

## DIVERSITY OF SECONDARY COMPONENTS OF MULTI-WORD ANATOMICAL TERMS IN POCKET ATLAS OF HUMAN ANATOMY

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### Abstract

Medical terms in the atlas can be basically divided into one-word and multi-word terms. Compound words are individual words made from two or more words working together.

*The object of the article* is the relations between Latin and Lithuanian compound anatomical terms, according to diversity of secondary components. *The purpose of the article* is to reveal the similarities and differences between multi-word Latin and Lithuanian anatomical terms by structural diversity of components. To achieve the purpose, the following *research tasks* are set: to review the evolution of anatomical nomenclature; to compare Latin and Lithuanian multi-word anatomical terms according to the diversification of structure of components. *Research methods.* The method of theoretical analysis examines scientific literature, the comparative analysis of terms enables systematisation and generalisation of Latin and Lithuanian anatomical terms in the resource.

**Keywords:** multi-word anatomical terms, diversity of secondary components, difference of secondary components.

Human anatomy is a fundamental discipline of medicine and biology, which reveals the structure of the parts of the human body, their location and interrelationships. This science describes the norm, variability of the structure of human body parts, organs and their systems and structural deviations from the norm. Anatomical terminology is often chosen to highlight the relative location of body structures. For instance, an anatomist might describe one band of tissue as "inferior to" another or a physician might describe a tumor as "superficial to" a deeper body structure (Dauber, 2019).

The origin of anatomical terminology dates back to the ancient period, more than 2,500 years ago, and was described in the common languages of that time: Greek, and later Latin. This principle has endured and serves as a base for the modern-day anatomical nomenclature. Greek and Latin medicine established the foundation of anatomical terminology which varied with different authors. Most of the anatomical terms are different from colloquial words, and have changed since ancient times. Hippocrates (ca. 460-370 BC), in Greece, introduced terms such as acromion, bronchus and peritoneum. Aulus Cornelius Celsus (25 BC – 50 AD), in Rome, used cartilago, patella or sutura. Claudius Galenus of Pergamon (129/130 – 199/200 AD) introduced new terms. Friedrich D. J. Henle (1809 - 1885) was the first to simplify anatomical terminology. Terms such as "medialis, and lateralis" were introduced by him to describe the appropriate orientation and direction of anatomical structures (Aghoghovwia, 2023).

A standardized language for describing body structures is also essential. Anatomical nomenclature is the main tool of communication in morphology, anatomy and other medical disciplines as well as in medical education, and thus needs to be exact, flawless, elaborate and correct. The Terminologia Anatomica (TA) is a thorough and extensive list of anatomical terms and their definitions, and the current standard for human anatomical terminology. Although several revisions to the TA have been made in the last 20 years, some important anatomical structures are still not included (Musil et al., 2018). It is estimated that about three-fourths of our medical terminology is of Greek origin. The main reason for this is that the Greeks were the founders of rational medicine in the golden age of Greek civilization in the 5th Century B.C. The Hippocratic School and, later on, Galen (the Greek from Asia Minor who lived in Rome in the 2nd century A.D.) formulated the theories which dominated medicine up to the beginning of the 8th Century. The Hippocratics were the first to describe diseases based on observation, and the names given by them to many conditions are still used today. A second reason for the large number of Greek medical terms is that the Greek language lends itself easily to the building of compounds. The fact is that about one-half of our medical terminology is less than a century old (Banay, 1948).

The paper offers an up-to-date view of the status of Latin as the language of medicine, namely in its terminological component. It is concerned in greater detail with the three basic terminological vocabularies in which a doctor cannot so far manage without its knowledge. In this sense a primary rank is occupied by anatomical nomenclature whose international version remains Latin in the full extent. A more varied picture is presented by the clinical

disciplines where, apart from Latin terms, expressions of ancient provenance have been applied in a large measure in the form of ethnic languages. In pharmaceutical terminology Latin has, for the time being, remained a functioning means of international communication, guaranteed by the European Pharmacopoeia (1996) and by the corpus of International Non-proprietary Names (1992, 1996), even though in the future an ever stronger competition of national languages should be taken into account (Marecková et al., 2002).

Anatomical Terminology is a unique collection of technical terms that allow communication in anatomy and medicine worldwide. However, the current Anatomical Terminology also contains some internal inconsistencies and discrepancies in relation to clinical terminology. Thus, several terms are not directly related to the names of anatomical structures and / or the names of corresponding physiological and pathological conditions. In addition, during clinical practice, many anatomical terms have been replaced by new clinical expressions. These terminological discrepancies may hinder learning and teaching anatomy in medicine and other courses in the health field. These "mismatches" of terms generate a lot of confusion due to different origins and languages. International Anatomical Terminology is a fundamental process for medicine and other health professions, where "the act of standardizing a term is more related to standardizing and making it uniform and even harmonizing it than the act of imposing a form through normative procedures". It is important that students in the health area have a good knowledge and understanding of basic anatomical terms, taking into account that anatomy constitutes the basis for the practice of medicine and other health courses. Anatomical understanding makes the professional understand a patient's illness, either by clinical examination or by using the most advanced imaging techniques. It is important not only to understand anatomical terms, but to place these terms within their own context, that is, to give an appreciation of how the human body functions both in health and in disease. The precise use of anatomical terms by health professionals allows accurate communication between colleagues, both nationally and internationally. Thus, a good knowledge of Anatomical Terminology requires an understanding of the context in which terms can be remembered (Gonçalves et al., 2020). Terminologia Anatomica „can be described as the international Standard on human anatomic terminology developed by the Federative International Programme for Anatomical Terminology and the International Federation of Associations of Anatomists and was released in 1998.

According to Gaivenis, the terminology of anatomy and medicine in general as well as of botany and zoology is Latin and is grounded on certain international codes, corpuses, which are usually approved at international congresses. These codes are used as a guide for standardising the nomenclature of the systematics of these scientific fields. The principles of managing terms in this field were approved at the 5th International Congress of Anatomists (Gaivenis, 2002).

## TWO-WORD TO FIVE-WORD LATIN AND LITHUANIAN ANATOMICAL TERMS

The *POCKET ATLAS OF HUMAN ANATOMY* is filled with images originally illustrated by painter and renowned physician prof. Gerhard Spitzer, this textbook is a vivid rendering of the human anatomy which is not only detailed and accurate, but also beautiful. Concise definitions of anatomical terms enhanced with hundreds of vivid, elegant illustrations. Coverage of all of the body's major organs and systems. Easy access - clearly organized, color-coded hierarchies. Up-to-date nomenclature according to the Federative Committee on Anatomical Terminology (FCAT). Comprehensive indexes in Latin, English, Lithuanian. The perfect combination of both cutting-edge and time-tested features make the Pocket Atlas of Human Anatomy the best choice for physicians, physical therapists, medical students, nurses, dentists, physician's assistants - quite simply, anyone who works with the human body (Dauber, 2019).

The first edition in German was published in 1967 under the title *Anatomische Bildnomenklatur*. A total of 29 editions have been published in German, Italian, Polish, Spanish, Japanese, Portuguese, English, Danish, Swedish, Czech, Dutch, French, Turkish, Greek, Chinese, Icelandic languages. The Index of Terms in Lithuanian has been published three times: in 2013, 2017, and 2019.

According to Parker, the study of the body's structure, how its cells, tissues, and organs are assembled, is known as human anatomy. Its elements are often shown in isolation, using techniques such as cutaways, cross-sections, and „exploded“ views, which provide clarity and understanding. But in reality, the inside of the body is a crowded place. Tissues and organs

push and press against one another. There is no free space, no stillness either. Body parts shift continually in relation to each other, as we move about, breathe, pump blood, shift digestive matter, and eat. (Parker, 2019).

Compound anatomical terms are usually made up of two or three words. Multi-word (four-word and five-word) compound terms are very rare. Compound terms, as a separate type of terms, were first distinguished and named by our famous linguist J. Jablonskis when reviewing K. Jaunius' "Grammar of the Lithuanian Language" in 1913. He called terms made up of several words *combined terms* (Gaivenis, 1975).

The research object consists of 1568 Latin compound anatomical terms and Lithuanian compound anatomical terms. In this article, we dissociate ourselves from single-word derivative and compound terms, which constitute a small proportion of anatomical terms – about 0,03% of the number of Lithuanian one-word and Latin one-word terms found. Let us compare the data presented in the figure.

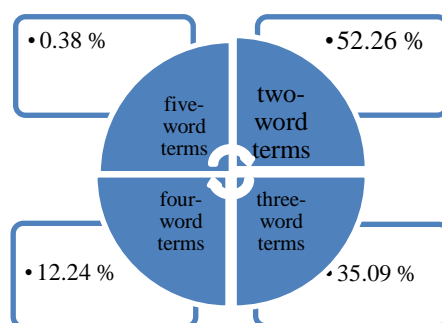


Fig. 1. Statistics of multi-word Latin and Lithuanian anatomical terms by the variety of components (Source: Prepared by the author)

#### VARIETY OF SECONDARY COMPONENTS OF TWO-WORD TERMS

The largest group consists of Lithuanian and Latin two-word terms (820). Lithuanian three-word and Latin three-word terms make up a smaller part (550) (see Fig. 1).

It is believed that in most scientific fields, there are significantly more two-word terms than three-word terms. Statistically, Latin and Lithuanian two-word anatomical terms account for more than half of all compound anatomical terms found. Almost every third Latin and Lithuanian compound anatomical term is a three-word term. Only about one in seven Lithuanian and Latin term is a four-word term. Five-word Lithuanian and Latin terms do not make up even half a percent.

Examples show that Lithuanian and Latin six-word to eight-word anatomical terms have not been found. They occur only in clinical terminology.

According to the usual word order in Latin, the attribute follows the determinative. In Latin, the word order is not very strict, but more often the subject goes at the beginning of the sentence; the predicate, at the end; while *the attribute, after the determinative* (Dumčius et al., 1999). Thus, it could be stated that Latin medical terminology has a reverse word order compared to Lithuanian. Usually, components of Lithuanian two-word terms are presented in a certain order – *attribute + determinative*; while in Latin terms, *determinative + attribute*. According to K. Gaivenis, this is how our anatomy, botany, and zoology nomenclature differs from Latin, in which species attributes always follow the determinative (Litevkienė, 2006).

In this paper, defining the variety of secondary components of two-word Latin terms and their Lithuanian equivalents, the following groups of Latin and Lithuanian terms were studied:

- main word + attribute – agreed attribute + main word;
- main word + attribute – non-agreed attribute + main word;
- main word + attribute – non-agreed attribute+ non-agreed attribute+ main word attribute.

Latin two-word anatomical terms and their Lithuanian equivalents form eight types according to the variety of secondary components:

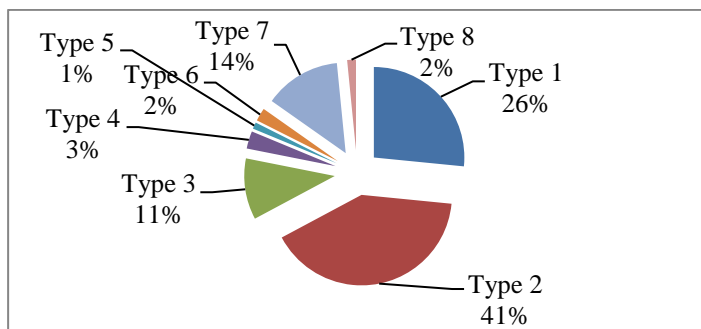


Fig. 2. Statistics of two-word Latin and Lithuanian anatomical terms by the variety of components (Source: Prepared by the author)

The largest group consists of the second type of Lithuanian and Latin two-word terms (40%), the first type term group accounts for more than a quarter of all found two-word terms, the seventh type term group makes up one seventh, and the third type term group accounts for one ninth of terms. The ninth, eighth, sixth, fourth, and fifth type term groups account for less than a tenth (see Fig. 2).

**Type 1.** Nominative of a noun (determinative) + genitive of a noun (attribute) ↔ genitive of a noun (attribute) + nominative of a noun (determinative): *agger nasiPA518 – nosies kauburysPA164*; *ala vomerisPA518 – norago sparnaiPA38*; *alveus hippocampiPA518 – hipokampo groveliaiPA384*; *angulus acroniiPA518 – peties kampasPA54*; *angulus aortaePA518 – šonkaulio kampasPA52*; *angulusoris PA518 – burnos kampasPA134*.

**Type 2.** Nominative of a noun (determinative) + nominative of an adjective positive (attribute) ↔ nominative of an adjective positive (attribute) + nominative of a noun (determinative): *angulus frontalisPA518 – kaktinis kampasPA34*; *anulus femoralisPA518 – šlauninis žiedas120*; *aorta abdominalisPA518 – pilvinė aorta258*; *apertura medianaPA518 – vidurinė atvaraPA346*; *areus alveolarisPA519 – alveolinis lankasPA42*; *area rostralisPA519 – rombinė duobėPA370*; *arteria angularisPA519 – kampinė arterijaPA234*.

When discussing the aspects of the coincidence and difference of the components in the second type of terms, it is necessary to point out that secondary components of Lithuanian two-word terms with the agreed attribute are of two types:

- secondary components can be expressed by the nominative of the pronominal adjective;
- secondary components can be expressed by attributive adjectives with the suffixes *-inis*, *-ė*.

In Latin, there are no such forms as pronominal adjective and participle. In Lithuanian, pronominal adjectives have a determinative and emphatic meaning. In Latin, adjectives do not have such meanings.

The frequency of pronominal adjectives and adjectives with the suffix *-inis*, *-ė* as secondary components is shown in Figure 3 (see Fig. 3):

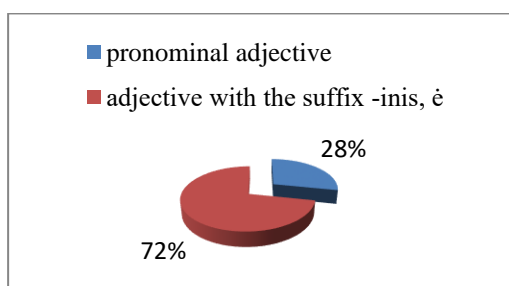


Fig. 3. Frequency of pronominal adjectives and adjectives with the suffix *-inis, -ė* in subordinate components (Source: Prepared by the author)

The majority is made up of attributive Lithuanian components with the suffix *-inis*, *-ė* (more than two-thirds of cases). The Latin equivalents of secondary components of Lithuanian two-word terms in this group are: agreed adjectives with suffixes *-alis, e*; *-aris, e*; *icus, a, um*; *aceus, a, um*, which denote belonging to the object denoted by the main word or a connection with that object.

**Type 3.** Nominative of a noun (determinative) + nominative of an adjective positive (attribute) ↔ genitive of a noun (attribute) + nominative of a noun (determinative): *canalis gastricusPA523 –*

*skrandžio kanalas*PA146; *circulus arteriosus*PA525 – arterijos žiedasPA17; *concha auriculare*PA526 – kriauklės įdubaPA14; *corona ciliaris*PA526 – krumplyno vainikasPA436; *corpus gastricum*PA526 – skrandžio kūnasPA146; *cupula ampullaris*PA527 – ampulės kupolasPA464; *crista ampullaris*PA527 – ampulės skiauterėPA464; *fascia axillaris*PA530 – pažasties fascijaPA116; *fascia cervicalis*PA530 – kaklo fascijaPA100; *fornix gastricus*PA532 – skrandžio skliautas; *glandulae nasales*PA533 – nosies liaukosPA164.

**Type 4.** Nominative of a noun (determinative) + nominative of an participium (attribute) ↔ nominative of an participium (attribute) + nominative of a noun (determinative): *arteria ascendens*PA519 – kylančioji arterijaPA262; *cisterna ambiens*PA525 – gaubiantčioji cisternaPA314; *ramus ascendens*PA553 – kylančioji šakaPA228; *aorta ascendens*PA518 – kylančioji aortaPA230; *aorta descendens*PA518 – nusileidžiantčioji aortaPA258; *fascia investiens*PA530 – gaubiantysis sluoksnisPA16.

**Type 5.** Nominative of a noun (determinative) + nominative of numerale ordinale (attribute) ↔ nominative of numerale ordinale (attribute) + nominative of a noun (determinative): *costa prima*PA527 – pirmasis šonkaulisPA52; *costa secunda*PA527 – antrasis šonkaulisPA52.

**Type 6.** Nominative of a noun (determinative) + nominative of an adjective positive (attribute) ↔ genitive of a noun (attribute) + nominative of a noun (determinative): *arbor bronchialis*PA519 – gyvybės medisPA358; *arcus costalis*PA519 – šonkaulių lankasPA52; *arteria buccalis*PA519 – žando arterijaPA236; *capsula articularis*PA524 – sąnario kapsulėPA14; *cavitas pleuralis*PA525 – krūtinplėvės ertmėPA180.

**Type 7.** Nominative of a noun (determinative) + nominative of a comparative (attribute) ↔ nominative of a comparative (attribute) + nominative of a noun (determinative): *calyx inferior*PA523 – apatinė taurelėPA184; *calyx superior*PA523 – viršutinė taurelė184; *camera anterior*PA523 – priekinė kameraPA442; *camera posterior*PA523 – užpakalinė kameraPA442; *canalis anterior*PA524 – priekinis kanalasPA460; *canalis posterior*PA524 – užpakalinis kanalasPA460; *cornu anterius*PA526 – priekinis ragasPA18; *cornu majus*PA526 – didysis ragasPA46.

Comparative adjectives in Latin terms are used in order to distinguish the determinative, because the comparative degree of the adjective means a significant or sufficiently large extent of quality. The equivalents of Latin terms whose secondary components are comparative adjectives are pronominal adjectives and adjectives with the suffix *-inis*, *é*. After analysing the cases found in the source, it can be concluded that the number of Lithuanian equivalents with pronominal adjectives of secondary components in Latin terms, expressed by comparative adjectives, is twice as high as the number with the suffix *-inis*, *é*.

**Type 8.** Nominative of a compound noun (determinative) + genitive of a noun (attribute) ↔ genitive of a noun (attribute) + genitive of a noun (attribute) + nominative of a compound noun (determinative): *aquaeductus cochleae*PA519 – sraigės vandentiekio latakasPA462; *aquaeductus vestibuli*PA519 – prieangio vandentiekio latakasPA462; *sulcus caroticus*PA560 – miego arterijos vagaPA28.

#### VARIETY OF SECONDARY COMPONENTS OF THREE-WORD TERMS

Three-word Latin and Lithuanian terms make up a little more than a third of compound terms found in the source. Statistically, these terms, both Latin and Lithuanian, are used quite frequently in anatomical terminology. They are surpassed only by two-word terms. Lithuanian equivalents of three-word Latin terms can also be four-word terms.

Latin three-word anatomical terms and their Lithuanian equivalents form twenty-six types according to the variety of secondary components.

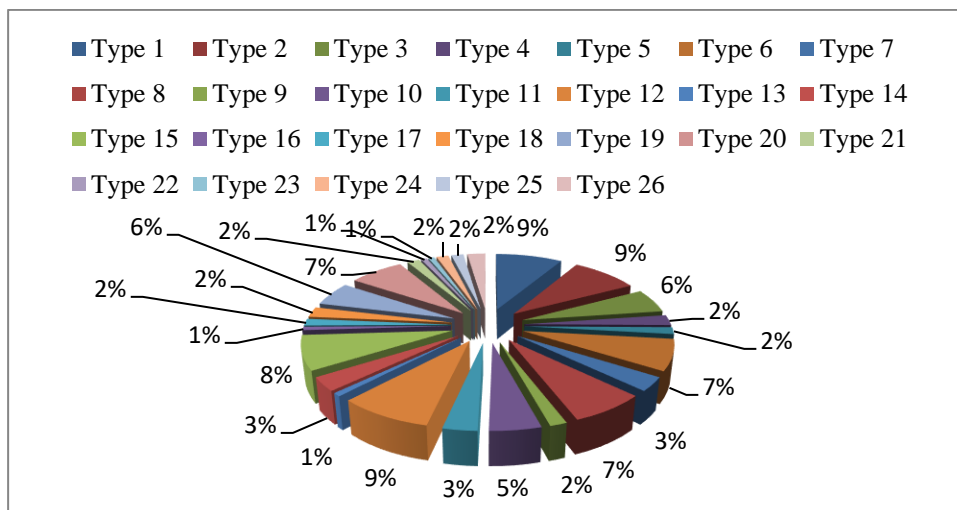


Fig. 4. Statistics of three-word Latin and Lithuanian anatomical terms by the variety of components (Source: Prepared by the author)

It has been observed that the following types of secondary component structures of Latin and Lithuanian three-word anatomical terms are most common:

1. Nominative of a noun (determinative) + genitive of a noun(attribute) + genitive of a noun (attribute) ↔ genitive of a noun (attribute) + genitive of a noun (attribute) + nominative of a noun (determinative).
2. Nominative of a noun (determinative) + genitive of a noun (attribute) +nominative of a comparative(attribute) ↔ nominative of an adjective positive (attribute) + genitive of a noun (attribute) + Nominative of a noun (determinative).
3. Nominative of a noun (determinative) + genitive of a noun (attribute) + genitive of an adjective positive (attribute) ↔ genitive of a noun (attribute) + genitive of a noun (attribute) + nominative of a noun (determinative).
4. Nominative of a noun (determinative) + nominative of an adjective positive (attribute) + nominative of a comparative (attribute) ↔ nominative of an adjective positive (attribute) + nominative of an adjective positive (attribute) + nominative of a noun (determinative).
5. Nominative of a noun (determinative) + nominative of a comparative (attribute) + genitive of a noun (attribute) ↔ nominative of an adjective positive (attribute)+ genitive of a noun (attribute) + nominative of a noun (determinative).
6. Nominative of a noun (determinative) + nominative of an adjective positive (attribute + nominative of a comparative (attribute) ↔ nominative of an adjective positive (attribute)+ genitive of a noun (attribute) + nominative of a noun (determinative).

Every pair of the above-mentioned three-word terms can produce several combinations. In total, 26 structural types of Latin terms and Lithuanian equivalents composed of three components can be obtained. The variety of secondary Latin and Lithuanian components is presented in Table 1 (see Table 1):

Table 1

components types	Latin three word terms		Lithuanian three – word terms	
	I subordinate component	II subordinate component	I subordinate component	II subordinate component
genitive of a noun	1, 4, 5, 9, 14, 15, 18, 20	1, 2, 5, 7, 8, 13, 22	1, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 20	1, 2, 4, 18, 22, 25
genitive of an adjective positive	2, 3		2	11, 20
nominative of a comparative	7, 13, 24	3, 6, 9, 10, 15, 17, 21, 26		
nominative of an adjective positive	6, 8, 10, 11, 12, 16, 21, 25, 26	4, 11, 12, 14	5, 6, 8, 15, 19, 23, 24, 26	3, 6, 7, 9, 10, 12, 13, 14, 17, 19, 23, 24, 26
nominative of a participle	17, 19, 22	16, 19	17, 21, 22	16, 21
genitive of a comparative	23	18, 20, 23		
nominative of a superlative		25	25	

Table 1. Diversity of subordinate components of Latin and Lithuanian three-word terms (Source: Prepared by the author)

In Latin three-word terms, the first secondary component is usually expressed by the genitive of the noun and the nominative of the adjective; the second secondary component, by the genitive of the noun and the nominative of the comparative adjective. In Lithuanian equivalents, the first secondary component is usually expressed by the genitive of the noun and the nominative of the adjective; the second secondary component, by the genitive of the noun and the nominative of the adjective. In Lithuanian terms, there are no such cases where secondary components are expressed by the genitive of the comparative adjective. Superlative adjectives occur very rarely in three-word terms. Coincidences and differences of secondary components in Latin and Lithuanian terms can be summarised as follows: identical terms are of types 1, 2, 14, 19, 22 (which accounts for 16.23%).

#### VARIETY OF SECONDARY COMPONENTS OF FOUR-WORD TERMS

It has already been mentioned that the majority of Latin and Lithuanian anatomical terms are two-word and three-word terms, which form various groups of terms. Latin and Lithuanian four-word anatomical terms form a small group of compound terms: one in seven terms found in the source is a four-word term. Due to the variety of secondary components, only four groups of identical Latin and Lithuanian terms have been observed: the fourth, seventh, thirteenth and seventeenth groups. Lithuanian equivalents of four-word Latin terms can be four-word Lithuanian terms and in very rare cases, five-word terms occur.

The source contains 20 structural types of Latin four-word terms and their Lithuanian equivalents. The variety of secondary Latin and Lithuanian components is presented in Table 2 (see Table 2):

Table 2

	Latin four-word terms			Lithuanian four-word terms		
components types	I SB*	II SB	III SB	ISB	II SB	III SB
nominative of an adjective	1, 2, 4, 5, 6, 8, 10, 11, 17, 18, 20, 13, 14	18, 20, 12	7, 11, 14	10, 4, 13, 14, 17	7, 10, 11, 1, 14, 15, 20	6, 7, 8, 9, 10, 11, 12, 1, 2, 6, 14, 15, 20
genitive of an adjective		7, 3, 16	12, 13, 15, 17, 5, 4	6, 7, 8, 9	5, 13, 18	3, 4, 5, 13, 16, 17, 19
genitive of a noun	1, 3, 7, 9, 16, 19	8, 2, 4, 5, 6, 9, 15, 17, 19, 13	6, 8, 9, 18, 19, 20	11, 12, 1, 2, 3, 5, 15, 16, 19, 18, 20	6, 8, 9, 12, 2, 3, 4, 16, 17, 19	18
nominative of a comparative	12, 15	1, 10, 11, 14	10			
genitive of a comparative			16, 1, 3			

\*SB – Subordinate component

Table 2. Diversity of subordinate components of Latin and Lithuanian four-word terms (Source: Prepared by the author)

The variety of secondary components of four-word Latin and Lithuanian terms, which is presented in the table, shows the frequency of occurrence of the most productive terms in this group. In Latin four-word terms, the first secondary components are the nominative of the adjective (50% of all four-word terms), the genitive of the noun occurs somewhat less frequently (26,9%); the second secondary components are most often the genitive of the noun (26,9%); the third secondary components are most often the genitive of the adjective (26,9%) and the genitive of the noun (26,9%). Rarely, secondary components of Latin terms are expressed by the genitive of the comparative adjective. The first secondary components of Lithuanian four-word terms are most often expressed by the genitive of the noun (50%); the second secondary components are most often expressed by the genitive of the noun (38,5%), the nominative of the adjective (26,9%); and the third secondary components are most often expressed by the nominative of the adjective (50%) and the genitive of the adjective (26,9%).

Structural types of four-component Latin terms and their Lithuanian equivalents:

1. Nominative of a noun (determinative) + genitive of a noun (attribute) + nominative of a comparative (attribute) + genitive of an adjective positive (attribute) ↔ nominative of an adjective positive (attribute) + genitive of a noun (attribute) + genitive of a noun (attribute) + nominative of a noun (determinative): *nervi curvaturae minoris anteriorPA542 – priekinis mažosios kreivės nervasPA410*.
2. Nominative of a noun (determinative) + genitive of an adjective positive (attribute) + genitive of a noun (attribute) + genitive of an adjective positive (attribute) ↔ nominative of an adjective positive (attribute) + genitive of a noun (attribute) + genitive of a noun (attribute) + nominative of a noun (determinative): *nervus cutaneus femoris lateralisPA542 – šoninis šlaunies odos nervasPA420*.
3. Nominative of a noun (determinative) + genitive of a noun (attribute) + genitive of an adjective positive (attribute) + genitive of an adjective positive (attribute) ↔ genitive of an adjective positive (attribute) + genitive of an adjective positive (attribute) + genitive of a noun (attribute) + nominative of a noun (determinative): *ostium venae cavae superioris 548PA – viršutinės tuščiosios venos angaPA224*.
4. Nominative of a noun (determinative) + genitive of an adjective positive (attribute) + genitive of a noun (attribute) + genitive of an adjective positive (attribute) ↔ genitive of an adjective positive (attribute) + genitive of a noun (attribute) + genitive of an adjective positive (attribute) + nominative of a noun (determinative): *pars anularis vaginae fibrosaePA548 – skaidulinės makšties žiedinė dalisPA116*.
5. Nominative of a noun (determinative) + nominative of an adjective positive (attribute) + genitive of a noun (attribute) + genitive of an adjective positive (attribute) ↔ nominative of an



adjective positive (attribute) + genitive of an adjective positive (attribute) + genitive of a noun (attribute) + nominative of a noun (determinative): *pars medialis lobuli biventralis*PA549 – *nugarinė gretutinė skiautės dalis*PA356.

6. Nominative of a noun (determinative) + nominative of an adjective positive (attribute) + genitive of a noun (attribute) + genitive of an adjective positive (attribute) ↔ nominative of an adjective positive (attribute) + genitive of an adjective positive (attribute) + genitive of a noun (attribute) + nominative of a noun (determinative): *apertura interna canaliculi cochleae*PA518 – *vidinė sraigės kanalėlio atvara*PA462.

7. Nominative of a noun (determinative) + genitive of a noun (attribute) + nominative of an adjective positive (attribute) + nominative of an adjective positive (attribute) ↔ nominative of an adjective positive (attribute) + nominative of an adjective positive (attribute) + genitive of a noun (attribute) + nominative of a noun (determinative): *arcus pedis transversus distalis*PA519 – *tolimasis skersinis pėdos skliautas*PA12.

8. Nominative of a noun (determinative) + nominative of an adjective positive (attribute) + genitive of an adjective positive (attribute) + genitive of a noun (attribute) ↔ nominative of an adjective positive (attribute) + genitive of a noun (attribute) + genitive of a noun (attribute) + nominative of a noun (determinative): *arcus tendineus fasciae pelvis*PA 519 – *sausgyslinis dubens fascijos lankas*PA216.

9. Nominative of a noun (determinative) + genitive of an adjective positive (attribute) + genitive of an adjective positive (attribute) + genitive of a noun (attribute) ↔ nominative of an adjective positive (attribute) + genitive of a noun (attribute) + genitive of a noun (attribute) + nominative of a noun (determinative): *arcus musculi levatoris ani*PA519 – *sausgyslinis išangės raumens lankas*PA218.

10. Nominative of a noun (determinative) + nominative of an adjective positive (attribute) + nominative of a comparative (attribute) + nominative of a comparative (attribute) ↔ nominative of an adjective positive (attribute) + nominative of an adjective positive (attribute) + genitive of a noun (attribute) + nominative of a noun (determinative): *arteria alveolaris superior anterior*PA519 – *viršutinė užpakalinė alveolinė arterija*PA236.

11. Nominative of a noun (determinative) + nominative of an adjective positive (attribute) + nominative of a comparative (attribute) + nominative of an adjective positive (attribute) ↔ nominative of an adjective positive (attribute) + nominative of an adjective positive (attribute) + genitive of a noun (attribute) + nominative of a noun (determinative): *arteriae ciliares posteriores breves*PA519 – *trumposios užpakalinės krumplyno arterijos*PA240.

12. Nominative of a noun (determinative) + nominative of a comparative (attribute) + genitive of a noun (attribute) + genitive of an adjective positive (attribute) ↔ nominative of an adjective positive (attribute) + genitive of a noun (attribute) + genitive of a noun (attribute) + nominative of a noun (determinative): *bulbus inferior venae jugularis*PA523 – *apatinis jungo venos stormuo*PA276.

13. Nominative of a noun (determinative) + nominative of an adjective positive (attribute) + genitive of a noun (attribute) + genitive of an adjective positive (attribute) + genitive of an adjective positive (attribute) + genitive of a noun (attribute) + nominative of an adjective positive (attribute) + nominative of a noun (determinative): *pulmo sinister lobus inferior*PA552 – *kairiojo plaučio apatinė skiltis*PA176.

14. Nominative of a noun (determinative) + nominative of an adjective positive (attribute) + nominative of a comparative (attribute) + nominative of an adjective positive (attribute) ↔ nominative of an adjective positive (attribute) + nominative of an adjective positive (attribute) + nominative of an adjective positive (attribute) + nominative of a noun (determinative): *ramus alveolaris superior medius*PA553 – *viršutinė priekinė alveolinė šaka*PA402.

15. Nominative of a noun (determinative) + nominative of a comparative (attribute) + genitive of a noun (attribute) + genitive of an adjective positive (attribute) ↔ nominative of an adjective positive (attribute) + nominative of an adjective positive (attribute) + genitive of a noun (attribute) + nominative of a noun (determinative): *semicanalis musculi tensoris tympani*PA30 – *viršutinio strėlinio ančio anga*PA30.

16. Nominative of a noun (determinative) + genitive of a noun (attribute) + genitive of a noun (attribute) + genitive of an adjective positive (attribute) ↔ nominative of an adjective positive (attribute) + nominative of a comparative (attribute) + genitive of a noun (attribute) + nominative of a noun (determinative): *sulcus nervi petrosi majoris* PA560 – *didžiojo uolos nervo vaga*PA32.

17. Nominative of a noun (determinative) + nominative of an adjective positive (attribute) + genitive of a noun (attribute) + genitive of an adjective positive (attribute) ↔ genitive of an adjective positive (attribute) + genitive of a noun (attribute) + nominative of an adjective positive

(attribute) + nominative of a noun (determinative): *tractus spinalis nervi trigemini*PA562 – *trišakio nervo nugarinis laidas*PA328.

18. Nominative of a noun (determinative) + nominative of an adjective positive (attribute) + nominative of an adjective positive (attribute) + genitive of a noun (attribute) ↔ genitive of a noun (attribute) + genitive of an adjective positive (attribute) + genitive of a noun (attribute) + nominative of a noun (determinative): *trigonum parietale laterale pelvis*PA562 – *dubens šoninės sienos trikampus*PA214.

19. Nominative of a noun (determinative) + genitive of a noun (attribute) + genitive of a noun (attribute) + genitive of a noun (attribute) ↔ genitive of an adjective positive (attribute) + genitive of a noun (attribute) + genitive of a noun (attribute) + nominative of a noun (determinative): *vagina musculi recti abdominis* PA564 – *tiesioji pilvo raumens makštis*PA108.

20. Nominative of a noun (determinative) + nominative of an adjective positive (attribute) + nominative of an adjective positive (attribute) + genitive of a noun (attribute) ↔ nominative of an adjective positive (attribute) + nominative of an adjective positive (attribute) + genitive of a noun (attribute) + nominative of a noun (determinative): *vena dorsalis profunda clitoridis*PA565 – *gilioji nugarinė varputės vena*PA290.

#### VARIETY OF SECONDARY COMPONENTS OF FIVE-WORD TERMS

It has been mentioned in the paper that Latin and Lithuanian five-word anatomical terms are not common. They make up 0,38% of all compound terms found in the source. Terms in this group of terms differ with regard to secondary components. In Latin terms, only one secondary component is expressed by the genitive of the noun; in Lithuanian, two secondary components are agreed attributes and two are non-agreed ones.

The following five-word pairs of Latin and Lithuanian terms were found:

Nominative of a noun (determinative) + nominative of an adjective positive (attribute) + genitive of a noun (attribute) + genitive of an adjective positive (attribute) + genitive of a superlative ↔ nominative of an adjective positive (attribute) + genitive of an adjective positive (attribute) + genitive of a noun (attribute) + genitive of a noun (attribute) + nominative of a noun (determinative): *bursa trochanterica musculi glutaei maximi*PA523 – *gūbrinis mažojo sėdmens raumens maišelis*PA130; *bursa ischiadica musculi glutaei maximi*PA523 – *sėdynkaulinis didžiojo sėdmens raumens maišelis*PA130.

#### Conclusion

Over many years, anatomical terminology has been the subject of much controversy and disagreement. Previously, the International Anatomical Nomenclature Committee has been responsible for the production of six editions of *Nomina Anatomica*. In 1998, a new corpus of anatomical terminology *Corpus, Terminologia Anatomica* was published. FCAT (Federative Committee on Anatomical Terminology) has endorsed *Latin expressis verbis* as the “best (final) language of terminology”. The goal of FCAT is to provide a high-level and easy-to-use biomedical anatomical terminology relevant to the international community of anatomists, the health sciences in general as well as scholars, educators, writers and the general public and to improve communication within and between disciplines. It can be maintained that Latin anatomical terminology is best organised as an international language of science.

Latin and Lithuanian two-word and three-word anatomical terms are used quite often: 52,26% and 35,09% of two-word terms and three-word terms were found in the sources, respectively. This makes up 87,35% of the sample of Latin and Lithuanian terms. The majority of Lithuanian and Latin anatomical terms are two-word. They account for more than half of all studied compound terms.

The majority of Lithuanian compound terms are adjectives with *the suffix -inis, -ė; a smaller part consists of pronominal adjectives*. The species attribute of Lithuanian anatomical terms usually precedes the determinative. Latin compound terms are characterised by an inverted order of components of compound terms.

In Latin three-word terms, the first secondary component is usually expressed by the genitive of the noun and the nominative of the adjective; the second, by the genitive of the noun and the nominative of the comparative adjective. In Lithuanian equivalents, the first secondary component is usually expressed by the genitive of the noun and the nominative of the adjective; while the second, by the genitive of the noun and the nominative of the adjective.

Latin and Lithuanian five-word anatomical terms are not common. Secondary components are usually expressed by the nominative of the adjective and the genitive of the noun.

## References

1. Aghoghovwia, B. (2023), Terminologia Anatomica, retrieved <https://www.kenhub.com/en/library/anatomy/terminologia-anatomica>.
2. Banay, G. (1948). An Introduction to Medical Terminology I. Greek and Latin Derivations. *Bull Med Libr Assoc.* 36(1), pp. 1–27.
3. Dauber, W. (2019). Pocket Atlas of Human Anatomy (5th edition). Mokslo ir enciklopedijų leidybos centras, Vilnius.
4. Dumčius et al. (1999). *Elementa Latina*. Vilnius: Jandrija, 265 p.
5. Gaivenis, K. (1975). Dvižodžiai sudėtiniai terminai dabartinėje lietuvių kalboje. *Lietuvių terminologija, Lietuvių kalbotyros klausimai*, T. 16, pp. 57-89.
6. Gaivenis, K. (2002). Lietuvių terminologija: teorijos ir tvarkybos metmenys. Vilnius: LKI, 2002.
7. Gonçalves, G. et al. (2020). The Importance of Anatomical Terminology Employment in Health Sciences, retrieved <https://doi.org/10.1590/1981-5271v44.4-20200180.ING>.
8. Litevkienė, N. (2006). Lithuanian and Latin Composite Anatomical Terms. Doctoral dissertation. Kaunas: VDU.
9. Marečkova, E. et al. (2002). Latin as the Language of Medical Terminology: some remarks on its role and prospects. *Swiss Medwky*, 2002, (132), pp. 581-587.
10. Musil, V. et al. (2018). A plea for an extension of the anatomical nomenclature: The locomotor system. *Bosn J Basic Med Sci.* pp.117-125.
11. Parker, S., Walker, R. (2019). *The Human Body Book*. Penguin Random House.

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