, we made a classification of metaphors in the field of Cardiology, and considered: a) *structural metaphors* (a known concept is projected on an abstract concept); b) *orientation metaphors* (designates direction in space); c) *ontological metaphors* (through which an abstract element is concretized).

Exceeding the limits of terminology means cancelling the scientific nature of a term and using it with new meanings in the language of the press, for example in electronic publications or in the general language-procedure designated in the literature by the term *determinologisation*. Natalia V. Gorokhova[45] and Andreas Willi[46] accept that "determinologisation takes place constantly and is determined not only by linguistic factors but also by extralinguistic factors. The process of determining takes place for several reasons, including increasing the level of culture in a society (..) Industrial development plays an important role, due to this increase, all types of innovative technologies are increasingly introduced into human life and therefore the terms enter people's daily lives"[47].

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[43] Isabelle Oliveira, *Métaphore terminologique et stratégie pédagogique*, în „Analele Universității din București. Limba și literatura română", LVII, Editura Universității din București, București, 2008, p. 2, „dans notre analyse sur la « métaphore terminologique » nous récusons le statut de métaphore-ornement, si cher à la rhétorique classique. Nous pensons que cette réduction du statut de la métaphore à un ornement du langage cachait la peur d'une métaphore non rationnelle, dite subjective et dénuée de rigueur scientifique".

[44] Alessandra Rollo, *Les métaphores conceptuelles dans la science médicale : outil cognitif et communicatif*, https://riviste.unige.it/index.php/publifarum/article/view/1826/2251, accesat în 13.09.2022, „Lorsque l'on aborde l'étude des métaphores, on fait généralement une distinction entre « métaphores mortes » (en premier lieu, les catachrèses) et « métaphores vives »".

[45] Natalia V. *Gorokhova, Determinologization and transterminologization processes in modern oil and gas discourse*, în „National Interest, National Identity and National Security", Proceedings of the International Scientific Forum National Interest, National Identity and National Security, (NININS 2020), 10-12 March, 2020, Linguistics University of Nizhny Novgorod, Russia, p. 33

[46] Andreas Willi, *The Languages of Aristophanes. Aspects of Linguistic Variations in Classical Attic Greek*, Oxford, Oxford University Press, 2003, pp. 62-63.

[47] Natalia V. *Gorokhova*, *op.cit.*, p. 330, „This trend proves that the process of determinologization constantly occurs and is determined not only by linguistic but also by extralinguistic factors (Gorokhova, 2014). The process of determinologization takes place according to several reasons, including raising the level of culture in a society

The same lexical unit can have both specialized and non-specialized meanings, depending on the context ["There are words that have both a technical and a non-technical meaning. Sometimes the two meanings overlap (for example, *fruit* in general and botany)"[48]]. Lexical units such as *artery, circulation, heart, pulse, tension* have long exceeded the boundaries of medical terminology, and have become metaphors in the journalistic lexicon. Another category of terms entered the general lexicon, simultaneously with the evolution of the medical field, of the discoveries of the last century.

In the fourth chapter, *The language of Cardiology in the definitions of concepts*, we have achieved, from a comparative perspective, a theoretical and applied research of the definitions of concepts in the field of research, used in general dictionaries and medical dictionaries. In theory, we used studies developed by researchers in the field - Angela Bidu-Vrănceanu, Maria Teresa Cabrè, Vézina Robert, Darras Xavier *et.al*. etc. The *definition* is considered "an identity relationship between the definition and the defining one, the result of which is autonomous"[49]. The process of defining concepts is metalinguistic, regardless of whether it starts from a terminological unit to its definition (expanding), or whether the scientific approach begins from the phrase to the name of the designated concept. The term and definition of the concept must respect the academic principles of developing a definition. Quebec researchers rhetorically ask the question "What is defined: a concept or a term?"[50] Their view is that in terminology a concept is first defined. The authors do not rule out, however, the idea that a definition also refers to the term, given that it is not a label, but a lexical and semantic unit. A term cannot be separated from the concept it designates. When it comes into use through standardization, it is associated with a concept in the mind of the researcher. Therefore, the authors consider that the definition of concepts is achieved through the term.

The comparative study of the definitions used in general dictionaries, in the dictionary of neologisms and in medical dictionaries, allowed us to draw some conclusions. The medical definition in the field of *Cardiology* is a very complex process, due to academic and scientific requirements. The degree of scientificity differs from general dictionaries to medical dictionaries, given that the former address an unspecialized receiver, while medical dictionaries

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. The media, as a rule, also contribute to the popularisation of science among the population. The industrial development plays an important role, thanks to this growth all kinds of innovative technologies are increasingly being introduced into human life and as consequence terms penetrate the everyday life of people".

[48]Andreas Willi, *op.cit.*, p. 62, „There are words which have both a technical and non-technical meaning. Sometimes the two meanings overlap (e.g. fruit in general language and in botany)."

[49] Angela Bidu-Vrănceanu, Cristina Călărașu, Liliana Ionescu-Ruxăndoiu, Mihaela Mancaș, Gabriela Pană Dindelegan, Dicționar general de științe ale limbii, București, Editura Științifică, 1997, p. 150.

[50] Vézina Robert, Darras Xavier, Bédard Jean, Lapointe-Giguère, Micheline, *La rédaction de définitions terminologiques*, Montréal, Québec, 2009, p. 6.

are eminently addressed to specialists. If in medical dictionaries, the *definition* is a standardized form of discourse, sometimes airtight, characterized by rigor and conciseness, in general dictionaries this requirement is replaced by aspects related to the meaning of the word, first of all, only secondly referring to the concept. The general dictionary, consulted by us, is functionally semasiological, while medical dictionaries respect, as a matter of priority, the onomasiological dimension.

Comparatively researching the scientific *definitions* encountered in specialized and general dictionaries, we noticed that there are differences between le*xicographic definitions and terminographic definitions*. The former are considered to be equivalent to the word-entry and are formulated in complex or simple phrases. As mentioned above (Maria Teresa Cabré, Vézina Robert *et al*.) *scientific definitions* must respect the practical principles of terminology, of which: the principle of *brevity*, the principle of *clarity*, the principle of *explanation and adequac*y, the principle of *substitution*, the principle of *adaptation to target-groups* and the principle of *non-tautology*.

The case study conducted comparatively on a sample of 7 terms with the related concepts and definitions, allowed us to make other observations. In general dictionaries, the lexicographical definitions in the researched field are simple, devoid of the complexity and accuracy of medical definitions, in terms of conciseness. From the perspective of the principle of clarity, both lexicographic definitions and terminographic definitions are clear, the concept of designation being unambiguous. The scientific definition used by lexicographic sources provides both brief descriptions and explanations of the concept. Usually, the intrinsic characteristics of the notion are highlighted.

The principle of substitution is derived from the principle of *explanation and adequacy*. According to this principle, the medical definitions investigated by us, in DN and DEX, are reciprocal, the equivalence between a term and a definition being of such a nature, so that the medical term can be replaced by the definition. This principle allows the validation of definitions by replacing the term in question without loss or change of meaning. DM instead uses particularly complex medical definitions. The definition given to *anemia* is large, and compliance with the principle of *substitution* is impossible, from a contextual point of view.

The definition of *anemia* also respects another scientific principle, namely the principle of *adaptation to target-groups*. There is an important difference between specialized dictionaries and general dictionaries. The former offer several explanations for specialists, as a target group. On the other hand, the definitions offered by DEX and DN are mainly addressed to non-specialists who do not have expertise in the field of *Cardiology*.

Both the medical dictionary and the general dictionaries respect the principle of *non-tautology*. There are no unnecessary repetitions of the same idea, communication units and linguistic forms are chosen according to the purpose of the reception, and the ideas are expressed directly, without omissions.

The conclusion from this point is that the medical definitions given in DM are condensed forms of medical discourse, which respect, with the necessary exceptions, the scientific principles of elaborating a terminographic definition.

In the fifth chapter we focused our attention - theoretically and practically - on the aspects related to derivation with prefixes and suffixes, in the medical field and of the neoclassical compounds/ thematic compounds. The required observation is that there is a tendency to classify prefixoids in the prefix class, in usage. Raluca Ionescu, Florica Dimitrescu, Rodica Zafiu noticed this "sensitivity" of the Romanian language towards derivation, to the detriment of composition. We have included in this subchapter, prefixoids such as *hyper-*, *hypo-*, *ultra-*, *macro-*, *micro-*, *mini-*, *super-*, *super-*, which express the idea of superlative. There are prefixoids which, although used in the terms of the researched field, go beyond their borders, showing a slight tendency to determinologisation. To be compared: med. *hypercoagulated* with *hyperexcited* (in the common lexicon); med. *hypoalbuminemia* with *hypocaloric* (which entered the general lexicon); med. *microparticles* with *microclub* (used in the common lexicon) etc.

Suffix derivation is a process of enriching the lexicon that has had a considerable impact on the formation of nomenclatures in the field of *Cardiology*. In addition to the general meaning, suffixes contribute to the designation of concepts, by association with a specialized term. We considered suffixes such as – *tor* [which helps to designate medical concepts, processes and medical techniques, substance etc.], *-ac, -ar, -al, -ial* [*intracardiac, ventricular*], – *bit, -os, -ic* [*aortic, fibrous, angiographic*], -ism [*inotropism, pseudoaneurysm*] etc. specialized in the field of *Cardiology*. The necessary observation is that there are differences in usage and meaning in the use of suffixes in different language codes: if in the general lexicon, a suffix can contribute to the formation of lexical units, of a neologism - in a broad sense - in medicine, the same suffix is productive in the designation of conceptual traits.

The Greek-Latin source of the roots have a special relevance in the process of forming the nomenclatures of Cardiology. The formation of scholarly compounds respects the patterns and structure of the rather productive compounds - used in the general lexicon of the Romanian language. We focused on some features of the nomenclature in the researched field: predilection for neoclassical compounds; predilection for revitalizing Greek-Latin roots - a fact that proves the dynamic character of *Cardiology* lexicon - in polysyntagmatic terms, such as:

angiocholecystography, cardiotahimeter, tachyardiomyopathy etc. Revitalization is a sign of ultra-specialization of terminology and does not only talk about the dynamics of the lexicon.
In highlighting the specialized meanings we relied on the etymological study of roots and Greek-Latin source formations. In a statistic, even superficial, the *cardio-* root occupies the first place, from the perspective of *frequency* and *relevance*, appearing, in context, 3750 times. It is ubiquitous in the expression of the semantic spheres, contributing to their designation - processes, states, instrument names, tests, substances, anatomical structures, diseases, agent names, scientific field, etc.
Competing in the establishment of nomenclatures are numerous other suffixoids (*-fob, -gen, -graphy, -gram, -log, -patie, -tomy, -ectomy*).

Language responds to the needs of society, adapts to extralinguistic realities, but also to the changes that occur. In chapter six we focused on neology, neologisms. The chapter does not include a history of existing borrowing in the general lexicon of the Romanian language, given that, in the literature (Maria Teresa Cabré[51] Mădălina Cucu, Ileana Busuioc, Eugenio Coșeriu[52]) is a distinction between *innovation* and *neology*. Maria Teresa Cabré addresses this topic by setting five parameters for identifying the concept of neology: diachrony, lexicography, psychology and the instability parameter, and Eugenio Coşeriu considers that *innovation* can be a *modification* of an already known vocabulary, a *selection* between several variants of a vocabulary, an *invention* produced within the limits of a system, a *borrowing* from other languages or an economy. We considered, in our research, the distinction made in the literature[53] between two categories of neologisms: on the one hand, *lexical neologisms*, on the other hand, *terminological neologisms* (*neonyms*).
The difference between the two lexical spheres was necessary in order to be able to address the issues related to terminological creation and the function of neonyms in specialized languages, as well as paradigmatically researching medical terminology. Maria Teresa Cabré[54] called lexical neologisms, "*expressive neologisms*", and terminological neologisms "*referential*

[51] Maria Teresa Cabré, *Terminology. Theory, methods and applications*, Amsterdam/Philadepphia, John Benjamins Publishing Company, 1999, p. 205, „There are several possible parameters to determine if a unit constitutes a neolog- ism or not: a. diachrony: a unit is a neologism if it has arisen recently b. lexicography: a unit is a neologism if it is not in dictionaries c. systematic instability: a unit is a neologism if it exhibits signs of formal instabil- ity (e.g. morphological, graphic, phonetic) or semantic instability d. psychology: a unit is a neologism if speakers perceive it as a new unit".
[52] Eugeniu Coșeriu, *Teoria Limbajului și Lingvistica Generală. Cinci studii*, traducere în limba română de Nicolae Saramandu, București, Editura Enciclopedică, 2004, p. 95.
[53] Maria Teresa Cabré, *op.cit.*, pp. 205-206.
[54] *Idem,* „From the standpoint of their function, neologisms can be classified as either refer- ential or expressive. Referential neologisms develop because they are required, i.e. there is a gap in a specific special field that must be filled. Expressive neologisms develop simply to introduce new forms of expression into the discourse."

neologisms". We focused on terminological neologisms in the field of Cardiology, whose features respect the general characteristics of the neonyms used in specialized languages, such as:) *stability* and the *need* to linguistically designate a medical concept is specific to the terms borrowed from French and English (ro. aortă -cf.fr. *aorte*; ro. *angioplatie* -cf. en. *angioplasty)*; b) eliminates the ratio of synonymy, having a denotative value (ro. bioritm -cf. en. *biorhythm*, ro. cardiomiopatie- cf.fr. *cardiomyopathie*); c) in the case of neonyms the concept is designated by bimembre, plurimembers phrase, while lexical neologisms have monosyllabic, disyllabic structures, etc. (*angiotensin receptor blockers*, *left ventricular telediastolic diameter*); d) terminological neologisms do not refer to obsolete and dialectal forms of the language; f) neonyms are structured based on Greek-Latin roots (ro. angiocardiograf -cf. fr. *angiocardiographe*, ro. angiocardiografie -cf. fr. *angiocardiographie*); g) terminological neologisms cross the boundaries of natural languages, having an international character (ro. *bradiaritmie*, fr. *bradyarythmie* ,en. *bradyarrhythmia*, sp. *bradiaritmia*).

Linguistically analysed, we note that there are no large differences between terminological neologisms and expressive neologisms belonging to the general lexicon. Lexical neologisms have linguistic potential and have emerged as a result of the need to develop the expressiveness of speech. The borrowed term *analysis* (cf. fr. analysis) has many meanings, of which: research of an object, method of study, set of techniques, operation (in a broad sense), decomposition of an image, etc. Neologisms, on the other hand, are monoreferential. There is a nonambiguous relationship between concept and designation, as can be deduced from the following phrases belonging to the field of *Cardiology*: *analysis of rhythm disorders* (concept expressed by a polylexical phrase, in context), *analysis of bioimpedance vectors* (concept expressed by a polylexical phrase, in context) etc.

In terms of expression, neonyms and lexical neologisms use the same sources (natural languages, modern languages, classical languages etc.). Differences occur in the case of planning terms, standardization, a concept can be expressed not only through simple terms, but also through phrases, compound terms, etc. Both the lexicon of *Cardiology* and the lexicon of *Environmental Engineering* include compound and derived neological terms (with the necessary differences in the professional spheres, respectively the human being, on the one hand and the environment, on the other hand).

From a pragmatic perspective, neonyms have, first of all, a *denotative*, *objective* function. In the researched field there are no subjective, emotional meanings of the terms, the borrowings have the role of contributing to the understanding and dissemination of concepts. Competing in this function, both monolexical neologisms (*alveolus, heart attack, coronary*

etc.), terminological phrases (*myocardial sclerosis, aortic sclerosis, pulmonary stenosis* etc.), and abbreviations (*BMS, DES, HDL, LGE* etc.).

Another function of terminological neologisms is the referential function, corresponding to the context, having the role of indicating the use of specialized language in order to express a scientific reality and beyond. For example, in the case of abbreviations in the field of cardiological speech, when a specialist uses an abbreviation, he establishes a relationship with its developed form, to understand the meaning of the message sent by another specialist: the *VD* abbreviation refers only to the *right ventricle*.

In terms of *phatic* function, the abbreviations in the field of *Cardiology* fulfil the role of "vehicle" of the information to be valued. By using abbreviations, the transmitter aims to capture the attention of the (receptor to the other cardiologist, the specialist, the student) on a new scientific information. In the textual corpus used in this research, we observe three situations: a) at the first use the abbreviation appears followed by the extended phrase in parentheses, and in the rest of the incidences only the abbreviation is used (the case of *CMH-hydrodiomyopathy hypertrophic*); b) extended phrase appears next to abbreviation as an additional explanation in several communication instances - under images, in tables etc. (the case „ *VS-left ventricle*" [55]; c) in the third situation their abbreviations and extended synonyms are included in a separate list at the beginning of the treaties, courses.

In our thesis we included abbreviations in the class of neonyms. It is accepted -in specialized literature[56]- the fact that the abbreviation is "a neological linguistic process " which facilitates and presents in a synthetic form the scientific information. Abbreviations formed on Romanian-edifying linguistic ground for the economy of medical language - according to the English language model, are linguistic signs and designate in the lexicon of *Cardiology*: medical concepts (AC-anticorp etc .); institutions (SRC- Romanian Society of Cardiology); diseases (BVC-cardiovascular disease, chronic obstructive COPD-bronchopneumopathy etc); cardiological semiology (ventricular extrasystole, ventricular FV-fibrillation, etc); anatomical structures (right AD-atrium, pulmonary AP-artera etc .); technique (ARF- radio frequency ablation etc.); tests (ECG-electrocardiogram etc.); substances (AIS-steroidal anti-inflammatory drugs, CK-creat.); operations, interventions (AI-intensive care anesthesia, ICP-percutaneous coronary intervention, IOT-orotracheal intubation) etc.

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[55] Carmen Ginghină, *op.cit.*p.15.

[56] Maurice Grevisse, *Le bon usage. Grammaire francaise,* Paris, editions Duculot, 1964.

It is necessary to mention a particularity of the abbreviations, namely, the deliberate character. The linguists Oswald Ducrot and Jean- Marie Schaeffer[57] note that elements present in an abbreviation can designate several realities, depending on the context. T-letter, for example, from TV (ventricular tachycardia), TA (blood pressure), TRC (cardiac resynchronization therapy), TFS (superficial thrombophlebitis), TCIV (intraventricular conduction disorders) designates several realities, as can be seen in developed forms of the abbreviations.

We focused in our research and on the abbreviations formed by phrases belonging to the English language. The borrowings and the abbreviations of English origin are partially adapted to medical vocabulary and are particularly common in *Cardiology*. They have the same functions and the same semantic and conceptual value as the abbreviations created on Romanian linguistic ground.

The novelty aspect we noticed is that like the abbreviations in Romanian, the abbreviations of English source receive the flexion marks of the Romanian language, having gender, number and case: "long-term oral anticoagulation is mandatory, with *an* INR between 2-3, preferably over 2.5" (INR- International Normalized Ratio), "C8F-FDG metabolic imaging is the most common clinical application in cardiac PET" (PET-Positron Emission Tomography) etc.

From a scientific perspective, differences between medical information from English medicine and information from Romanian medicine are, in most cases, imperceptible. In the lexicon of Romanian *Cardiology* (but also of English *Cardiology*), *ECG* is a neological borrowing with multiple etymology (cf. fr. *électrocardiogramme,* cf. germ. *elektrokardiogramm*). In English, the *PHT* abbreviation is used to designate the concept of *pressure half-time*. In the medical vocabulary of the Romanian language, the term *pressure half-time* was transformed in the lexical unit *time of halving the pressure,* but in usage is maintained the abbreviation in English, PHT.

From the researches carried out, we notice that there are many situations in which - also as a novelty in the study of abbreviations - the medical language has a well-established term in Romanian, but the abbreviation does not correspond to the Romanian terminological unit, but the abbreviation in English was taken over and maintained. In the specialized literature (Elena

[57] Oswald Ducrot, Jean-Marie Scaheffer, *Noul dicționar enciclopedic al științelor limbajului*, traducere de Anca Măgureanu, Viorel Vișan Marina Păunescu, București, Editura Babel, 1996, p. 166.

Carabulea[58], Gabriela Pană Dindelegan[59], Adriana Stoichițoiu-Ichim[60]) there is addressed the issue of including abbreviations in the inflectional system of the Romanian language. In our thesis we included the abbreviations, from the researched field, in the class of abstract nouns as follows:

a) abbreviations that have become nouns and use flexion marks, the decisive article and the undecided article (*a* stroke)

b) abbreviation-formed nouns that receive categorical determinants and adjectives without a degree of comparison (a properly *performed* BLS, an *increased* PHT). Determinations may indicate the place (ECG *surface*), the state (*rest* ECG) etc.;

c) most of the nouns formed by abbreviation, with a high academic degree, are of the neutral gender (CT, ECG, BLS etc.), with some exceptions having the female gender ("Cardiac resynchronization therapy is indicated for patients with heart failure, who remain symptomatic (...) despite optimal medical therapy with an FE < 35%"[61]). The necessary observation is that in not all cases the abbreviations are classified as correct. For example, the abbreviation CMD is used in the female gender, in the statement "the hypothesis that this form of cardiomyopathy is a family CMD", although lexical units formed by abbreviation and terminated in consonant belong to the male or neutral gender;

d) nouns formed through abbreviation for which we do not identify the number opposition (BEM (Endomyocardial biopsy); IECA (Angiotensin converting enzyme inhibitors); ICFER (Low ejection fraction heart failure); ICFEP (Preserved ejection fraction heart failure);

e) from the point of view of syntactic functions, nouns formed by abbreviations are used either invariably or in different cases.

Carrying out a summary analysis on a 15 page sample we notice that in *Micul tratat de Cardiologie*[62] the average use of abbreviations is 20 units per page, while in *Cursul de Cardiologie*[63], the average is about 10-12 abbreviations on a page. The necessary observation is that the terminological evolution does not deviate from the observance of the functions of the language in the act of communication, nor from the norms of training and integration in the inflection classes of the Romanian grammar, as can be seen in abstract nouns, borrowed from French and English, or formed on the basis of abbreviations. The grammatical categories of

[58] Elena Carabulea, *Aspecte ale trunchierii cuvintelor în limba română*, în „Studii și cercetări lingvistice", nr. 6.
[59] Gabriela Pană Dindelegan, *Formații substantivale recente și rolul „clasificanților" în actualizarea lor* contextuală, în „Limba română", nr. 1-2, 1999.
[60] Adriana Stoichițoiu-Ichim, *op.cit.*
[61] Carmen Ginghină, *Mic tratat de* cardiologie, București, Editura Academiei Române, 2010, p. 323.
[62] *Ibidem*, pp. 1-894.
[63] *Curs de Cardiologie. Anul IV*, București, Editura Universitară „Carol Davila", 2016, pp. 1-509.

gender, number and case follow the rules of structure and flexion of the Romanian language, registering in the dynamics of the specialized lexicon in the field of current *Cardiology*. The indices of innovation and creativity are also represented by the latter class of nouns, formed on the basis of abbreviations, even if it is a non-homogeneous and atypical class, in many ways. The language economy in communication situations between specialists is an increasingly visible trend in written medical discourse. There is a pronounced tendency to replace complex, polylexical phrases with abbreviations. The cardiologist saves the effort of communication in relation to other specialists, gaining time in sending the message, by abstracting the complex structures.

In the seventh chapter seven we addressed the paradigmatic relationships of synonymy, antonymy, hyponymy and polysemy. We considered the following types of synonyms:

a) synonymy between term and definition, in dictionaries: the term *asthenia* appears in DEX with the definition "Intense and prolonged fatigue accompanied by physical weakness, decreased intellectual work capacity, etc."[64], and in DM with the definition "General decrease of the energy and performance of the body without cause-and-effect relationship with an effort."[65] The necessary observation is that there is a report of synonymy between the etymological meaning of the term and its definition. The differences are other than paradigmatic. The lexicographic definition given to the meaning of the word-title, in DEX operates with common terms, easy to understand by any non-specialized speaker in the medical field. Instead, the terminographic definition in DM uses a scientific language, explaining the specialized meanings from the perspective of the cardiologist;

b) synonymy between equivalent terms in different languages: ro. idioventricular, fr. idéoventriculaire, en. ideoventricular, sp. ideoventricular;

c) synonymy between terms used in different stylistic registers: *radiography* establishes synonymous relationships with the terms of non-specialized communication, *radius, film*. Although the term x-ray has entered the general language, the non-specialist will most often use the term radius or film, when referring to the x-ray. The term *radius* is an outdated word, has no scientific character, is interdisciplinary and can create ambiguities. It is polysemantic in the general lexicon, becoming ambiguous in the lexicon of *Cardiology*;

d) synonymy between alternative designations existing in different periods of language:

[64] DEX, *op.cit.*, p. 75.
[65] Valeriu Rusu, *op.cit.*, p. 224.

the phrase *angina pectoris* (cf. fr. *poitrine angina*) has as synonym the outdated form *press*, used with the meaning of "to characterize a pain in the heart area, but also in other regions of the body" [66];

e) the synonymy between equivalent neological terms, in *Cardiology*: the phrase *angina monocytic* (cf. en. *infectious mononucleosis*) is synonymous with *infectious mononucleosis* (cf. fr. *mononucléose infection*) in the sense that the latter is an infectious disease that is manifested, among others, through angina;

f) synonymy between the established medical term and the patronymic: *hemophilia B - Christmas disease* (Christmas is the name of the patient who was first observed without blood factor IX);

g) synonymy in Greek and Latin roots: *glossalgia - glossadenia*, where the roots *–algie* and -d*ynia* are synonymous, meaning pain, as Eugenia Mincu observes: „ glossalgia (< gr. glossa, „ tongue " + < gr. algos „ pain ") glossadenia = (gr. glossa < tongue „ " + gr. dynia < pain" [67]).

There are patterns of absolute synonymy, which, with the necessary exceptions, confirm the monoreferential and unambiguous status of the terminological unit.

In the field of *Cardiology*, antonymy relations are limited. We classified the antonyms according to several criteria, established by Richard Sîrbu, namely:

a) logical criterion: *lower cervical cardiac nerve- cervical heart upper cervical cardiac*, where the intermediate term is *middle cervical cardiac nerve*;

b) linguistic criterion: noun. *expansion* ≠ noun *contraction*; adj. *dilated* ≠ adj. *contracted*; vb. a (se) dilate ≠ vb. a (se) contract;

c) ontological criterion: anterior-posterior (*anterior interatrial groove ≠ posterior interatrial groove*)

d) psychological criterion: *accelerated ≠ slow*, *chronic ≠ temporary*, *diurnal ≠ nocturnal*;

e) structural-semantic criterion: *vasodilation ≠ vasoconstriction*: SC-object, abstract, physiological process; Cardiovascular sc- phenomenon; Increasing the diameter of a blood vessel / decreasing the diameter of a blood vessel.

The antonymy relationships established between terms contribute to the accuracy of the message sent by the speaker and allow professionals to use contradictory concepts, without an intermediate level and to express as accurately as possible opposite actions.

[66]Termeni populari, https://sanoteca.md/termenpopular/a?page=1, accesat în 04.06.2022.
[67] *Idem*.

Regarding hyponymy relations, we started from the assertion that hyponyms express hierarchical relationships that underlie lexical and terminological definitions and contribute to the formation of concrete differences. Hyperonyms establish an opposition relationship with hyponyms. In cardiological speech, hyponymy works in all conceptual areas of discipline. Thus, we identified: hyponyms that refer to diseases (the terminological unit of *angina* is a hyperonym for the following hyponyms: *acute coronary angina, unstable angina, angina pectoris, angina Prinzmetal, stable angina, vasospastic angina*), hyponyms designating medical techniques and tests (*index* establishes a hyponym relationship with 23 hyponyms identified in DM, such as: *cardiac index, cardiothoracic index, coagulability index, colorimetric index and systolic index* etc.), hyponyms referring to places of residence (the term *block* becomes a hyperonym for hyponyms: *atrioventricular block, heart block, branch block, sinoatrial block*), hyponyms that refer to clothing (the term *fibre* becomes a hyperonym having a rich set of hyponyms, such as: *ansiform fibres, circular fibres, common fibres, ring fibres, muscle fibres, own fibres, spiral fibres, transverse fibres*) and hyponyms by which anatomical structures and parts of internal organs are designated (the term *ligament* establishes, at the level of conceptual structures, a hyper-hyponymy relationship with the hyponym series: *esophagogericardic ligament, phrenopericardic ligament, sternopericardic ligament, thyropericardial ligament, tracheobronchopericardic ligament and vertebropericardic ligament*) etc.

The issue of polysemy, an unacceptable semantic relationship in medical terminology, was addressed only from the perspective of the general characteristics of the term, namely the interdisciplinary character. Polysemy occurs when a term refers to various concepts belonging to different disciplines. For example, the term *alveolus* belongs to the fields of *Cardiology*, *Biology* and *Geography*, while the term *bow* belongs to the fields of *Engineering*, *Sports* and *Cardiology*.

The eighth chapter was devoted to the partial research of the morphological foundations that define the cardiological discourse. We selected, for analysis, the noun and the categorical adjective. *Common nouns* designate concepts from a wide range of the medical field under investigation. We meet nouns such as: *analysis, device, bow, artery, cone, and diastole*. *Proper nouns*[68] reveal specific information, with limited area, especially in the patronymic. They designate names of persons, toponyms, etc. being spelled in capital letters, regardless of the place occupied in the sentence: *Aschoff-Tawara*, *Bihor*, *Botallo, Doppler*, *Dressler* etc.

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Concrete nouns contribute to the designation of elements belonging to conceptual spheres, of which medical instruments and operations - for example: *sphygmomanometer, stethoscope* etc. *Abstract nouns* represent the class with the highest scientific degree in cardiological discourse (and not only!), having the ability to designate concepts that can be perceived in an abstract way: *pain, suffocation, speed, drowning, headache, vertigo* etc.

From a structural point of view, the nouns used in the cardiological discourse can be *simple* or *compound*. In the first category we included nouns consisting of a single lexical unit: *alveolus, aorta, cavity, circulation, contraction, fibre* etc. Compound nouns consist of several lexical units or abbreviations, such as: *arteriography* (*artery + graphy*), *atrioventricular* (*atrium + ventricle*).

In terms of number, there is a *single/plural* opposition in the classification of nouns. In the cardiological speech we identify, first of all, *countable nouns*, which we have classified according to the conceptual spheres of the field in: a) devices / instruments (*angiocardiograph / angiocardiographes, electrocardiograph /electrocardiographs*); parts of the heart cavity (*artery/arteries, alveolus/alveoli*); diseases and phenomena (a*rrhythmia/arrhythmias, bradycardia /bradycardia*).

The nouns researched in cardiological discourse are functional only in four of the five cases of the Romanian language, respectively, nominative, genitive, accusative and dative. The vocative case can appear only in the doctor-patient relationship, an aspect that we did not deal with in our research.

From a morphosintactic point of view, some nouns were formed by reference to a base of verbs and adjectives. Thus, we identify in *Cursul de Cardiologie* the following examples: *approach, accentuation, damage, elongation* etc.

The adjectives used in *Cardiology* are the so-called categorical adjectives. From a structural point of view, the categorical adjectives respect the structure of the adjectives themselves. We selected from the textual corpus: a) simple categorical adjectives: *absent, acute, adult, blue, allergic*; b) compound adjectives: *atrioventricular, cardiovascular, dopaminergetic, endomyocardial*; c) negative categorical adjectives: *irreversible, painless, unaccompanied*.

The categorical adjective does not allow grading. The categorical adjectives are functional to the positive degree. The degrees of intensity exist only in the adjectives themselves and are made by analytical grammatical marks, always positioned in front of the adjective. The adjective that receives degrees of intensity is usually an adjective with two, three or four endings.

The role of categorical adjectives in the lexicon of *Cardiology* is to contribute to the disambiguation of specialized meanings, in context. In relation to the noun, the categorical adjective forms a designative, univocal terminological unit. In the examples *the alveolar artery, the basilar artery, the brachial artery, the carotid artery* we observe that the categorical adjectives particularize several conceptual and semantic characteristics, specific to a general referent.

In conclusion, our doctoral thesis has achieved its objectives set at the beginning of the research. We analysed the work of William Harvey, *Exercitatio anatomica de motu cordis et sanguinis in animalibus,* and we noticed that the terminology of the European *Cardiology* is homogeneous, starting from the Middle Ages. The importance of this volume is that it offers a complete body of terms in the field of *Cardiology,* in Latin, since 1628.

We have distinguished between the *terminologisation* and the process of *metaphorization* in terminology, even if sometimes situations can remain ambiguous. Although a demarcation line between *terminologisation* and *metaphorization* cannot always be established, there are sufficient criteria to distinguish between these two processes. Compare the terms: *metabolic pathway* – "a series of chemical reactions that occur in a cell." -, *percutaneous pathway*- "methyl and sulfur salicylate is introduced into the body in the treatment of acute joint rheumatism" -, terms formed by the metaphorical process with the phrases c*oronary-dilating effect, anticoagulant effect, inhibitory effect* formed by the terminologisation of the noun *effect*.

We developed a typology of the metaphor in the field of *Cardiology*. The process is based on the transfer of names (noun, verb, rare) made on the basis of an analogy (with clothing, habitat, culture and religion, war, landscaping and chromatic), of a preconceptual model - if we consider the terminological metaphor.

We researched the definition in the field of *Cardiology* from the perspective of scientific standards proposed by linguists: brevity, clarity, explanation and adequacy, substitution, adaptation to target groups, non-tautology.

The comparative analysis of definitions was performed from the point of view of internal terminology (at the level of medical dictionaries) and from the perspective of external terminology (at the level of general dictionaries, of neologism dictionaries and, in part, of electronic publications).

We approached the abbreviations in the chapter *Terminological Neologisms from the lexicon of Cardiology* and the nouns formed based on the abbreviations in the researched field. The relationship of synonymy was researched from a terminological perspective, between term and definition at the level of dictionaries, between neological terms, equivalent in *Cardiology* or

between the established medical term and patronymic. Researching the antonymic relations in *Cardiology*, we noticed that it is much more restricted than synonymy and that specialists operate, most often, with contradictory notions that do not involve intermediate levels, to reproduce as correctly and precisely as possible opposing actions.

In researching the hyponymy relations we focused on the hierarchical organization of medical notions, observing that their structuring in hyponymous hierarchies ensures a better systematization and a high degree of univocity. We also dealt with two of the morphological foundations of the *Cardiology* speech, the noun and the categorical adjective. With the help of these two morphological classes, phrases with pragmatic values can be formed that have the role of completing, clarifying, designating concepts, etc.

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