



DYSERTACJE
WYDZIAŁU
NEOFILOLOGII
UAM
W POZNANIU
(NOWA SERIA)

5

JĘZYKOZNAWSTWO

GRAMMATICAL
PROPERTIES
OF SPECIALIST
TERMINOLOGY
IN THE
CONTEMPORARY
MEDICAL AND
MEDICINE-RELATED
LANGUAGE

SZYMON MACHOWSKI (ED.)

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Introduction

As a point of departure, it should be emphasized that the present study might be considered as a continuation of Szymon Machowski's own latest research on using Polish and English for special purposes with special focus on medical language (cf. Machowski 2015) and the properties of transportation vocabulary items used in medical settings.

In addition to that, the content of this monograph corresponds to numerous research findings of other linguists, with special regard to the research on languages for special purposes (cf. Grucza 2012) the language of logistics (cf. Matulewska, Matulewski 2005, 2010) and medical language translation (cf. Kościałkowska-Okońska 2012) and metaphors in medical phrases (Gierzyńska 2015). In both cases, the analyzed specialist terminology items happen to occur not only in various documents from the same domain, e.g. logistic and medical reports but also in numerous acts of law which are currently in force. This encouraged the authors to provide a two-fold linguistic approach to investigating logistic and medical terminology in valid Polish acts of law. On the one hand, the terms are regularly analyzed from the typological approach, which means they are described in terms of the semasiological properties of language units they represent, e.g. determinational chains (cf. Bańcerowski 1980), concordial and rectional syntagms (cf. Bańcerowski 1988, 1997) compound (cf. Bańcerowski et. al. 1982, Stroński and Machowski 2011) and simple words. On the other hand, the authors investigated how the terms are correlated with the type of legal documents (cf. Matulewska 2007) .

The first chapter by Ludomiła Machowska and Szymon Machowski titled „Selected present terms related to special language translation and its morphological and syntactic properties” includes an overview of contemporary linguistic domain-specific terms used in translating specialist texts from one language into another and the grammatical analysis of special language terms. Due to the present domination of the English language in medical publications, an emphasis will be put on the English-Polish translation techniques. What is more, the above literature-based considerations will be referred to the grammatical structure of widely used terms used in selected previous studies.

The second chapter entitled „A preliminary insight into the lexical field of flow cytometry terminology” also by Ludomiła Machowska and Szymon Machowski is devoted to outlining the most striking differences in the English-language and Polish lexical stock of classical medicine and a laboratory diagnostics technique which imposes another linguistic approach to exploring both domains for the purpose of their linguistic reconstruction. To the best of the authors’ knowledge, the lexical area of flow cytometry terminology has never been linguistically investigated so far which was the major incentive to undertake the research presented in this monograph. This English-Polish comparative research was motivated by the fact that „English is now widely employed as a medium of instruction in medical schools in countries where it is a second or a foreign language. It is the main medium for medical textbooks, journals, and abstracting indexes, and is by far the most used language in international medical meetings [Asher (1994: 2432)] after Maher (1986)”.

The third chapter entitled „Transportation terminology of medical usage in Polish normative acts” is authored by Szymon Machowski and partly based on his own Polish-language paper presented at the Conference of Small Languages and Languages for Special Purposes in the Institute of Linguistics at the Faculty of Modern Languages and Literature of Adam Mickiewicz University in Poznań in May 2015. The chapter is devoted to presenting a corpus-based study of Polish transportation terms of medical usage in 8 currently valid ministerial decrees. In the first place, 130 transportation terms were excerpted from the logistics language course book for students. Next, one analyzed the terms’ morphological or syntactic properties with respect to a language unit they represent. Then after, their properties were correlated with the type of the legal formula in which they were originally used as subjects or objects. Eventually, the correlated properties were generalized in order to hypothesize about the lexical and legal preferences of Poland’s legislative branch of authority.

In turn, the fourth chapter entitled “Names of healthcare professionals in contemporary Polish acts of law. A syntactic and corpus-based study” also by Szymon Machowski is an extended version of the author’s conference paper with the same title presented at the Tenth Conference on Legal Translation, Court Interpreting and Comparative

Legilinguistics held in June 2015. The conference was organized by the Department of Legilinguistics and Languages for Special Purposes in the Institute of Linguistics at the Faculty of Modern Languages and Literature of Adam Mickiewicz University. This chapter is basically devoted to presenting a corpus-based study of Polish names of health-care professionals as occupation terms. Therefore, the entire research encompasses both a purely word-formational or syntactic approach to Polish medical or occupation terms and their frequency analysis combined with the legal language properties of their source legal texts. In the first place, 32 occupation terms were excerpted from 9 currently valid medicine-related bills. Next, one analyzed their morphological or syntactic properties with respect to a language unit they represent. Then their properties were correlated with the type of the legal formula in which they were used as subjects or objects. Eventually, the correlated properties were generalized in order to hypothesize about the lexical and legal preferences of Poland's legislative branch of authority.

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Chapter 1

Selected present terms related to special language translation and its morphological and syntactic analyses

Szymon Machowski, Ludomiła Machowska

As mentioned in the introduction, this chapter is devoted to presenting a few contemporary terminological items particularly useful in special language translation and analysis. Although these terms underlie the methodology of the consecutive chapters, they have been selected with special regard to the language of medicine and laboratory diagnostics due to the authors' predominant areas of research. These terms are enriched by a brief explanation of their selection and might also be reckoned to be word-formative, morphological and syntactic foundations of the grammatical approach to investigating the language of medicine. Noteworthy, it is very noticeable that the both the translative and grammatical approaches are closely related to different areas of linguistics. Namely, the translative aspects of the language for special purposes belong to applied linguistics (cf. Davies, A. and Elder, C. 2004, Schmitt, N. 2002). In turn, a wide range of grammatical analyses of specialist terminology and language expressions are part of theoretical linguistics (Krifka, M. 2015 (eds.)) This chapter is divided into separate sections devoted to particular terminology typical of the branches of linguistics.

1. Terms from the domain of special language and its translation
 - (i) "Special languages are readily recognized as pragmatic and extra-linguistic subdivision of a language" (Sager and Dungworth 1980) (see also Dickel 2008. Marchwiński 2008).
 - (ii) "Legilinguistics is a branch of linguistics which investigates *lingua legis*. (...) Legilinguistics is a science

about linguistics aspects of legal reality, that is both the process of the creating of *lingua legis* and the product¹.” (Matulewska 2007: 25)

- (iii) *Lingua legis* is a term “used to refer to the language of law and the meta-language of the law where the former is the language of legal instruments and the latter is the language used to describe and talk about the former, i.e. the language of the law” (Matulewska 2007: 25).
- (iv) “The term “translation” is the neutral term used for all tasks where the meaning of expressions in one language (the ‘source’ language) is turned into the meaning of another (the ‘target’ language) whether the medium is spoken, written or signed” (Crystal 2013: 354).

The above terms were used in the chapters on the status of Polish terms from the domains of transportation vehicles or devices or health-care professionals’ jobs defined in Polish acts of law. All of the above definitions might be considered as a piece of reference literature needed to specify a few legilinguistic features of the transportation or medical vocabulary in question.

- 2. Terms from the domain of linguistic word formation, syntax and morphology useful in investigating grammatical properties of specialist terminology in medicine and medicine-related contexts
 - (i) The subject is the “main syntactic function in nominative languages, such as English, which is marked morphologically, positionally and structurally depending on the specific language. The most common morphological marker is the nominative case” (Bussmann 1996: 460).
 - (ii) The object is a “syntactic function in nominative languages which depending on the language, is marked either morphologically (e.g. either by an oblique case)

¹ Another suitable definition of this term was proposed by Marcus Galdia (2009) who claims that “material issues of legal linguistics such as legal terminology and subsequently the linguistic operations that are characteristic for law, especially the legal argumentation, the legal interpretation the legal translation” (Galdia 2009: 21).

- or positionally (e.g. after the subject) and generally denotes a thing or state of affair which is affected by the event denoted by the verb” (Bussmann 1996: 335).
- (iii) Clinical linguistics is “a subdiscipline of applied linguistics that makes use of linguistics theories, methodology and research findings for the explanation, diagnosis and treatment of organic and/or psychological disturbances in communication and language acquisition” (Bussmann 1996: 77).
 - (iv) Compounding is described as a process of creating compound lexemes from at least two lexical morphemes or word stems (por. Anderson 1994, Grzegorzczkova 1974: 59, Handke 1976, Kurzowa 1976: 8, Jadacka 2001: 40–45, Waszakowa 2005, Waszakowa 2010, Waszakowa 2012).
 - (v) „Appositional structures, in which we loosely group the non-coordinated examples above, have received very little attention in the LFG literature and as a consequence the analysis of these constructions, and their potential structural relationship to NP coordination, raises a number of interesting issues” (Sadler, L., Nordlinger, R. 2006).
 - (vi) A multideterminational chain is defined as a “set of lexes which can be determinatively ordered in a sequence” (Bańcerowski 1980: 90).
 - (vii) „Acronyms are abbreviations that can be formed in two ways. First, words can be formed from initial letters of each part of a compound word or phrase and then pronounced as the words they become: SARS and NASA are examples” (Denham, Lobeck 2009: 199).

The above terms are useful in performing detailed analyses of how medical and technical terms from the domain of flow cytometry and a wide range of transportation terms are linguistically constructed. All of these terms were also applied to the investigation of semasiological properties of medical and technical vocabulary items (cf. Chapter 3,4). Interestingly, acronyms were also included in the overview because acronymization as a word-formational process is very active in creating names of antigens (see also Chapter 2) in flow cytometry blood and

bone marrow tests for the sake of diagnosing not only oncological but also infectious sicknesses (cf. Mozer-Lisewska et al. 2014, Kowala-Piaskowska, A. 2004).

What is more, typical syntactic terms such as subjects and objects are inevitable to state the position of medical or transportation terminological items in determination chains (cf. Bańcerowski 1980) within legal formulas (cf. Chapter 3,4). In turn, the concept of determination chains (cf. Bańcerowski 1980: 90) as complex syntagms and the concept of two-word syntagms such as rectional (cf. Bańcerowski 1997: 13) and concordial syntagms (cf. Bańcerowski 1998: 53) were necessary to describe the syntactic structure of sentences in which medical or transportation professionalisms occurred.

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Chapter 2

A preliminary insight into the lexical field of flow cytometry terminology

Szymon Machowski, Ludomiła Machowska

Introduction

The thematic area of this chapter is confined to the comparison of the lexical field of flow cytometry terminology in contrast with the wide range of medical terms. Before the 2 areas have been compared and analyzed in terms of the degree of their mutual overlapping, flow cytometry as a clinical procedure should be defined: “Flow cytometry is a technology that is used to analyse the physical and chemical characteristics of particles in a fluid as it passes through at least one laser. Cell components are fluorescently labelled and then excited by the laser to emit light at varying wavelengths” (Robertson 2014). By analogy to other comparable medical and biotechnical scientific disciplines, experts on flow cytometry might also be considered to have their own communicative community defined as “a language community is a communicative community, which makes use of a uniform means of communication, that is, a common language. Hence, each language community is a communicative community but not conversely. The latter is a basis for the former. The language community can be viewed as a product of and a kind of superstructure imposed upon the corresponding communicative community” [Zabrocki (1963) as cited by Bańcerowski (2001: 37)] . Nevertheless, the currently increasing number of internationally active specialists in flow cytometry, also known as flow cytometrists (Given, L.A. 2001: 11) and users of flow cytometers are employed in hospitals or other medical centers and cooperate mostly with physicians, particularly with oncologists and specialists in treating infectious diseases (cf. Skalska-Sadowska. J. 2016)

on a daily basis. This makes it fully legitimate to analyze a number of the linguistic properties of flow cytometry terminology with respect to medicolinguistics which is „a discipline located between medical sciences and linguistics” (Machowski 2015: 179) as contrasted to medical linguistics that also refers to medical informatics and library sciences (cf. Sadegh-Zadeh 2015: 61). It is also inevitably apparent that the present research corresponds with recent linguistic studies on other branches of purely medical terminology related to e.g. middle ear surgery (ten Hacken 2015: 55-72), infectious diseases (Machowski 2015: 179-214) where numerous onomasiological means were used to analyze the lexical stock of various branches of medical sciences. Therefore, it seems to be fully appropriate to provide with a word-formational approach to the analysis of the current terminological stock of flow cytometry and combine it with a few translation aspects. This would expectedly confirm the statement that: “for linguists the language of medicine is fascinating for the flow of concepts and words from one tongue to another. For medical doctors, an appreciation of the history and original meaning of words offers a new dimension to their professional language” (Wulff 2004: 188).

Methods and Aims

As it was mentioned in the introductory section of this monograph, the entire study is intended to:

- (i) describe the morphological/word-formational and onomasiological properties of presently widely used terms,
- (ii) specify the correlation between the semasiological and onomasiological features of the terms and their consequences in English-Polish medical translation,
- (iii) to develop a short printable test for linguistic students that might be possibly useful in academic courses of English or Polish for special/specific purposes (see Appendix).

The next paragraphs are fully devoted to outlining the underlying theoretical problems. In the next part, the terms are used to assess their linguistic properties.

Word formational and morphological aspects of flow cytometry terminology

As a starting point for this type of considerations, it should be emphasized that the entire terminological scope consists of purely technical, biotechnical and medical vocabulary items which evidently differs the language of flow cytometry from the language or jargon of classical medical specialties in Poland and English-speaking countries. Each of the above terminological areas will be somewhat related to onomasiological classes of flow cytometry terminology.

As to Polish word-formational constructions, they are based on e.g. derivational affixes which follow the stem of words, e.g. *-yk, -ista, -ing, -ant, -er* (Waszakowa 1994: 24) and „*-anie, -ec, -nia, -ka, -acz, -arka, -ość, -enie, -stwo, -arz, -isko, -ów, -ka, -nica, -owicz, -aczka*” (Jadacka 2001: 43)., e.g. which are predictably represented by numerous professionalisms from the Polish transport profession, e.g. *hiper-węzeł, super-ACR, megacabrio*. In special, language expressions one might expect a number of compound words with the constituents derived from the proper names (or sometime nicknames) of mostly widespread devices. These compound words can be unambiguously classified as Polish compound nouns of English origin, e.g. *mega-AMD, TD-AMG*, etc. Such a classification of the compound words is sufficient to investigate whether they represent the following word formative types into: „compounds with interfixes (-u, -y, -o)” (Jadacka 2001: 57) e.g. „*gruzobeton, pianobeton*” (Jadacka 2001: 57), „interfix-paradigmatic compounds” (Jadacka 2001: 57), e.g. „*ciśnieniomierz*” (Jadacka 2001: 58), „aggregates e.g. *ćwierćfinal, półdystans*” (Jadacka 2001: 58) and „interfix-suffixal compounds, e.g. *rybołówstwo, wodolejstwo*” (Jadacka 2001: 59). A particular emphasis will be put on neoclassical formations that „consist of Greek or Latin elements which usually do not occur as independent items” (Panocova 2012: 31). Such compounds consist of neoclassical formatives which are

“available for the formation of new lexemes but they are not lexemes themselves, which implies that they are bound morphemes” (ten Hacken & Petropoulou 2002: 170). This corresponds to the statement that „Polish scientific vocabulary, as well as in other European languages, is mostly based on roots of Greek origin” (Stroński 1998: 134).

The compound constituents in Polish might be international constituents (Waszakowa 2005) that include: “ *-euro, soc-, socjal-, -gate, pseudo-, wideo-, seks-, sekso-, sex-, -logia, foto-, -terapia, info-, porno-, krypto-, -mat, tele-, homo-, -land, -landia, makro-, agro-, psycho-, -biznes, para-, -holik, multi-, spec-, -fobia, techno-, top-, wideo-, anarcho-, neuro-, -man, -men, inter-, interneto-, -fan, elektro-, termo-, -fon, -holizm, moto-, paleo-, -fil, rock-, rocko-, techno-, unio-, alko-, aero-, areo-, audio-, biznes-, demo-, quasi-, ski-, wice-, -burger-, nauta, cyto-, demo-, dysko-, hydro-, meta-, mono-, radio-, turbo-, -centrum, -teka, astro-, ero-, giga-, immuno-, nano-, tama-, -bus, -net, -seks, -strada, -van, alter-, angio-, api-, apio-, bi-, chemo-, cyklo-, etno-, fono-, gastro-, inwest-, ko-, m-, mc-, mak-, mikro-, nekro-, penta-, petro-, poli-, web-, antropo-, aqua-, biblio-, chromo-, chrono-, cyklo-, fan-, fito-, geo-, global-, glob-, hard-, hetero-, hipo-, inter-, irydo-, krio-, maks-, maxi-, media-, pop-, semi-, soc-, socjo-, lutra-, -fax, -faks, -grafia, -patia, -show-, -skopia, -skop, -wid, arte-, arto-, artro-, fit-, giga-, metro-, miks-, mix-, moto-, off-, ost-, play-, polit-, sat-rom, -iatria, -kreacja-, -log, -metr-, -metria, -nomia*” (Waszakowa 2005: 76–88).

To analyze the word formative structure of the professionalisms manually selected from the lemmatized tokens, they ought to undergo the binary word formation decomposition (Jadacka 2001: 37). This linguistic procedure will enable to classify every single professionalism either as a simple or a complex derivative of a certain kind. The underlying binary decomposition theory is based on the binary structure of words (Marchand 1974) and their universality corresponds to the statement: „It is claimed that decomposition analysis is universal, i.e. that all lexical items in all languages may be broken up into (semantic) features, which themselves do not always have a universal character” (Mańczak-Wohlfeld 1992: 134). Another semasiological category is a set of flow cytometry terms represented by syntagms. To reconstruct their properties, one will apply the syntactic constructions described by Bańcerowski (1980, 1987, 1998) also mentioned in the introductory chapter.

Onomasiological and semasiological characteristics of flow cytometry terminology

This paragraph is fully devoted to performing a bidimensional (onomasiological and semasiological) analysis of contemporarily used flow cytometry terms based on their sample. This section of the entire study is only partially based on the reference literature items. In fact, the terms are excerpted from a few books on flow cytometry from various periods of time (including various decades) but then they were selected as linguistic study subjects on the basis of the flow cytometry user's decision. The decision was motivated by their contemporary practical usage. As a result of the selection process, a sample of presently used terms is shown underneath.

(i) chemical substances used in blood tests

term	grammatical structure of the English-language term	Polish equivalent	grammatical structure of the Polish equivalent	definition
<i>Propidium iodide</i>	Appositional structure	<i>Jodek propidyny</i>	Rectional syntagm	“Propidium iodide is a probe that can be used to measure quantitatively the amount of double-stranded nucleic acid that is present in a cell” (Givan 2001: 253).

<i>CD 34 antibody</i>	Acronym	<i>przecwicało CD 34</i>	Acronym	“CD34 is a transmembrane phosphoglycoprotein, first identified on hematopoietic stem and progenitor cells. Clinically, it is associated with the selection and enrichment of hematopoietic stem cells for bone marrow transplants.” (Sindey, L. et al. 2014: 1380).
<i>CD 19 antibody</i>	Acronym	<i>przecwicało CD 19</i>	Acronym	“CD19 is a B-cell surface protein expressed throughout B-cell development; therefore, it is expressed on nearly all B-cell malignancies, including chronic lymphocytic leukemia (CLL), ALL, and many non-Hodgkin lymphomas” (Maude, S.L. et al. 2015: 4019)

<i>CD 3 antibody</i>	Acronym	<i>przecwicało CD 3</i>	Acronym	“a type I trans-membrane protein found on T cells that forms the signal transduction unit for the T cell; expressed in patients with T-cell lymphomas” (see Farlex Medical Dictionary)
<i>CD 45 antibody</i>	Acronym	<i>przecwicało CD 45</i>	Acronym	“CD45 (lymphocyte common antigen) is a receptor-linked protein tyrosine phosphatase that is expressed on all leucocytes, and which plays a crucial role in the function of these cells” (Altin, J.G et al. 1997: 430).
<i>phyco- erythrin</i>	compound word	<i>fitoerytyna</i>	compound word	“Phycoerythrin is a fluorochrome derived from red sea algae” (Givan 2001: 251).

As presented in the above table, it is very apparent that both acronimization and neoclassical compounding are particularly active and frequent word-formational processes applied to coin names of chemical substances used in blood tests. This observation is also confirmed by numerous instances of acronimized vocabulary items that are represented by the same morphological construction.

- (ii) technical or maintenance devices, equipment and procedures

term	grammatical structure of the English-language term	Polish equivalent	grammatical structure of the Polish equivalent	definition
<i>acquisition</i>	simple word	<i>akwizycja</i>	simple word	“In flow cytometry, acquisition refers to the process of recording the intensity of the photodetector signals from a particle in the transient memory of a computer” (Givan 2001: 235)
<i>analysis</i>	simple word	<i>analiza</i>	simple word	„After acquisition, data from a sample are processed so as to provide useful results. This processing, or analysis, consists primarily of the correlation, in some or all possible ways, of the intensity channels from each of the signals recorded for each of the particles acquired for a given sample” (Givan 2001: 237).

<i>annexin</i>	simple word	<i>oznaczenie żywności komórki</i>	determination chain	“Annexin V is a molecule that binds to phosphatidylserine and, therefore, if conjugated to a fluorochrome, will identify apoptotic cells (which express phosphatidylserine on their surface)” (Givan 2001: 237).
<i>apoptosis</i>	simple word	process naturalnej śmierci komórki	<i>determination chain</i>	„Apoptosis is an ordered, active process that brings about the death of a cell as an important part of the maintenance of organismal homeostasis” (Givan 2001: 237).
<i>autofluorescence</i>	compound word	<i>autofluores- cencja</i>	compound word	„The light emitted naturally by an unstained, illuminated cell is called autofluorescence” (Givan 2001: 237).

<i>beads</i>	simple word	<i>kulki do kompensacji</i>	rectional syntagm	“Beads are particles (made, usually, of polystyrene) that can be used as stable and inert standards for flow cytometric analysis. Beads can be obtained conjugated to various fluorochromes in order to standardize fuorescence detection settings and optical alignment or to calibrate fluorescence scales” (Givan 2001: 238).
<i>compensation</i>	simple word	<i>kompensacja</i>	simple word	„Compensation is the way a flow cytometrist corrects for the overlap between the fluorescence spectra of different fuorochromes” (Givan 2001: 239).
<i>control</i>	simple word	<i>kontrola izotypowa</i>	simple word	„A control is a type of sample that, most particularly in flow cytometry, you generally have one fewer than you actually need” (Givan 2001: 240).

<i>cytofluorimeter</i>	compound word	<i>cytofluorymetr</i>	compound word	“The term flow cytometer is perhaps more correct because it has neither the trade-mark connotations nor any reference to a sorting function, which most of these instruments no longer possess. The term cytofluorimeter is also used, but generally has antiquated overtones.” (Givan 2001: 243).
<i>flow cytometer</i>	appositional syntagm	<i>cytometr przepływowy</i>	rectional syntgam	“FACS is an acronym for Fluorescence-Activated Cell Sorter. It is a term coined by the Herzenbergs at Stanford University and used by Becton Dickinson for its instruments, but has come to be used generally as a term that refers to all instruments that analyze the light signals from particles flowing in a stream past a light beam” (Givan 2001: 243).

<i>detergent</i>	simple word	<i>detergent</i>	simple word	“Detergents, such as saponin, Triton X-100, or NP40, are used to aid in the permeabilization of cell membranes in order to facilitate staining of intracellular proteins” (Givan 2001: 265).
<i>dot plot</i>	appositional syntagm	<i>wykres kropkowy</i>	concordial syntagm	“A dot plot is a two-dimensional diagram correlating the intensities of two flow cytometric parameters for each particle. Dot plots suffer, graphically, from black-out in that an area of a display can get no darker than completely black” (Givan 2001: 265).
<i>event</i>	simple word	<i>zdarzenie</i>	simple word	“An event is the name given by flow cytometrists to what most people would call a cell. A flow cytometer associates all light signals that occur without a gap in time with a single event and stores the intensities of the light in association with that event in the data file” (Givan 2001: 243).

<i>fixation</i>	simple word	<i>utrwalaanie</i>	simple word	“Fixation is the process by which the protein of cells is denatured, or cross-linked, and preserved. Fixation in flow cytometry is used to inactivate hazardous biological material and also to preserve stained cells when there is not immediate access to a flow cytometer” (Givan 2001: 243).
<i>fluorescence</i>	compound word	<i>fluorescencja</i>	compound word	“Fluorescence is a form of light emitted by atoms or molecules when electrons fall from excited electronic energy levels to their lower, less-energetic ground state” (Givan 2001: 243).
<i>Forward scatter</i>	appositional syntagm	<i>FCS (oznaczenie wielkości komórki)</i>	acronym	“Forward scatter is light from the illuminating beam that has been effectively bent (refracted or otherwise detected) to a small angle as it passes through a cell so as to diverge from the original direction of that beam” (Givan 2001: 247).

<i>histogram</i>	compound word	<i>histogram</i>	compound word	“A one-dimensional histogram displays data from one parameter of a flow cytometric data file at a time” (Givan 2001: 273).
<i>immunophenotyping</i>	compound word	<i>immunofenotypowanie</i>	compound word	“Immunophenotyping is the classification of normal or abnormal white blood cells according to their multiparameter surface antigen characteristics” (Givan 2001: 247).
<i>laser</i>	simple word	<i>laser</i>	simple word	“Laser is an acronym for Light Amplification by Stimulated Emission of Radiation. Lasers are important in flow cytometry because, as a result of their coherent output, they are a means of illuminating cells with a compact, intense light beam that will produce fluorescence signals that are as bright as possible over a short time period” (Givan 2001: 248).

<i>marker</i>	simple word	<i>marker</i>	simple word	“Marker is a term that is often used to refer to a dividing line applied to a fluorescence intensity histogram in order to dichotomize particles into those that are to be called positively stained from those to be called unstained”(Givan 2001: 249).
<i>median</i>	simple word	<i>mediana</i>	simple word	“Median is a value that can be used to describe the fluorescence intensity of a population of cells” (Givan 2001: 249).
<i>parameter</i>	simple word	<i>parametr</i>	simple word	“Parameter is the term applied to the types of information derived from a cell as it goes through the flow cytometer” (Givan 2001: 251).
<i>side scatter</i>	appositional structure	<i>SCC (boczne rozproszenie pod kątem 90 stopni)</i>	acronym	“Side scatter is light of the same color as the illuminating beam that bounces off particles in that beam and is deflected to the side” (Givan 2001: 254).

<i>volume</i>	simple word	<i>objętość</i>	simple word	“Volume is a useful and definite characteristic of any particle” (Givan 2001: 254).
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As presented in the above table, it is very noticeable that technical or maintenance devices, equipment and procedures are often represented by simple words, neoclassical compound words, appositional structures or determinational chains. This also shows that the Polish translative equivalents of the English terms very frequently represent the same grammatical structure as exemplified by e.g. *volume* – *objętość* and *immunophenotyping* – *immunofenotypowanie* .

(iii) human biological material

term	grammatical structure of the English-language term	Polish equivalent	grammatical structure of the Polish equivalent	definition
<i>aneuploid</i>	simple word	plodia DNA w jądrze komórkowym	<i>determination chain</i>	„Although aneuploid is used by cytogeneticists to refer to cells with abnormal numbers of chromosomes, it has been hijacked (with intellectual imprecision) by flow cytometrists to refer to the characteristic of possessing an abnormal amount of DNA” (Givan 2001: 237).

<i>erythrocyte</i>	compound word	erytrocyt	<i>compound word</i>	“The red, hemoglobin-containing cells that occur in the peripheral circulation and are responsible for transporting oxygen are erythrocytes” (Givan 2001).
<i>fetal hemoglobin</i>	concordial syntgam	hemoglobina płodowa	<i>concordial syntagm</i>	“Fetal hemoglobin (HbF) is a form of hemoglobin that exists primarily in the erythrocytes of the fetus before birth.” (Givan 2001: 243).
<i>granulocyte</i>	compound word	granulocyt	<i>compound word</i>	“Granulocytes are the major constituents of a class of white blood cells (called polymorphonuclear cells) that possess irregular nuclei and cytoplasmic granules and therefore have bright side scatter signals” (Givan 2001: 243).
<i>lymphocyte</i>	compound word	limfocyt	<i>compound word</i>	“A lymphocyte is a particular type of white blood cell that is involved in many of an organism’s immune responses” (Givan 2001: 273).

<i>monocyte</i>	compound word	monocyt	<i>compound word</i>	“Monocytes are a class of white blood cells that co-purify with lymphocytes in commonly used density gradient procedures” (Givan 2001: 249).
<i>phycoerythrin</i>	compound word	fitoerytyna	<i>compound word</i>	“Phycoerythrin is a fluorochrome derived from red sea algae” (Givan 2001: 251).
<i>propidium iodide</i>	appositional structure	jodek propidyny	<i>rectional syntagm</i>	“Propidium iodide is a probe that can be used to measure quantitatively the amount of double-stranded nucleic acid that is present in a cell” (Givan 2001: 253).

As presented in the above table, it is very noticeable that technical or maintenance devices, equipment and procedures are often represented by biconstituent morphological or syntactic structures. As regards to numerous neoclassical compounds words, they are likely to be translated into Polish equivalents of the same grammatical structure, e.g. *fluorescence* – *fluorescencja* and *granulocyte* – *granulocyte*.

Conclusion

It is definitely beyond dispute that the language of flow cytometry as a laboratory diagnostics technique partly overlaps with typical medical terminological areas but cannot be simultaneously considered to be part of clinical language (see Chapter 1) due to its descriptive features. The

technical vocabulary are apparently formed as a result of neoclassical compounding or acronimization. Hence, it contributes to facilitating the English-Polish translation process due to the mutual graphical and partly phonic similarity of the equivalents.

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Chapter 3

Transportation terminology of medical usage in Polish normative acts

Szymon Machowski

Introduction

As a point of departure, it is necessary to describe basic logistic and legal terminology in order to make further considerations about the status of Polish logistic terminology related to certain medical procedure organizations in Polish acts of law.

The purely legal term „normative act” seems to be of key significance for the purpose of this study. It is defined as „an act of a legislative body which is issued within its competences and in accordance with the procedural norms. The act is addressed to a general addressee that establishes legal regulations, e.g. acts issued by the parliament, governmental regulations and regulations of particular secretaries. The normative act might be of independent or executive type. The latter one might be issued in order to execute an independent act or on its basis. This generally applicable act is a source of law and requires promulgation in the official journal of an appropriate legislative organ”² (Hołyst 2005:21).

In turn, terminology as a „branch of science dealing with the research on terms” is closely related to the problem of special languages

² The author’s own translation of the following definition: „akt organu prawodawczego, wydany w ramach jego kompetencji i zgodnie z normami proceduralnymi, skierowany do adresata generalnego ustanawiającego przepisy prawne, np. ustawy wydane przez parlament, rozporządzenia Rady Ministrów, zarządzenia poszczególnych ministrów. Akt normatywny może mieć charakter samoistny albo wykonawczy wydany w celu wykonania aktu samoistnego i na jego podstawie. Akt normatywny powszechnie obowiązujący jest źródłem prawa i dla swojej ważności wymaga promulgacji w dzienniku urzędowym właściwego organu prawodawczego” (Hołyst 2005: 21).

because „all languages for special purposes are part of the research on terminology” (Grucza 1991: 40). The terminology considered here is divided into the terminology typical of a given ethnolect and the interlingual one (Grucza 1991: 22). In this chapter, the focus is put on transportation terms in several valid ministerial decrees that regulate transportation processes within Poland. A concept, which is closely related to the above considerations about the properties of terminology, is simply an idea of a term. It is „usually defined based on constant parameters. The term is a word that has a conventionally determined and precisely defined conceptual structure. The conceptual structure is virtually unambiguous and unemotional and has abilities to create systems”³ (Lukszyn, Zmarzer 2001: 21).

The fundamental term is a *professiolect*, also known as a *technolect* or a *language for special purposes* (Grucza 2005: 51). Languages for special purposes are defined as „languages produced by groups (partial communities) of people in close contact due to the same kind of job, the same creative output or manufacturing activity within the same community. The languages also include people that use the same tools at work or people of the same religion or world view”⁴ (Grucza 2005: 51). On the strength of the above definition, the following two languages for special purposes belong to their appropriate ethnolect, i.e the Polish language:

- (i) the language of logistics – a „*language for special purposes which is a language for occupational purposes used in Poland by employees in logistic departments of various enterprises or in the enterprises occupied with*

³ the author’s own translation of „z reguły jest określany na podstawie stałych parametrów. Jest to zatem wyraz (połączenie wyrazowe) o konwencjonalnie określonej, ściśle zdefiniowanej strukturze pojęciowej, w zasadzie jednoznaczny i podlegający interpretacji o charakterze emocjonalnym, posiadający natomiast zdolności systemotwórcze” (Lukszyn, Zmarzer 2001: 21)

⁴ the author’s own translation of „języki wytworzone przez grupy (parcjalne wspólnoty) ludzi kontaktujących się ze sobą szczególnie intensywnie z uwagi na wykonywanie w obrębie jakiejś większej wspólnoty językowej tego samego rodzaju pracy, zajmowanie się tą samą twórczością lub produkcją, albo ludzi specjalizujących się w zakresie wykonywania tej samej pracy, posługujących się tymi samymi narzędziami pracy, wyznających ten sam światopogląd lub tę samą wiarę, itd.” (Grucza 2005: 51)

providing logistic services”⁵ (Matulewska, Matulewski 2005: 69)

- (ii) *lingua legis* (cf. Wróblewski 1948, Matulewska 2007 and also Bańcerowski, Matulewska (2012)). The *lingua legis* considered here will be restricted to the Polish language.

Therefore, the logistic terms of medical usage should follow the Polish grammatical rules. It is also obvious that the users of the languages for special purposes as mentioned above belong to the Polish communicative community as described in the 1991 article by Bańcerowski because “the language as a means of communication is such a concrete proof of the community existence” (Zabrocki 1963: 13). This is also related to the „differentiation of ways of using a given language in terms of their users’ social status” (Bańcerowski i in. 1982: 70).

Objective and Methods

The chapter is basically devoted to describing the functioning of logistic terminology of medical usage in ministerial decrees that are subordinate to acts of law (cf. Hołyst 2005:12, Wronkowska 2005).

The preliminary aims are:

- (i) to excerpt 130 Polish transportation terms: *„autobus dalekobieżny, autobus, barka, betoniarka, budka dróżnika, ciągnik siodłowy z naczepą, ciężarówka, cysterna, dojeżdżanie do pracy, dok, dostawa, drob-nica, dwupiętrowiec, dźwignica, dźwignica bramowa, flota, furgonetka, infrastruktura kolejowa, infrastruktura lokalna, infrastruktura regionalna, intermodalny transport towarów, kolej przemysłowa, kolej, kontener*

⁵ the author’s own translation of „językiem specjalistycznym (language for special purposes) – odmianą zawodową języka fachowego (language for occupational purposes), którą posługują się w Polsce osoby zatrudnione w działach logistyki różnych przedsiębiorstw bądź w przedsiębiorstwach, które zajmują się świadczeniem usług logistycznych” (Matulewska, Matulewski 2005: 69)

intermodalny, kontener specjalistyczny, kontener, kontener-cysterna, linia kolejowa, lokomotywa, lotniczy przewóz pasażerski, ładowność użyteczna, ładunek drobnicowy, ładunek masowy, ładunek użyteczny, ładunek, łańcuch logistyczny, łódka, mała paczka, miejsce przeznaczenia, międzynarodowy ruch pasażerski, motocykl, naczepa wyspecjalizowana, niezapakowany surowiec, pasażer, platforma do przewozu samochodów, platforma, pociąg, podnośnik chwytakowy, podnośnik ramionowy, podróż lotnicza, podróż, pojazd dostawczy, pojazd kołowy, pojazd pasażerski, pojazd, pokład, port lotniczy, port morski, posłaniec, powóz konny, przejazd kolejowy, przesyłka, przewoźnik, przewóz „drzwi-drzwi”, przewóz osób, przewóz, przyczepa, przystań, publiczna sieć transportowa, reda, rozładunek, ruch kolejowy, samochód ciężarowy, samochód opancerzony, samochód, samochód-chłodnia, semafor kolejowy, silos, skrzynia ładunkowa, skuter śnieżny, stacja kolejowa, stała trasa, statek, suwnica bramowa, sztauer, śmieciarka, środek transportu, tabor kolejowy, terminal dla samochodów ciężarowych, terminal kolejowy, tor kolejowy, towar nietrwały, towar trwały, towar, tramwaj, transport ciężarowy, transport drogowy, transport intermodalny, transport kolejowy, transport lądowy, transport lotniczy, transport morski, transport na długi dystans, transport na krótki dystans, transport pasażerski, transport prywatny, transport publiczny, transport wodny, tranzyt masowy, tranzyt zbiorowy, tranzyt, układarka wysięgnikowa, usługa rejsowa, van, wagon do przewozu kontenerów, wagon pasażerski, wagon-platforma, wagon towarowy, wagon, wiza, wóz ciągnięty przez osła, wóz konny, wywrotka, załadunek, załoga, znak nawigacyjny, żaglowiec, żegluga handlowa, żeglugowy znak, żuraw bramowy, żuraw” (Matulewska, Matulewski 2010: 69-114),

- (ii) to select the terms of medical usage either by consulting them with medical staff members by referring them to the books or articles medical transportation (e.g. cf. Klukowski, K. 2010, Possi, A. 2015),

- (iii) to investigate the frequency of occurring particular specialist terms in the ministerial decrees that regulate the functioning of logistic subsystems not related to medical transportation,
- (iv) to analyze the correlations between the grammatical form and the type of legal clauses from the language of law (*lingua legis* (por. Matulewska 2007)), in which certain terms occur.

In order to fulfill the above aims, one used the ANT-CONC computer program in order to perform analyses in corpus linguistics. In particular, this program was applied to linguistically explore the consolidated texts of the following ministerial decrees currently in force:

- (i) Rozporządzenia Ministra Transportu, Budownictwa i Gospodarki Morskiej w sprawie świadectwa dopuszczenia pojazdu ADR (2015),
- (ii) Rozporządzenie Ministra Infrastruktury i Rozwoju w sprawie rodzajów dokumentów poświadczających uprawnienia (2014),
- (iii) Rozporządzenie Ministra Infrastruktury i Rozwoju w sprawie homologacji typu tramwajów i trolejbusów (2014),
- (iv) Rozporządzenie Ministra Transportu w sprawie okresowych ograniczeń oraz zakazu ruchu niektórych rodzajów pojazdów na drogach (2007),
- (v) Rozporządzenie Prezesa Rady Ministrów w sprawie ustanowienia Pełnomocnika Rządu do spraw regulacji i harmonizacji obszaru bezpieczeństwa transportu i ruchu drogowego (2015),
- (vi) Rozporządzenie Ministra Transportu, Budownictwa i Gospodarki Morskiej w sprawie określenia dodatkowych wymagań dotyczących przewozu towarów niebezpiecznych statkami niepodlegającymi Konwencji SOLAS (2013),
- (vii) Rozporządzenie Ministra Infrastruktury i Rozwoju w sprawie nadania statutu Transportowemu Dozorowi Technicznemu (2013),
- (viii) Rozporządzenie Ministra Finansów zmieniające rozporządzenie w sprawie wzorów deklaracji dla podatku od towarów (2014).

Research course

The corpus research was started by excerpting 130 transportation terms from the course book *My logistics* (2010). Once the usefulness or occurrence of the terms for the purpose of medical procedures was proved, their frequency was quantitatively measured in the ministerial decrees. This is presented in the table below:

transportation term	language unit	hierarchy according to the general number of tokens	I	II	III	IV	V	VI	VII	IX
<i>tramwaj</i> ('streetcar')	A	99	0	0	99	0	0	0	0	0
<i>pojazd</i> ('vehicle')	P	76	26	0	37	13	0	1	0	0
<i>statek</i> ('ship')	P	30	0	0	0	1	0	29	0	0
<i>pasażer</i> ('passenger')	P	16	0	0	14	0	0	0	0	2
<i>ładunek</i> ('cargo')	P	11	0	0	0	6	0	0	0	5
<i>samochód ciężarowy</i> ('truck')	A	8	0	0	5	0	0	3	0	0
<i>przewoźnik</i> ('carrier')	P	7	6	1	0	0	1	0	0	0
<i>podróż</i> ('travel')	P	5	0	3	0	0	0	0	0	2
<i>zderzenie czołowe</i> ('head-on collision')	A	5	0	0	0	0	0	5	0	0
<i>dostawa</i> ('supply')	P	4	0	0	0	1	1	0	2	0
<i>przyczepa</i> ('trailer')	P	4	3	0	1	0	0	0	0	0
<i>pociąg</i> ('train')	P	2	0	0	0	0	0	0	0	0
<i>autobus</i> ('bus')	C	1	0	0	0	1	0	0	0	0
<i>lokomotywa</i> ('locomotive')	P	1	0	0	0	0	0	0	1	0
<i>wagon</i> ('railway carriage')	P	1	0	0	0	1	0	0	0	0
<i>załoga</i> ('crew')	P	1	0	0	0	0	0	1	0	0
<i>pokład</i> ('board')	P	1	0	0	0	0	0	1	0	0

legend (cf. Bańcerowski, i in. 1982, Bańcerowski 1988):

A- two-word concordial syntagms

C-compound word

R- two-word appositional rectional syntagms

ZS- complex syntagm,

P- simple word.

As regards to the above example of transportation terms included in the analyzed ministerial decrees, there is a correlation between their frequency and range of designation defined as a „set of elementary designates” (Bańczerowski 2000) of a given word with respect to the their generality degree. When formulating ministerial decrees the representatives of the Polish executive branch of authority tend to use special terms with a wide range of designation. These terms belong to various registers (cf. Markowski 1992). This might hypothetically indicate their common usage. In the next place, a correlation between the grammatical form of the most frequent terms and the type of regulations in which they happened to occur. This is presented in the table below:

term	quote	source	gram- matical form	type of regu- lation (Matu- lewska 2007)
<i>tramwaj</i> (‘streetcar’)	„Świadectwo homologacji typu tramwaju dotyczące: wydania homologacji typu tramwaju , zmiany homologacji typu tramwaju , odmowy wydania homologacji typu tramwaju , cofnięcia homologacji typu tramwaju ”	Rozporządzenie w sprawie homologacji typu tramwajów i trolejbusów	genetive	amendment
<i>pojazd</i> (‘vehicle’)	„spełnienie tych wymagań powinno być potwierdzone dokumentem wydanym przez jednostkę upoważnioną do prowadzenia badań homologacyjnych pojazdów ”	Rozporządzenie w sprawie homologacji typu tramwajów i trolejbusów	genetive	imperative

<i>statek</i> (‘ship’)	„Rozporządzenie określa dodatkowe wymagania bezpieczeństwa przewozu morskiego towarów niebezpiecznych przewożonych na statkach odnośnie do: 1) certyfikatów statku i dokumentów ładunkowych; 2) opakowań; 3) znakowania; 4) rozmieszczenia i mocowania; 5) środków ostrożności koniecznych ze względu na sąsiedztwo z innymi towarami; 6) postępowania w przypadku zaistnienia pożarów, rozsypów i rozlewów towarów niebezpiecznych oraz diagnozowania i zapobiegania zatruciom chemicznym, które mogą zaistnieć w trakcie przewozu statkiem towarów niebezpiecznych; 7) wymaganego przeszkolenia załogi statku; 8) dodatkowego wyposażenia statku przewożącego towary niebezpieczne; 9) postępowania w przypadkach zaistnienia wypadku lub incydentu morskiego, w którym uczestniczył statek”	Rozporządzenie Ministra Transportu, Budownictwa i Gospodarki Morskiej w sprawie określenia dodatkowych wymagań dotyczących przewozu towarów niebezpiecznych statkami niepodlegającymi Konwencji SOLAS	genetive, locative, instrumental	imperative
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It is possible due to the analysis of the above frequently represented transportation terms of medical usage to formulate a few conclusions. They should regard both semasiological and legilinguistic properties of the analyzed logistics-specific transportation terms (cf. Matulewski, Matulewska 2005) of medical usage that also occur in the selected ministerial decrees. As regards to the semantic properties of the transportation terms, it should be stated that they are characterized by a wide range of designation (cf. Bańcerowski 2000). This might be hypothetically explained by the fact they terms belong to the shared lexics of all registers (por. Markowski 1992). The complete semantic transparency of the transportation terms is accompanied by their simple word-formational structure, i.e. *tramwaj*, *pojazd*, *statek*, *pasażer*, *przewoźnik*, *podróż*, *pociąg*, *rozładunek*, *wagon*, *załoga*. In the corpus of legal texts there are also few tokens of concordial syntagms (cf. Bańcerowski 1998): *zderzenie czołowe*, *stacja kolejowa*. If the term properties are considered with respect to their types of regulations, they often occur in empowerment and amendment clauses (cf. Matulewska 2007) in the genitive case.

Furthermore, it seems to be significant to perform an analysis of how the transportation terms tend to form collocations with other words. This study was confined to the 3 top-ranked terms in their frequency hierarchy and performed with regard up to vocabulary items in the direct determination surrounding (cf. Bańcerowski, et al. 1982: 247) as presented in the below print screens. It seems to be exhaustively motivated to select such a direct determination surrounding by the author's intention to specify the special word preferences and their adaption to legal clauses.

AntConc 3.4.3w (Windows) 2014

File Global Settings Tool Preferences Help

Corpora Files

ADList
dokumenty powiadz
homologia typu tra
obserwacje ogranicz
pehonomnik rzadust
SOLAstat
statu TDT stat
wzory deklaracji poda

Rank	Freq	Freq(2)	Freq(3)	Collocate	Total No. of Collocate Tokens
1	2	1	1	11.44550	publacja
2	2	1	1	11.44550	wkololejania
3	2	2	0	11.44550	rozpoznawczy
4	4	3	1	11.44550	rozpoznawczego
5	4	2	2	11.44550	doceprze
6	2	1	1	11.44550	czynny
7	2	1	1	11.44550	bierny
8	3	0	3	11.03046	przewidzianych
9	1	0	1	10.44550	haku
10	1	0	1	10.44550	zawierającej
11	4	2	2	10.44550	własna
12	1	0	1	10.44550	włoskach
13	2	1	1	10.44550	włoska
14	1	0	1	10.44550	wywieranych
15	1	0	1	10.44550	wyposażonych
16	2	2	0	10.44550	wymaganego
17	1	0	1	10.44550	wieloznaczonych
18	1	0	1	10.44550	wieloznaczowe
19	1	0	1	10.44550	wielkości
20	1	1	0	10.44550	wiecznosc

Search Term: Words ☐ Case ☐ Reges ☐ Advanced Window Span: Same

From: 11 To: 18

Total No. 8 Files Processed

AntConc 3.4.3w (Windows) 2014

File Global Settings Tool Preferences Help

Corpora Files

ADList
dokumenty powiadz
homologia typu tra
obserwacje ogranicz
pehonomnik rzadust
SOLAstat
statu TDT stat
wzory deklaracji poda

Rank	Freq	Freq(2)	Freq(3)	Collocate	Total No. of Collocate Tokens
1	1	0	1	8.06699	wdrobnieznych
2	1	1	0	8.06699	uzytkownik
3	1	0	1	8.06699	uzytkownika
4	1	1	0	8.06699	uwage
5	1	0	1	8.06699	typie
6	1	0	1	8.06699	tablicami
7	1	1	0	8.06699	stake
8	1	0	1	8.06699	skalerami
9	2	0	2	8.06699	silnikowych
10	2	0	2	8.06699	samochodowych
11	1	1	0	8.06699	relinizacji
12	2	2	0	8.06699	rejes tracyjnego
13	1	0	1	8.06699	podstaj
14	1	0	1	8.06699	podstawajacych
15	1	0	1	8.06699	poprzedzajacego
16	1	0	1	8.06699	podlgi
17	1	0	1	8.06699	podlegajacego
18	1	0	1	8.06699	podlany
19	1	1	0	8.06699	oznaczeniami
20	1	0	1	8.06699	iniekam

Search Term: Words ☐ Case ☐ Reges ☐ Advanced Window Span: Same

From: 11 To: 18

Total No. 8 Files Processed

AntConc 3.4.3w (Windows) 2014

File Global Settings Tool Preferences Help

Corpora Files

ADList
dokumenty powiadz
homologia typu tra
obserwacje ogranicz
pehonomnik rzadust
SOLAstat
statu TDT stat
wzory deklaracji poda

Rank	Freq	Freq(2)	Freq(3)	Collocate	Total No. of Collocate Tokens
1	3	3	0	12.35239	zaloga
2	1	1	0	12.35239	zaczepienia
3	2	0	2	12.35239	przewoznym
4	1	0	1	12.35239	przewozajacym
5	1	0	1	12.35239	przeptywajacym
6	1	0	1	12.35239	powinna
7	1	1	0	12.35239	opuszczenia
8	3	0	3	12.35239	niepodlegajacy
9	1	0	1	12.35239	napromieniowanego
10	1	0	1	12.35239	linii
11	1	1	0	12.35239	kapitana
12	1	1	0	12.35239	kapitan
13	1	0	1	12.35239	droga
14	1	1	0	12.35239	certyfikatów
15	1	1	0	11.35239	zalogi
16	1	0	1	10.76743	zwiazane
17	1	0	1	10.35239	ro
18	1	0	1	10.35239	odnosnie
19	1	0	1	10.03046	morskich
20	1	0	1	11.11111	zabawek

Search Term: Words ☐ Case ☐ Reges ☐ Advanced Window Span: Same

From: 11 To: 18

Total No. 8 Files Processed

As presented in the above figures, the transportation terms of medical usage often collocate with past and present participles and nouns. The grammatical form of the terms seem to show that they are objects in

the grammatical structure of ministerial decrees. The above statement corresponds with their sematic properties (see above) such as a wide range of designation and their inclusion in the general (non-special) lexical stock of the Polish language.

Conclusion

Generally speaking, the members of the executive branch of authority tend to use transportation terms with a wide range of designation (cf. Bańcerowski 1999), e.g. *tramwaj* ('street car'), *pojazd* ('vehicle'), *statek* ('ship'), *pasażer* ('passenger'). These terms are also used in medical contexts and predominately occur as objects in the genitive case in legal clauses. This is closely correlated to their occurrence in amendment clauses.

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 - (ii) Rozporządzenia Ministra Zdrowia z 2009 r. w sprawie świadczeń gwarantowanych
 - (iii) Ustawa z dnia 8 września 2006 r. o Państwowym Ratownictwie Medycznym (Dz. U. z dnia 20 października 2006 r.)

Chapter 4

Names of healthcare professionals in contemporary Polish acts of law. A syntactic and corpus-based study

Szymon Machowski

Introduction

As a point of departure, it should be stated that the language of medicine has so far been investigated in order to increase the effectiveness of medical communication. On one hand, there are a number of medical books and guidebooks predominantly on English medical language (cf. Allum 2008). They are intended to provide a kind of explanation or analysis of specialist medical terminology for the following general purposes:

- (i) to facilitate the communication between medical staff (above all physicians) and their patients (e.g. Brooks 2008),
- (ii) to teach medical English to would-be healthcare professionals (cf. Donesch-Ježo 2000, Turley, M. 2014)
- (iii) to introduce English medical terms as part of general ESL courses (e.g. Brooks 2008),
- (iv) to teach colloquial medical English to non-native speaking physicians in English-speaking countries (e.g. Parkinson J. 1978).

On the other hand, there are non-medical and non-educational books (cf. e.g. Chabner, D.E. 2010; ten Hacken, P., Panocová, R. 2015) and articles devoted to providing a linguistic approach to a wide variety of medicolinguistic language phenomena encountered in medical communication and problems with translating medical and biological terms

from one language into another (Kłos, M, et al.). Since both the medical and legal language are languages for special purposes, they might cause divergent problems to international translators and interpreters. The problems might be found in vernacular terms (ten Hacken, P., Panocová, R. 2015: 3) included in the language of medicine and the English and Polish legal language discrepancies due to the strikingly different legal systems of Poland and the English-speaking countries (Matulewska 2007, 2013). This seems to be in accordance with the statement: „Paradoxically, the more deeply one delves into the translation process, the more complicated it appears to be. Therefore, what will be subsequently proposed for consideration about the theoretical aspects of translations for a slightly different viewpoint, is nothing more than preliminary” (Bańcerowski, Matulewska 2012: 1225).

The purpose of my study is more modest since it intends to investigate one aspect of the interface between two professions of Polish: the medical and legal one. There exists the need for comparative medicolinguistics (see Machowski 2015: 179) related to comparative legal linguistics (see Heikki E.S. Mattila 2012) as they are both a result of cooperation between linguists (philologists) and professionals from other branches of science (cf. Heikki E.S. Mattila 2012: 9). The research above referred to contains a number of general and specifically linguistic problems. The interaction between these two fields occurs in the contemporary Polish legal acts which are currently in force. Thus, the research domain of this article is Polish legal discourse oriented to certain medical terms. Remarkably, the emphasis is put on the valid ministerial regulations on medical job types because they include their precise definitions. By reference to the above introductory remarks, the article aims at:

- (i) investigating how present names of medical occupations are incorporated to the structure of utterances in statutory instruments and
- (ii) specifying the relations between the above medical terms of high and low text frequency and the macrostructure of Polish legal acts (see Matulewska 2007).

The intended objectives are obviously directly related to the research material, methods and tools described underneath.

Research material, methods and tools

To perform the intended research the author referred to the classification of syntagms (Bańcerowski et al 1982: 249-253) into:

- (i) Determinational,
- (ii) Coordinative.

The determinational ones are divided into:

- (i) Concordial (Bańcerowski 1997: 53-69), in other words case agreement (cf. Bańcerowski et al 1982), e.g. *asystentka dentystyczna* ('dentist assistant'), *diagnosta laboratoryjny* ('laboratory diagnostician'), *higienistka szkolna* ('school nurse'), *opiekunka dziecięca* ('babysitter'), *technik farmaceutyczny* ('pharmaceutical technician') or *ratownik medyczny* ('medical rescuer'),
- (ii) Rectional syntagms (Bańcerowski 1988: 1159-1182), in other words case government (cf. Bańcerowski et al 1982) e.g. *klasyfikator grzybów* ('mushroom classifier') or *protetyk sluchu* ('hearing prosthetician'),
- (iii) Multiword determinational syntagms (Bańcerowski 1980: 90), e.g. *koordynator pobierania lub przeszczepiania komórek, tkanek i narządów* ('coordinator of taking or transplanting cells, tissues and organs'), *inspektor ochrony radiologicznej* ('radiation security inspector'), *instruktor terapii uzależnień* ('addiction therapy instructor') or *technik analityki medycznej* ('laboratory medicine technician').

In the study, only one subtype of the coordinative syntagms is used, i.e. the appositional (cf. Polański 1999) syntagms, i.e. *lekarz dentysta* ('dentist'), *technik ortopeda* ('orthopedic technician'), *technik elektroradiolog* ('electroradiology technician') or *technik optyk* ('optical technician').

As announced before, the research is planned to be fulfilled by using corpus linguistic tools and techniques. At the first stage, one formed a corpus of Polish legal acts relevant to the present inquiry. The corpus consists of the following valid bills:

- (i) Ustawa o zawodach pielęgniarki i położnej (July 15, 2011) (Dz.U. 2011 nr 174 poz. 1039) ('Act on the professions of nurses and midwives'),
- (ii) Ustawa o samorządzie pielęgniarek i położnych (July 1, 2011) (Dz.U. 2011 nr 174 poz. 1038) ('Act on the council of nurses and midwives'),
- (iii) Ustawa o działalności leczniczej (April 11, 2011) (Dz.U. 2011 nr 112 poz. 654) ('Act on medical treatment activities'),
- (iv) Ustawa o izbach lekarskich (December 2, 2009) (Dz.U. 2009 nr 219 poz. 1708) ('Act on medical councils'),
- (v) Ustawa o Państwowym Ratownictwie Medycznym (September 8, 2006) (Dz.U. 2006 nr 191 poz. 1410) ('Act on public medical rescue'),
- (vi) Ustawa o diagnostyce laboratoryjnej (July 21, 2001) (Dz.U. 2001 nr 100 poz. 1083) ('Act on laboratory diagnostics'),
- (vii) Ustawa o planowaniu rodziny, ochronie płodu ludzkiego i warunkach dopuszczalności przerywania ciąży (January 7, 1993) (Dz.U. 1993 nr 17 poz. 78) ('Act on family planning, human fetus protection and conditions of the abortion legality'),
- (viii) Ustawa o izbach aptekarskich (April 19, 1991) (Dz.U. 1991 nr 41 poz. 179.) ('Act on pharmacist councils'),
- (ix) Ustawa o zawodzie lekarza i lekarza dentysty (December 6, 1996) (Dz.U. 1997 nr 28 poz. 152) ('Act on the profession of physicians and dentists').

This set of the legal acts will be explored as a source of quantitative and qualificative information on occurrence of the following legally recognized health care professionals in Poland: *asystentka dentystyczna* ('dentist assistant'), *diagnosta laboratoryjny* ('laboratory diagnostician'), *dietetyk* ('nutritionist'), *farmaceuta* ('pharmacist'), *felczer* ('physician assistant'), *fizjoterapeuta* ('physiotherapist'), *grzyboznawca* ('mushroom expert'), *higienistka dentystyczna* ('dentist assistant'), *higienistka szkolna* ('school nurse'), *inspektor ochrony radiologicznej* ('radiation security inspector'), *instruktor terapii uzależnień* ('addiction therapy instructor'), *klasyfikator grzybów* ('mushroom classifier'), *koordynator pobierania lub przeszczepiania komórek, tkanek i narządów*

(‘coordinator of taking or transplanting cells, tissues and organs’), *lekarz dentysta* (‘dentist’), *lekarz* (‘physician’), *logopeda* (‘speech therapist’), *masażysta* (‘masseur’), *opiekunka dziecięca* (‘babysitter’), *ortoptystka* (‘orthoptist’), *pielęgniarka* (‘nurse’), *położna* (‘midwife’), *protetyk sluchu* (‘hearing prosthetician’), *ratownik medyczny* (‘medical rescuer’), *specjalista psychoterapii uzależnień* (‘addiction psychotherapy expert’), *specjalista terapii uzależnień* (‘addiction therapy expert’), *technik analityki medycznej* (‘laboratory medicine technician’), *technik dentystryczny* (‘dentist technician’), *technik elektroradiolog* (‘electroradiology technician’), *technik farmaceutyczny* (‘pharmaceutical technician’), *technik optyk (optyk okularowy)* (‘optical technician’), *technik ortopeda* (orthopedic technician’) *terapeuta zajęciowy* (‘occupational therapist’). These terms are excerpted from the register by the Polish Ministry of Health and the 2004 decree of the Minister of Labor and Social Policy on classifying jobs and applying them to the market.

The next step is devoted to preparing the obtained legal material to be linguistically analyzed. To perform it, the acts in their original PDF format have been processed and transformed into plain text TXT documents in order to be further processed by the corpus analysis computer program ANTCONC. This program is useful to determine the textual properties of the terms in question.

Research course

The research procedure starts with assigning the corpus frequency rate and 32 official health care occupation names, as illustrated in the below table.

occupation term	word formational or syntactic type	number of occurrences in the corpus	type of legal act (Matulewska 2007)
asystentka dentystyczna	C	0	-
diagnosta laboratoryjny	C	178	I, E
dietetyk	simple word	0	-
farmaceuta	simple word	0	-
felczer	simple word	0	-
fizjoterapeuta	compound	0	-
grzyboznawca	compound	0	-
higienistka dentystyczna	C	0	-
higienistka szkolna	C	0	-
inspektor ochrony radiologicznej	M	0	-
instruktor terapii uzależnień	M	0	-
klasyfikator grzybów	R	0	-
koordynator pobierania lub przeszczepiania komórek, tkanek i narządów	M	0	-
lekarz dentysta	appositional syntagm	190	I, E
lekarz	simple word	915	I, E
logopeda	compound	0	-
masażysta	derivative	0	-
opiekunka dziecięca	C	0	-
ortoptystka	compound	0	-
pielęgniarka	derivative	239	I, E
położna	simple word	408	I, E
protetyk słuchu	R	0	-
ratownik medyczny	C	13	I, E
specjalista psychoterapii uzależnień	M	0	-
specjalista terapii uzależnień	M	0	-
technik analityki medycznej	M	1	I
technik dentystyczny	C	0	-
technik elektroradiolog	appositional syntagm	0	-
technik farmaceutyczny	C	1	I
technik optyk (optyk okularowy)	appositional syntagm	0	-
technik ortopeda	appositional syntagm	0	-
terapeuta zajęciowy	C	0	-

In the table, there are several abbreviations which need to be given in their full form and explained. The abbreviated terms represented by capitalized letters might be divided into two groups:

- (i) specifically linguistic terms such as concordial syntagms (Bańcerowski 1997a: 53-69) are referred to the letter **C**. In turn, the letters **R** and **M** stand for a rectional syntagm (Bańcerowski 1988: 1159-1182) and multideterminational chains defined as “set of lexes which can be determinatively ordered in a sequence” (Bańcerowski 1980: 90), respectively,
- (ii) legal language terms as imperative (**I**) and empowerment clauses (**E**) (Matulewska 2007).

Then, one moves on to carrying out a deductive analysis of the syntactic features of the most frequently represented medical terms in the legal context. As implied by the figures in the table, it seems worth focusing on the excerpts from the legal acts where the general terms such as: *diagnosta laboratoryjny* (‘laboratory diagnostician’), *lekarz* (‘physician’), *pielęgniarka* (‘nurse’), *położna* (‘midwife’), *ratownik medyczny* (‘medical rescuer’) *technik analityki medycznej* (‘laboratory medicine technician’), *technik farmaceutyczny* (‘pharmaceutical technician’), are given in their authentic text context. These text pieces also show how easily one can incorporate the occupation terms to more complex syntagms by making them function as subjects or objects as presented in the below table. The excerpts from the Polish acts of law are followed by corresponding definitions in the English-speaking countries. They are cited if there is a direct equivalent definition.

name of the token	word formational or syntactic type (see Bańcerowski 1982, 1988 1997)	text excerpts	subject or object
<i>lekarz</i> (‘physician’)	simple word	“ Lekarz ma obowiązek wykonywać zawód, zgodnie ze wskazaniami aktualnej wiedzy medycznej, dostępnymi mu metodami i środkami zapobiegania, rozpoznawania i leczenia chorób, zgodnie z zasadami etyki zawodowej oraz z należytą starannością”	subject
		„ Lekarzowi , który w wyniku wznowienia postępowania w przedmiocie odpowiedzialności zawodowej lekarzy lub kasacji został uniewinniony, przysługuje odszkodowanie za poniesioną szkodę oraz zadośćuczynienie za doznaną krzywdę, na skutek wykonania względem niego w całości lub w części kary (...)”,	object

source	type of legal act (Matulewska 2007)	Example of a corresponding or similar act from English-speaking countries	source
Act on the profession of physicians and dentists (December 6, 1996)	I	“(d) A physician may practice medicine under a license issued under this section only at a clinic that primarily treats indigent patients. The physician may not receive compensation for medical services rendered at the clinic. (...)”	Occupations code title 3. Health professions subtitle b. physicians chapter 155. license to practice medicine by Texas Constitution and Statutes
Act on medical councils (December 2, 2009)	E	“The board shall adopt rules relating to the issuance of a military limited volunteer license under this section. (b) The board may issue a military limited volunteer license to practice medicine to an applicant who: (1) is licensed and in good standing, or was licensed and retired in good standing, as a physician in another state; (2) is or was authorized as a physician to treat personnel enlisted in a branch of the United States armed forces or veterans ; (...)”	Occupations code title 3. Health professions subtitle b. physicians chapter 155. license to practice medicine by Texas Constitution and Statutes

name of the token	word formational or syntactic type (see Bańcerowski 1982, 1988 1997)	text excerpts	subject or object
<i>położna</i> (‘midwife’) <i>pielęgniarka</i> (‘nurse’)	simple word derivative	„ Pielęgniarka i położna są obowiązane, zgodnie z posiadanymi kwalifikacjami zawodowymi, do udzielenia pomocy w każdym przypadku, gdy zwłoka w jej udzieleniu mogłaby spowodować stan nagłego zagrożenia zdrowotnego”	subject
		„ Pielęgniarence lub położnej , która w wyniku wznowienia postępowania w przedmiocie odpowiedzialności zawodowej albo kasacji została uniewinniona, przysługuje roszczenie o odszkodowanie za poniesioną szkodę oraz zadośćuczynienie za doznaną krzywdę, na skutek wykonania względem niej w całości albo w części kary, która została zmieniona albo uchylona w wyniku wznowienia postępowania albo kasacji.”	object

source	type of legal act (Matulewska 2007)	Example of a corresponding or similar act from English-speaking countries	source
Act on the professions of nurses and midwives (July 15, 2011)	I	<i>A “midwife” means a person who is registered and entitled under the laws of a province to practise midwifery and who is practising midwifery in that province. (sage-femme) “</i> <i>“A nurse practitioner” means a registered nurse who, under the laws of a province, is entitled to practise as a nurse practitioner — or under an equivalent designation — and to autonomously make diagnoses, order and interpret diagnostic tests, prescribe substances and treat patients. (infirmier praticien)”</i>	New Classes of Practitioners Regulations (SOR/2012-230) sourced from the Government of Canada An Act to amend the Criminal Code and to make related amendments to other Acts (medical assistance in dying) S.C. 2016, c. 3 sourced from the Government of Canada
Act on the council of nurses and midwives (July 1, 2011)	E	“This enactment amends the <i>Criminal Code</i> to, among other things, (a) create exemptions from the offences of culpable homicide, of aiding suicide and of administering a noxious thing, in order to permit medical practitioners and nurse practitioners to provide medical assistance in dying and to permit pharmacists and other persons to assist in the process; (....)”	An Act to amend the Criminal Code and to make related amendments to other Acts (medical assistance in dying) S.C. 2016, c. 3 sourced from the Government of Canada

name of the token	word formational or syntactic type (see Bańcerowski 1982, 1988 1997)	text excerpts	subject or object
<i>lekarz dentysta</i> (‘dentist’)	appositional syntagm	„Wykonywanie zawodu lekarza dentysty polega na udzielaniu przez osobę posiadającą wymagane kwalifikacje, potwierdzone odpowiednimi dokumentami, świadczeń określonych w ust. 1, w zakresie chorób zębów, jamy ustnej, części twarzowej czaszki oraz okolic przyległych”	object
		Okres stażu podyplomowego lekarza dentysty wynosi 12 miesięcy	object

source	type of legal act (Matulewska 2007)	Example of a corresponding or similar act from English-speaking countries	source
Act on the profession of physicians and dentists (December 6, 1996)	I	“ Extra-billing means the billing for an insured health service rendered to an insured person by a medical practitioner or a dentist in an amount in addition to any amount paid or to be paid for that service by the health care insurance plan of a province; (<i>surfacturation</i>)”	Canada Health Act R.S.C., 1985, c. C-6
Act on the profession of physicians and dentists (December 6, 1996)	I	„ Surgical-dental services means any medically or dentally required surgical-dental procedures performed by a dentist in a hospital, where a hospital is required for the proper performance of the procedures; (<i>services de chirurgie dentaire</i>)”	Canada Health Act R.S.C., 1985, c. C-6

name of the token	word formational or syntactic type (see Bańcerowski 1982, 1988 1997)	text excerpts	subject or object
<i>diagnosta laboratoryjny</i> (‘laboratory diagnostician’)	C	„ Diagnosta laboratoryjny jest uprawniony do zgłaszania Prezesowi Urzędu Rejestracji Produktów Leczniczych, Wyrobów Medycznych i Produktów Biobójczych lub podmiotowi odpowiedzialnemu za wprowadzenie produktu leczniczego do obrotu działania niepożądanego produktu leczniczego.”	subject
		„ Diagnosta laboratoryjny , który nieprzerwanie nie wykonywał czynności diagnostyki laboratoryjnej przez okres dłuższy niż 5 lat, a zamierza podjąć ich wykonywanie, ma obowiązek zawiadomienia o tym Krajowej Rady Diagnostów Laboratoryjnych i odbycia przeszkolenia. Tryb i zakres przeszkolenia ustala Krajowa Rada Diagnostów Laboratoryjnych.”	subject

source	type of legal act (Matulewska 2007)	Example of a corresponding or similar act from English-speaking countries	source
Act on laboratory diagnostics (July 21, 2001)	E		
Act on laboratory diagnostics (July 21, 2001)	I		

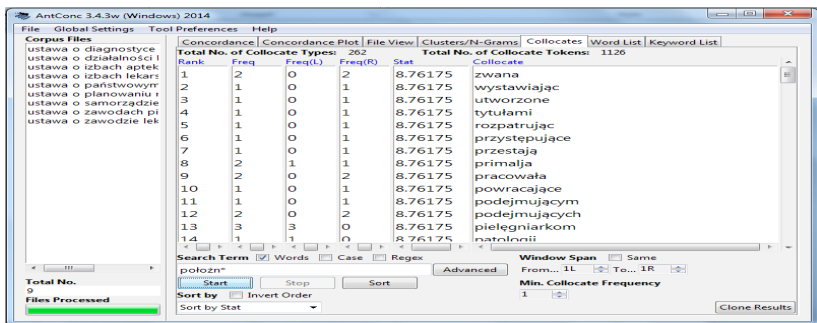
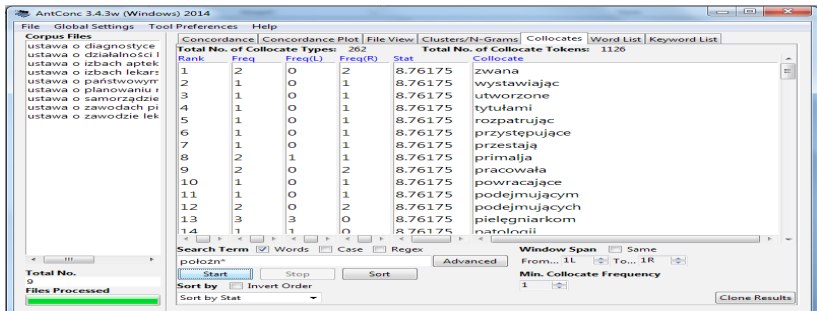
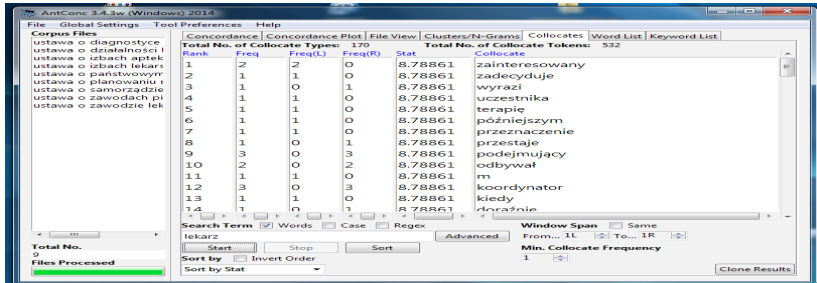
name of the token	word formational or syntactic type (see Bańcerowski 1982, 1988 1997)	text excerpts	subject or object
<i>ratownik medyczny</i> (‘medical rescuer’)	C	„ Ratownik medyczny ma prawo i obowiązek doskonalenia zawodowego w różnych formach kształcenia”	subject
		„(....) ratownik medyczny jest uprawniony do zgłaszania Prezesowi Urzędu Rejestracji Produktów Leczniczych, Wyrobów Medycznych i Produktów Biobójczych lub podmiotowi odpowiedzialnemu za wprowadzenie produktu leczniczego do obrotu działania niepożądanego produktu leczniczego”	subject
<i>technik analityki medycznej</i> (‘laboratory medicine technician’)	Multiword determinational syntagm	„Osobą uprawnioną do wykonywania czynności diagnostyki laboratoryjnej w laboratorium jest również osoba, która posiada: 1) tytuł zawodowy technika analityki medycznej; (....) ”	object

source	type of legal act (Matulewska 2007)	Example of a corresponding or similar act from English-speaking countries	source
Act on public medical rescue (September 8, 2006)	I, E		
Act on public medical rescue (September 8, 2006)	E		
Act on laboratory diagnostics (July 21, 2001)	E		

name of the token	word formational or syntactic type (see Bańcerowski 1982, 1988 1997)	text excerpts	subject or object
<i>technik farmaceutyczny</i> (‘pharmaceutical technician’)	C	„2. Zadania określone w ust. 1 samorząd aptekarski wykonuje w szczególności przez: 1) stwierdzenie prawa wykonywania zawodu <i>aptekarza</i>; 2) prowadzenie rejestru farmaceutów; 3) (uchylony); 4) współdziałanie w sprawach specjalizacji zawodowej; 5) udział w komisjach konkursowych na stanowiska określone w odrębnych przepisach; 6) opiniowanie projektów aktów normatywnych dotyczących produktów leczniczych, aptek i wykonywania zawodu <i>aptekarza</i> oraz występowanie z wnioskiem o podjęcie inicjatywy ustawodawczej; 7) wydawanie opinii w sprawach udzielania lub cofania zezwoleń na prowadzenie aptek lub hurtowni; 8) (uchylony); 9) opiniowanie i wnioskowanie w sprawach kształcenia przed- i podyplomowego farmaceutów i techników farmaceutycznych; (...)”	object

source	type of legal act (Matulewska 2007)	Example of a corresponding or similar act from English-speaking countries	source
(‘Act on pharmacist councils’) (Aprill 19, 2011)	E		

In order to additionally verify the above observations it is necessary to make a few considerations about a type of words that are likely to directly collocate with the most frequently used medical terms. This is also feasible to be performed by the Antconc search tools (see excerpts below).



As shown in the above print screen excerpts, the occupation names often tend to be followed by conjugated verbs or participles. Noteworthy, the verb form indicate an apparent *subject-verb agreement relation* between the occupation names as nouns and the verbs as presented on the right. This definitely supports the previous statement that the analyzed medical terms happen to be subjects in Polish legal clauses.

Final results and concluding remarks

Based on the above considerations one might draw the following conclusions:

- (i) There is a considerable difference in the selection of healthcare occupation terms in the analyzed Polish bills and ministerial regulations. The authors from the legislative branch of the Polish state authority prefer more general and widely used terms. On the other hand, ministerial officials tend to use rare and more complicated vocabulary items outside the medical context.
- (ii) Both simple words or syntagms occur in Polish legal language terms as imperative and empowerment clauses.
- (iii) As far as the syntactic properties of the healthcare occupation terms are concerned, they are likely to function as subjects or objects in legal clauses.

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Chapter 5

Consolidation

Szymon Machowski, Ludomiła Machowska

The presented analyses of the overlapping lexical stock of medicine including clinical diagnostics, law and logistics seem to have clearly shown that quite general terms of a wide range of designation are most likely to be incorporated into other text genres. This might have its roots in the frequent common usage of medical terms with a wide range of designation (cf. Bańcerowski 2000), e.g. *lekarz* ('physician'), *pielęgniarka* ('nurse') and *lekarz dentysta* ('dentist'). These terms are also used in medical contexts and predominately occur as objects in the genitive case in legal clauses. This is correlated to their occurrence in amendment clauses terms by native speakers in various kinds of contexts. The above statement is also true for transportation terms with a wide range of designation (cf. Bańcerowski 1999), e.g. *tramwaj* ('street car'), *pojazd* ('vehicle'), *statek* ('ship'), *pasażer* ('passenger') included in *My logistics* (2005) by Matulewska and Matulewski. These terms have been proven to be also used in medical contexts in legal acts and predominately occur as objects in the genitive case in legal clauses. This is correlated to their occurrence in amendment clauses as defined by Matulewska (2005). The research on the coexistence of specialist terms from divergent branches of science appears to be related to a general reader's (cf. Resurrecció (2007, 52-53) Kościółkowska-Okońska 2012: 17) or a non-medical professional. What is more, typical syntactic terms such as subjects or objects are inevitable to state the position of transportation items in determination chains (cf. Bańcerowski 1980: 90) as complex syntagms and the concept of two-word syntagms such as rectional (cf. Bańcerowski 1997: 13), e.g. and concordial syntagms (Bańcerowski 1998: 53), e.g. were necessary to describe the syntactic structure of sentences in which medical and transportation professionalisms occurred.

A novel phenomenon investigated in this book was the scope of flow cytometry terminology as contrasted with the language of clinical diagnostics and typical medical language most often considered as “patient-doctor language” (Asher 1994: 2433). This highly special lexical stock should be first of all regarded as a challenge for inexperienced Polish-English (or vice versa) translators due to a number of general language terms that might be also flow cytometry notions with completely different meanings which might be exemplified by such terms as event defined as a “(....) name given by flow cytometrists to what most people would call a cell. A flow cytometer associates all light signals that occur without a gap in time with a single event and stores the intensities of the light in association with that event in the data file” (Givan 2001: 243) or *parameter* defined as a “(....) term applied to the types of information derived from a cell as it goes through the flow cytometer” (Givan 2001: 251)”. Therefore, the authors have developed a survey (see Attachment) for participants of LSP translation studies to be possibly used during their courses. The appropriate responses to the survey questions might be easily obtained from the Chapter 3 content.

Another significant issue related to the flow cytometry terminology as considered here is their semasiological construction. In general, these terms happen to be frequently represented by neoclassical structures (cf. ten Hacken 2015, Panocova 2012, Machowski 2015), i.e. that also supports the observations made by who states that “the English medical language is in great majority founded on terminology that is constructed out of roots, prefixes, suffixes of Greek or Latin origin. Examples of such prefixes include: pre/ante- (before, e.g. preoperative), endo- (inside, e.g. endothelial), epi- (above, e.g. epigastrium), hyper- (excessive, above, e.g. hyperactive), hypo- (decrease, below, e.g. hypoglycaemic), mal- (bad, e.g. malfunction), peri- (around, e.g. peritoneal), post- (after, e.g. postnatal), sub- (below, e.g. subdural) or super- (above, e.g. supersensitive). Suffixes embrace such terms as: -algia (painful, e.g. neuralgia), -asthenia (weakness, e.g. myasthenia), -ectomy (removal, e.g. hysterectomy), -itis (inflammation/infection, e.g. otitis), -gram (picture, e.g. cardiogram), -orrhea (flow, e.g. diarrhoea), -pathy (disease, e.g., discopathy), -plasty (surgical repair, e.g. angioplasty), -sclerosis (abnormal hardening, e.g. arteriosclerosis) or -stenosis (narrowing, e.g. arteriostenosis).” (Kościałkowska-Okońska

2012: 9-10) and also confirms the statement that „Polish scientific vocabulary, as well as in other European languages, is mostly based on roots of Greek origin” (Stroński 1998: 134).

It is thus unquestionable that the language of flow cytometry as a laboratory diagnostics technique partly overlaps with typical medical terminological areas but cannot be simultaneously considered to be part of clinical language due to its descriptive features. This set of technical vocabulary is evidently created as a result of neoclassical compounding or acronimization and thus far it contributes to facilitating English-Polish translation process due to the mutual graphical and partly phonic similarity of the equivalents.

The above considerations were used in performing detailed analyses of how medical and technical terms from the domain of flow cytometry and a wide range of transportation terms are linguistically constructed. All of these terms were also applied to the investigation of semasiological properties of medical and technical vocabulary items. Interestingly, acronyms were also included in the overview because acronimization as a word-formational process is very active in creating names of antigens in flow cytometry blood and bone marrow tests in order to diagnose not only oncological but also infectious sicknesses (cf. Mozer-Lisewska et al. 2014, Kowala-Piaskowska 2004) but apparently less productive in creating transportation terms.

The third crosslinguistic issue raised in this book is the overlapping of Polish medical and law terminology in Chapter 4 might be briefly concluded by saying that there is an apparent difference in the healthcare occupation terms in the analyzed Polish bills and ministerial regulations (see Chapter 4). The authors from the legislative branch of the Polish state authority tend to formulate legal clauses by means of more general and widely used terms that function as subjects or objects. On the other hand, ministerial officials tend to use rare and more complicated vocabulary items outside the medical context.

Based on the research on how terminological scope of medicine, laboratory diagnostics, law and logistics overlap with respect to particular ethnic languages (e.g. Polish, English) as presented in this book, translation theoreticians and practitioners should be aware of domain-specific terminology, especially such flow cytometry terminological items as *event*, *parameter*, which are morphologically and syntactically

identical with their counterparts in the general language lexical stock (cf. Oxford Dictionary of English 2002) but are completely different in terms of their semantic properties. This makes it necessary for LSP translators or medical language translators to convey their appropriate meaning in various medical contexts, including laboratory manuals but it also seems to be recommendable to provide their flow cytometry specific meaning in footnotes if the text is purposefully addressed to layman readership or hematology or oncology unsavvy junior medical professionals. Furthermore, translators need to take into considerations that it is necessary to translate such general medical terms into Polish for the sake of formulating legal clauses as e.g. “dentists: or “medical specialist” as “lekarz dentysta” and “lekarz specjalista” as their general meaning in Polish (dentysta, specjalista) does not provide any information on their formal qualification to execute their jobs as physicians or other legally certified healthcare professionals in Poland.

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Appendix

Answering sheet

Flow cytometry terminology for linguistic students

1. What is the difficulty in translating the term “beads” from English into Polish in the context of medical tests. Please justify your reply.

This image shows a full page of white paper with horizontal dotted lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting practice. There are no margins, text, or other markings on the page.

-
- This image shows a full page of a notebook or worksheet. It features approximately 20 horizontal rows of small, evenly spaced dots, designed to guide handwriting. The background is plain white, and there are no margins, text, or other markings present.

-
- This image shows a full page of white paper with horizontal dotted lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting practice. There are no margins, text, or other markings on the page.

6. What is the obstacle in translating the term “fixation” in medical contexts and what kind of difficulties might it cause in the English-Polish translation process? Please justify your answer.

This image shows a full page of white paper with horizontal dotted lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting practice. There are no margins, text, or other markings on the page.

7. What is the specifics of the term “acquisition” in medical contexts and what kind of difficulties might it cause in the English-Polish translation process? Please justify your answer.

[illegible]

8. What is the specifics of the term “event” in the contexts of medical diagnostics what are the possible translative equivalents dependent on the text genres? Please justify your answer.

This image shows a full page of primary-ruled paper. It features approximately 20 horizontal rows, each consisting of two parallel dotted lines. The background is white, and the dots are small and evenly spaced along each line. There is no handwriting or other markings on the page.

9. Which of such translation techniques as word-to-word translation, literal and faithful (cf. Newmark 1988) translation might be applied to the English-Polish translation of flow cytometry terms. Please justify your answer.

This image shows a full page of a document template designed for handwriting practice or general note-taking. It consists of approximately 28 evenly spaced horizontal dotted lines across the entire width of the page. There are no margins, headers, footers, or other markings present.

10. Might the language of laboratory diagnostics be considered to be *clinical language*? Justify your answer.

This image shows a full page of white paper with horizontal dotted lines, typical of primary school writing paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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