CONFIGURATIONS OF ENGLISH THREE AND FOUR WORD ANATOMICAL TERMS AND THEIR LATIN EQUIVALENTS IN THE TEXTBOOK *HUMAN ANATOMY (VOL. II)*

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Annotation

The extensive borrowing of words from Latin and Greek into English that began about 1500 AD continued for hundreds of years and continues to this day.

The article analyses the variety of grammatical configurations of English and Latin multi-word anatomical terms, their frequency, identity and differences in grammatical configurations. The textbook on human anatomy by M. Prives, V. Bushkovich, N. Lisenkov under the general editorship of prof. M. Prives reflects the data on anatomical science and offers a number of advantages over other textbook. Human Anatomy offers a progressive view descriptive, evolutionary, functional, and practical anatomy.

Key words: *adaequate terms, gramatical configurations, different anatomical terms, compound anatomical terms.*

Introduction

The science of human anatomy is the study of the form and structure of the human body (and the organs and systems which form it) and the regularitiesof the develpoment of this structure in relation to its functions and external environment. Anatomy started forming as a science under the ancient Greeks. One of the eminent physicians of ancient Greece, Hippocrates (400-377B.C.) believed that four ”humours” formed the basis of the structure of the organism: blood (sanguis), phlegm (phlegma), yellow bile (chole), and black bile (melas chole) (Prives et al., 1985, 15-19).

Medical terminology may be divided into two main parts: anatomical (based on Latin) and clinical (based on Greek). The modern anatomical terminology is based on the centuries-old tradition and knowledge that is constantly revised. Clinical medicine has not finished its development yet and there are many questions for it to answer regarding the aetiology of the existing diseases as well as new ones. The names of diseases were formed empirically in various times and places therefore clinical terminology is not so uniform. Besides, clinical subjects continue to develop, so their knowledge must be continually revised.While Latin dominates in medical records and communication among doctors, English is mostly used in doctor-patient communication and as a language of international cooperation. Therefore, medical English is taught with reference to Latin. We see advantages in the parallel teaching of Latin and English in the first year of study at our faculty because students can easily combine their knowledge, compare differences in word formation and adapt terminology of English speaking professionals. Medical terminology based on Latin and Greek has several advantages: it provides continuity between the past and the present as well as continuity in space – Latin terminology is used all over the world;the grammatical system and vocabulary of Latin and Greek does not change, therefore modern terms are still based on these dead languages;it has a practical importance in Medicine – the patient does not understand it and cannot draw adequate conclusions (Bujalková, 2018).

With the Renaissance (1400-1600 AD) came a revival of classic scholarship. English words began to be formed directly from Latin and Greek and were no longer borrowed through the intermediary of French. Beginning about 1500 AD, for the first time the writings of the ancient Greeks were read in England in their original language. Words were borrowed extensively from Greek and Latin, both with and without change, and new words were created that combined both Latin and Greek elements. The English of this period is now known as Modern English.

Since the 20th century, English has dominated in Science. Research on the interference of Latin into English confirmed that 98% of all English medical terms have Latin or Greek roots,

as do new medical words which arise every month. However, Turmezei found out that 89% of English anatomical terminology is of Latin (65%) and Greek (24%) origin. This provides evidence that medical students cannot successfully accomplish their study, if they ignore the course in Medical Latin. It is difficult to argue that one can successfully learn anatomy, physiology, and many aspects of Medicine without a basic working knowledge of Latin. It is the contention of some experts that English will not utterly eclipse Latin, but that its origin as a Latin-derived language serves the role of promulgating Latin into the next era. In contrast, anatomical terms remain in their original form. Despite the tendency of English to be the new „lingua franca" of medicine, English medical terminology is strongly rooted in Latin. In other words, medical English is latinized. The latest revision of anatomical nomenclature, „Terminologia Anatomica"(1998) is in Latin which serves as a basis for national versions including English language versions (Bujalková, 2018).

Throughout history, dominance in knowledge has had repercussions on language relationships. Since the second half of the 20th century, probably as a direct consequence of U.S. leadership in many technical fields, English has become the lingua franca for medical research, and English terms have been imported into many other languages. Even though the advantages of a common language of research are obvious, the predominance of English places native speakers at a competitive advantage over those who first have to acquire sufficient linguistic skills to communicate their ideas and findings in a language foreign to them or to read English material. For medical translators, of course, this is good news (Berghammer, 2006).

The extensive borrowing of words from Latin and Greek into English that began about 1500 AD continued for hundreds of years and continues to this day. New advances were made in the field of Medicine and Science during and after the Renaissance (and continuing up to the present day) and words were needed to describe these new discoveries and inventions. Medical scientists turned to the early Greek and Roman physicians, especially Hippocrates, Galen and Celsius, and borrowed words from their medical treatises.

The article analyses the terminology of one of the fields of medical science – the anatomical terminology used in the textbook *Human Anatomy* (1985) by M. Prives[1], V. Bushkovich[2], N. Lisenkov[3].The textbook consists of two volumes. Volume I includes: the weight-bearing and locomotor system, the science of the viscera, the science of the organs of internal secretion. Volume II includes: the science of the vessels, the science of the nervous system, the science of the sensory organs. At the end of both volumes there are subject indices.

The textbook on human anatomy by M. Prives, V. Bushkovich, N. Lisenkov under the general editorship of prof. M. Prives reflects the data on anatomical science and offers a number of advantages over other textbook. *Human Anatomy* offers a progressive view descriptive, evolutionary, functional, and practical anatomy. The textbook approaches the human organism both analytically, according to organs and systems, and synthetically, as a discrete unit with close ties to the environment, especially to society. The book also contains a discussion of the influence of social factors, including the influence of extreme social conditions, on the structure of the human organism and includes a section on new trends in anatomical science under investigations by Prives. The textbook also contains information on the study of X-ray anatomy, the anatomy of the living human being. The texbook is available both for the traditional view of anatomy as the science of the human body structure and for its presentation of anatomy as the science of the natural laws regulating the structure and development of the human organismin relation to the environment. Anatomy is thus seen not as the stagnant subject of university courses but as a progressive science with important prospects. The texbook has been published four times in Spanish for the use in Latin America (Prives et al., 1985).

The research object of this article is the English and Latin compound anatomical terms. The paper refrains from the analysis of one-word anatomical terms, as they make up only an insignificant part of anatomical terminology.

[1] Professor M. G. Prives with his colleagues conducted research into the anatomy of introorganic vessels and advanced the study of the effect of the nervous system on collateral circulation. They introduced various new trends in anatomical science: the study of the anatomy of persons of various occupations (the effect of various professions, sports (sport anatomy), and space travel (aviation-space anatomy) on the structure of the bone and vascular systems. M. G. Prives developed a method for preserving cadavers and individual parts of the body without the use of formaldehyde. The method produces dry specimens which need not be kept in solution and maintain their structure, natural colour, consistency, elasticity, and bulk for more then twenty five years.

[2] Professor V. I. Bushkovich was the co-author of the *Normal Human Anatomy* with the professor N. K. Lysenkov.

[3]Professor N. K. Lysenkov was involved in all the main branches of anatomical study concerned with the nomal structure of man: normal topographic and plastic anatomy. He wrote various manuals on these subjects, one of which *Normal Human Anatomy* has run into five editions.

Aims of the article. The comparative analysis of syntagmatic and paradigmatic relationships of compound anatomical terms in the aspects of coincidence and difference. To achieve that aim, the following objectives are set:

- To analyse the aspects of coincidence of English and Latin three-word and four-word anatomical terms and their structural groups.
- To examine the aspects of difference between English and Latin three-word and four-word anatomical terms and their structural groups.
- To identify the frequency and usage trends of structures of English and Latin compound anatomical terms.

Research material and methods. Using descriptive and comparative methods, one of the terminologies of the fields of medical science – the terminology of anatomy – is analysed. A descriptive analytical method was employed to perform quantitative (of English and Latin compound anatomical terms in general) and qualitative (of specific configurations) analyses.

ENGLISH AND LATIN THREE WORD ANATOMICAL TERMS

The three-word term can be expressed as follows:
$f^4 (t_1 .....t_n) = f (t_1 .....t_n)$, when $n = 3$

English three-word anatomical terms and their Latin equivalents form two more commonly used types of grammatical configurations (Litevkienė, 2006):

1. Adj_{NC}[5]+ $Adj_{NP} + S_N \equiv S_N + Adj_{NP} + Adj_{NC}$
2. $Adj_{NP}+ Adj_{NP} + S_N \equiv S_N + Adj_{NP} + Adj_{NP}$

One hundred and ninety four compound *English three-word terms* ↔ *Latin three-word terms* were found. According to English and Latin elements, the terms of this group can be divided into 9 configuration types:

Type 1

English CT[6]	*agreed attribute+ agreed attribute+ determinative*
Latin CT	*determinative+ agreed attribute+ agreed attribute*

1.Nominative of a comparative (attribute) + nominative of an adjective (attribute) + nominative of a noun (determinative) ≡ nominative of a noun (determinative) + nominative of an adjective (attribute) + nominative of a comparative (attribute):

$$Adj_{NC}+ Adj_{NP} + S_N \equiv S_N + Adj_{NP} + Adj_{NC}$$

superior phrenic arteries – arteriae phrenicae superiors (HAII75)
inferior phrenic arteries – arteriae phrenicae inferiors (HAII82)
superior rectal artery – arterija rectalis superior (HAII81)
superior gluteal artery – arteria glutea superior (HAII84)
superior thyroid artery – arteria thyroidea superior (HAII55)
posterior auricular artery – arteria auricularis posterior (HAII55)
posterior intercostal veins – venae intercostales posteriors (HAII108)
inferior vena cava – vena cava inferior (HAII110)
superior mesenteric veins – venae mesentericae superior (HAII113)
inferior mesenteric veins – venae mesentericae inferior (HAII113)
inferior sternoclavicular ligament – ligamentum sternoclaviculare inferius (HAII215)
inferior gluteal artery – arteria glutea inferior (HAII85)
inferior epigastric artery – a. epigastrica inferior (HAII86)
superior thyroid veins – venae thyroideae superiores (HAII104)
anterior sternoclavicular ligament – ligamentum sternoclaviculare anterius (HAII215)
anterior tibial artery – arteria tibialis anterior (HAII91)
posterior tibial artery – arteria tibialis posterior (HAII91)
anterior vertebral surface – facies vertebrais anterior (HAII141)
inferior nasal concha – concha nasalis inferior (HAII183)
posterior sacral foramina – foramina sacralia

[4]The author grounds on the theory Ross Moore, a mathematician of Macquarie University (Sydney) and Nika Draka, a programmer of Leeds University (England) about the construction of compound term computerized systems, symbols and the diversification of compound term systems.
[5]S – substantive; Adj– adjective; P – participle; N – numeral; N_o– ordinal, Pr – pronoun; $_N$– nominative; $_G$– genetive; s – simple; $_C$– comparative;$_S$– superlative; $_c$– compound; $_m$– mixed composition, p - positive
[6] Compound terms

superior frontal sulcus – sulcus frontalis superior (HAII214)
posterior (HAII137)
anterior sacral foramina – foramina sacralia anterior (HAII137)

According to the provisions of the PNA, the adjectives that function as secondary elements of compound anatomical terms, which denote the location of human body parts and organs and the quantitative properties of body parts and organs, are related by the relationship of the opposite, in other words, antithesis. After analysing the terms found in the source, it can be stated that there are a number of compound terms in the Latin anatomical terminology, the secondary element of which is a comparative adjective. Compound terms of this type occur in the systematics of arthrology and splanchnology (Litevkienė, 2006).

2. Nominative of an adjective (attribute) + nominative of an adjective (attribute) + nominative of a noun (determinative) ≡ nominative of a noun (determinative) + nominative of an adjective (attribute) + nominative of an adjective (attribute):

$$Adj_{NP} + Adj_{NP} + S_N \equiv S_N + Adj_{NP} + Adj_{NP}$$

right colic artery – arteria iliaca communis (HAII84)
middle colic artery – arteria iliaca media (HAII84)
common iliac artery – arteria iliaca communis (HAII84)
internal iliac artery – arteria iliaca interna (HAII84)
lateral iliac artery – arteria iliaca lateralis (HAII84)
lateral sacral artery – arteria sacralis lateralis (HAII84)
lateral thoracic vein – vena thoracica lateralis (HAII107)
internal mammary vein – vena thoracica interna (HAII108)
right suprarenal vein – vena suprarenalis dextra (HAII111)
right lumbar vein – vena lumbalis dextra (HAII111)
left lumbar vein – vena lumbalis sinistra (HAII111)
external iliac artery – arteria iliaca externa (HAII86)

3. Genetive of a noun (attribute) + nominative of an adjective (attribute) + nominative of a noun (determinative) ≡ nominative of a noun (determinative) + nominative of an adjective (attribute) + nominative of an adjective (attribute) (Litevkienė, 2014):

$$Adj^{7}_{NP} + Adj_{NP} + S_N \equiv^{8} S_N + Adj_{NP} + Adj_{NP}$$

ulnar colleteral artery – arteria collateralis ulnaris (HAII68)

4. Nominative of a comparative (attribute) + nominative of a participle (attribute) + nominative of a noun (attribute) ≡ nominative of a noun (determinative) + nominative of a participle (attribute) + nominative of a comparative (attribute):

$$Adj_{NC} + P_N + S_N \equiv S_N + P_N + Adj_{NC}$$

posterior communicating artery – arteria communicans posterior (HAII84)

5. Nominative of an adjective (attribute) + nominative of a participle (attribute) + nominative of a noun (attribute) ≡ nominative of a noun (determinative) + nominative of a participle (attribute) + nominative of an adjective (attribute):

$$Adj_{NC} + P_N + S_N \equiv S_N + P_N + Adj_{NC}$$

grey communicating branches – rami communicantes grisei (HAII331)

6. Nominative of an ordinal (attribute) + genetive of a noun (attribute) + nominative of a noun (attribute) ≡ nominative of a noun (determinative) + genetive of a noun (attribute) + nominative of an ordinal (attribute):

$$N_{OG} + S_G + S_N \equiv S_N + S_G + N_{OG}$$

fourth roof ventricle – tegmen ventriculi quarti (HAII198)

7.Nominative of a noun (attribute) + nominative of an adjective (attribute) + nominative of a noun (determinative) ≠ nominative of a noun (determinative) + nominative of a participle (attribute) + nominative of an adjective (attribute):

[7] S – substantive; Adj – adjective; P – participle; N – numeral; N_o – ordinal, Pr – pronoun; $_N$ – nominative; $_G$ – genetive; s – simple; $_C$ – comparative; $_S$ – superlative; $_c$ – compound; $_m$ – mixed composition, $_P$ – positive
[8] adequate

Adj_{NP}+ Adj_{NP} + S_N ≠[9] S_N + P_N + Adj_{NP}
radial recurrent (adj) artery – arteria recurens radialis (HAII68)

8. Nominative of a participle (attribute) + nominative of an adjective (attribute) + nominative of a noun (attribute) ≠ nominative of a noun (determinative) + nominative of an adjective (attribute) + nominative of a participle (attribute):

P_N + Adj_{NP} + S_N ≠ S_N + Adj_{NP} + P_N
ascending pharyngeal artery – arteria pharyngea ascendens (HAII61)
descending genicular artery – arteria genus descendens (HAII89)
recurrent laryngeal nerve – nervus laryngeus recurrens (HAII305)

9. Nominative of an adjective (attribute) + nominative of an ordinal (attribute) + nominative of a noun (attribute) ≠ nominative of a noun (determinative) + nominative of an adjective (attribute) + nominative of an ordinal (attribute):

Adj_{CN} + N_{oN} + S_N ≠ S_N + Adj_{NP} + N_{oN}
peroneus tertius muscle – musculus peroneus tertius (HAII366)

Let's compare the data presented in the chart.

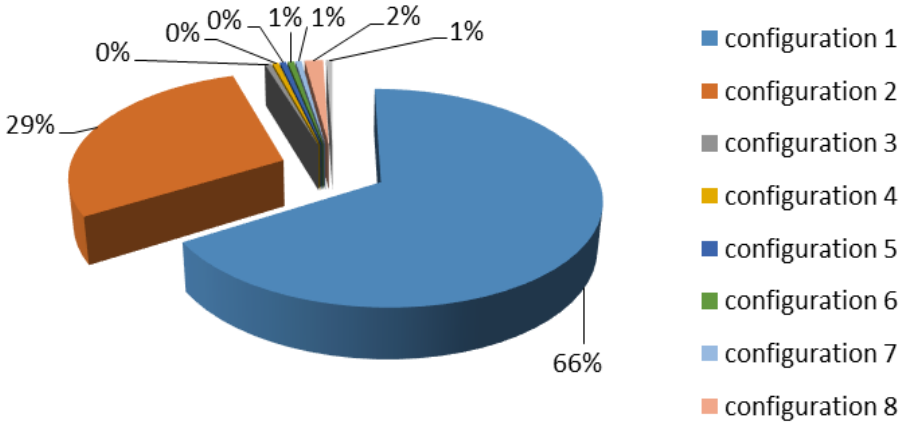


Fig. 1. Frequency of English and Latin three word terms of type 1

The most common are three-word English and Latin terms whose secondary attributes are *agreed attribute* + *agreed attribute* and whose second secondary elements area positive adjective and a comparative adjective.

Type 2

English CT	*agreed attribute+ non-agreed attribute+ determinative*
Latin CT	*determinative+ agreed attribute+ agreed attribute*

1. Nominative of an adjective (attribute) + genetive of a noun (attribute) + nominative of a noun (determinative) ≠ nominative of a noun (determinative) + nominative of an adjective (attribute) + nominative of an adjective (attribute):

Adj_{NP}+ S_G + S_N ≠ S_N + Adj_{NP} + Adj_{NP}

popliteal lymph glands – nodi lymphatici poplitei (HAII135)
inguinal lymph glands – nodi lymphatici inguinales (HAII135)
occipital lymph glands – nodi lymphatici occipitales (HAII145)
mandibular lymph glands – nodi lymphatici mandibulares (HAII145)
submental lymph glands – nodi lymphatici submentales (HAII145)

2.Comparative of an adjective (attribute) + nominative of a noun (attribute) + nominative of an adjective (attribute) ≠ nominative of a noun (determinative) + nominative of an adjective (attribute) + comparative of an adjective (attribute):

[9] different

$Adj_{CN} + S_G + Adj_{NP} \neq S_N + Adj_{NP} + Adj_{CN}$
superior vena cava – vena cava superior (HAII101)

Type 3

English CT	*agreed attribute+ agreed attribute+ determinative*
Latin CT	*determinative+ agreed attribute+agreed attribute*

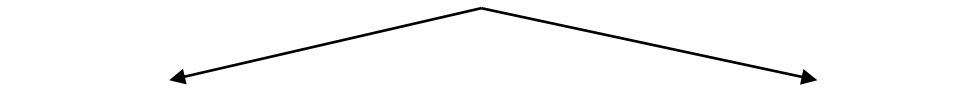
1.Nominative of an adjective (attribute) + nominative of an adjective (attribute) + nominative of a noun (determinative) ≠ nominative of an adjective (attribute) + nominative of a noun (determinative) + genetive of a noun (attribute):

$Adj_{NP}+ \ Adj_{NP} + S_N \neq Adj_{NP} + S_N + S_G$
cerebral dura mater – dura mater encephali (HAII240)
cerebral pia mater – pia mater encephali (HAII240)

According to the usual word order, in the Latin language, the attribute goes after the determinative (Jones, Sidwell, 2002). In Latin, the word order is not very strict, but more often the subject is in the beginning of the sentence; the predicate, in the end; and *the attribute*, *after the determinative* (Dumčius et al., 1999). Thus, it could be stated that Latin medical terminology has an inverted order of words compared with English. Usually, the elements of English three-word terms are preseted in a certain word order: *attribute + attribute + determinative*, while of Latin three-word terms,*determinative + attribute + attribute*. This is how English nomenclature of anatomy, botany, and zoology differs from Latin nomenclature, in which species attributes always go after the determinative. Sometimes in Latin, an attribute can come before a determinative. According to J. Dumčius, K. Kuzavinis and R. Mironas, if attributes denoting *place* and *time* precede the determinative, they have a predicative meaning, and if they follow the determinative, they have an attributive meaning (Litevkienė, 2006).

The underlined agreed attributes of Latin three-word terms describe a feature of a structural part of the body. With regard to structure, these CTs are equivalent, there is no word order characteristic to Latin here. Hence, the aforementioned principle of Latin word order is violated. This opinion is supported, for example, by P. V. Jones and K. C. Sidwell (Jones, Sidwell, 2002). In an inverted sentence, the attribute preceedes the determinativeto emphasize, to single out the characteristic that defines a thing or phenomenon, and not the thing or phenomenon itself. They argue that there is an inverted[10]order of words in Latin (in Latin, *inversion* means *turning over, rearranging, swapping places*; *inversio verborum* means *a change of (usual) word order*) (Jones, Sidwell 2002: 600). According to them, it should be noted that in the case of inverted word order, the place of the attribute changes. (Litevkienė, 2006). According to the usual word order, the attribute follows the determinative. It should be emphasized that such type two-word terms are unproductive, although they can also be found in the terminology of other medical fields. Only two pairs of such terms were found.

attribute + determinative



cerebral dura mater cerebral pia mater	dura mater encephali(HAII240) pia mater encephali(HAII240)

Type 4

EnglishCT	*agreed attribute+ non-agreed attribute+ determinative*
Latin CT	*determinative+ agreed attribute+ agreed attribute*

1. Nominative of an adjective (attribute) + genetive of a noun (attribute) + nominative of a noun (determinative) ≠ nominative of a noun (attribute) + genetive of a noun (determinative) + genetive of a noun (attribute):

$Adj_{NP}+ \ S_G + S_N \neq S_N + S_G + Adj_{GP}$

[10]In certain sentence types an inverted (Inversion happens when we change word order), in which an atribute is placed before the determinative.

mammary gland lobules – lobuli glandulae mamariae (HAII378)

Type 5

English CT	*non-agreed attribute+ agreed attribute+ determinative*
Latin CT	*determinative+ agreed attribute+ non-agreed attribute*

1.Genetive of a noun (attribute) + nominative of an adjective (attribute) + nominative of a noun (determinative) ≡ nominative of a noun (determinative) + nominative of an adjective (attribute) + genetive of a noun (attribute):

$$S_G + Adj_{NP} + S_N \equiv S_N + Adj_{NP} + S_G$$

eyeball vascular coat – tunica vasculosa bulbi (HAII402)

Type 6

English CT	*agreed attribute+ non-agreed attribute+ determinative*
Latin CT	*determinative+ agreed attribute+ non-agreed attribute*

1. Comparative of a noun (attribute) + genetive of a noun (attribute) + nominative of a noun (determinative) ≠ nominative of a noun (determinative) + comparative of an adjective (attribute) + genetive of a noun (attribute):

$$Adj_{CN} + S_G + S_N \neq S_N + Adj_{CN} + S_G$$

anterior eye chamber – camera anterior bulbi (HAII409)
posterior eye chamber – camera posterior bulbi (HAII409)

Type7

English CT	*agreed attribute + agreed attribute+ determinative*
Latin CT	*determinative + non-agreed attribute+ agreed attribute*

1. Comparative of an adjective (attribute) + nominative of an adjective (attribute) + nominative of a noun (determinative) ≠ nominative of a noun (determinative) + genetive of a noun (attribute) + comparative of an adjective (attribute):

$$Adj_{CN} + Adj_{NP} + S_N \neq S_N + S_G + Adj_{CN}$$

inferior nasalmeatus – meatus nasi inferior (HAII202)

The following types of grammatical configurations of English and Latin three-word anatomical terms have been observed to occur most frequently: a)$Adj_{NC} + Adj_{NP} + S_N \equiv S_N + Adj_{NP} + Adj_{NC}$; b)$Adj_{NP} + Adj_{NP} + S_N \equiv S_N + Adj_{NP} + Adj_{NP}$ (they represent 62,7% and 26,4% respectively).The terms of these configurations make up 89,1% of all compound three-word terms found in the textbook *Human anatomy, volume II*. In the type of compound terms the English term *Agreed attribute + agreed attribute + determinative* - the Latin term *determinative + agreed attribute + agreed attribute*, the secondary element is a positive adjective or comparative adjective, present participle, and an ordinal.

It can be stated that out of the investigated English and Latin three-word terms (194), 88,1% are Latin terms related by syntactical relations of the agreed attribute, English terms related by syntactical relations of the agreed attribute make up 92,2%. The CT frequency of both of them is presented in Fig. 1.

The chart below shows how this type of CTs is distributed in both languages by frequency of productivity.

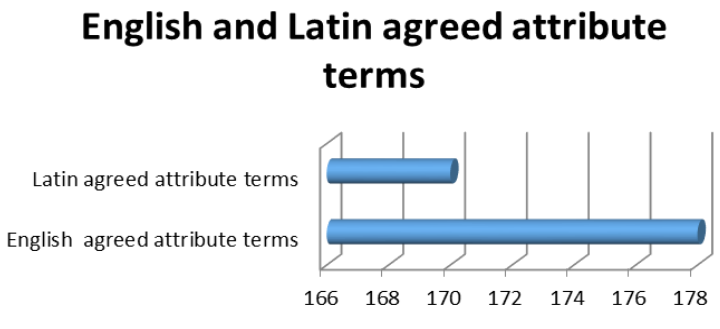


Fig. 2. Statistically this would look like this

ENGLISH AND LATIN FOUR WORD ANATOMICAL TERMS

Most English and Latin anatomical terms are two-word and three-word terms that come in various configurations. It is maintained that there are several times more two-word terms than three-word terms in most scientific fields. Only few four-word English and Latin terms were found in the source. There are two identical configurations of English and Latin four-word terms in the source.

Four-word terms can be expressed by the formula:

$$f(t_1.....t_n) = f(t_1.....t_n), \text{ when } n = 4 \text{ (Litevkienė, 2006).}$$

Seventeen such CTs were found. Five configurations of English and Latin four-word terms are distinguished. In this article, we will discuss the *grammatical configurations of Lithuanian four-word terms*◄►*Latin four-word terms*.

English four-word anatomical terms and their Latin equivalents form the following more commonly used grammatical configuration:

$$Adj_{PN} + Adj_{PN} + S_G + S_N \equiv S_N + Adj_{PN} + S_G + Adj_{CG}$$

1. Comparative of a noun (attribute) + comparative of an adjective (attribute) + nominative of an adjective (attribute) + nominative of a noun (determinative) ≡ nominative of a noun (determinative) + nominative of an adjective (attribute) + comparative of an adjective (attribute) + comparative of an adjective (attribute):

$$Adj_{CN} + Adj_{CN} + Adj_{PN} + S_N \equiv S_N + Adj_{PN} + Adj_{CN} + Adj_{CN}$$

anterior superior iliac spine – spina illiaca anterior anterior (HAII239)
posterior superior iliac spine – spina illiaca anterior posterior (HAII239)

2. Nominative of an adjective (attribute) + nominative of an adjective (attribute) + genetive of a noun (attribute) + nominative of a noun (determinative) ≡ nominative of a noun (determinative) + nominative of an adjective (attribute) + nominative of an adjective (attribute) + genetive of an adjective (attribute):

$$Adj_{PN} + Adj_{PN} + S_G + S_N \equiv S_N + Adj_{PN} + S_G + Adj_{PG}$$

external iliac lymph glands – nodi lymphatici iliaci externi (HAII137)
internal iliac lymph glands – nodi lymphatici iliaci interni (HAII137)
medial cutaneous arm nerve – nervus cutaneus brachii medialis (HAII262)
medial cutaneous forearm nerve – nervus cutaneus antebrachii medialis (HAII262)
lateral cutaneous thigh nerve – nervus cutaneus femoris lateralis (HAII262)

3. Nominative of a comparative (attribute) + nominative of an adjective (attribute) + nominative of an adjective (attribute) + nominative of a noun (determinative) ≠ nominative of a noun (determinative) + nominative of an adjective (attribute) + genetive of a noun (attribute) + nominative of a comparative (attribute):

$$Adj_{CN} + Adj_{PN} + Adj_{PN} + S_N \neq S_N + Adj_{PN} + S_G + Adj_{CN}$$

posterior cutaneous femoralnerve – nervus cutaneus femoris posterior (HAII271)

4. Nominative of a comparative (attribute) + nominative of an adjective (attribute) + nominative of an adjective (attribute) + nominative of a noun (determinative) ≠ nominative of a noun (determinative) + genetive of a noun (attribute) + nominative of an adjective (attribute) + nominative of an adjective (attribute):

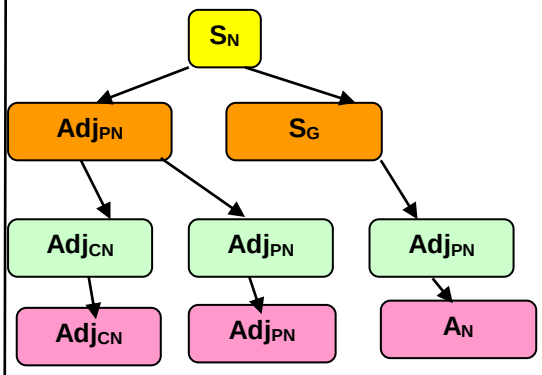
$$Adj_{CN} + Adj_{PN} + Adj_{PN} + S_N \neq S_N + S_G + Adj_{CN} + Adj_{PN}$$

inferior lateral genicular arteries – arteriae genus inferiores laterals (HAII89)

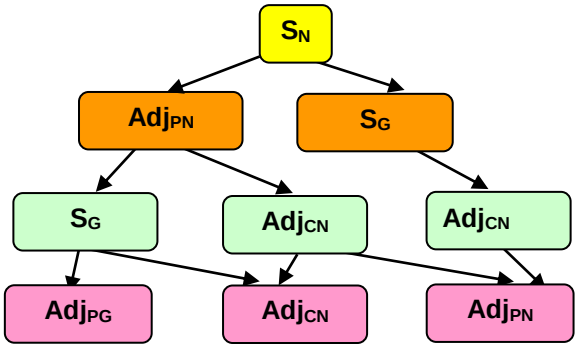
5. Nominative of an adjective (attribute) + nominative of a comparative (attribute) + nominative of an adjective (attribute) + nominative of a noun (determinative) ≠ nominative of a noun (determinative) + nominative of an adjective (attribute) + nominative of a comparative (attribute) + nominative of an adjective (attribute):

Adj_{PN} + Adj_{CN} + Adj_{PN} + S_N≠ S_N + Adj_{PN} + Adj_{CN} + Adj_{PN}
lateral anterior maleolar arteries – arteriae malleolares anteriores mediales (HAII94)

Elements of English four-word terms



Elements of Latin four-word terms



Statistically this would look like this:

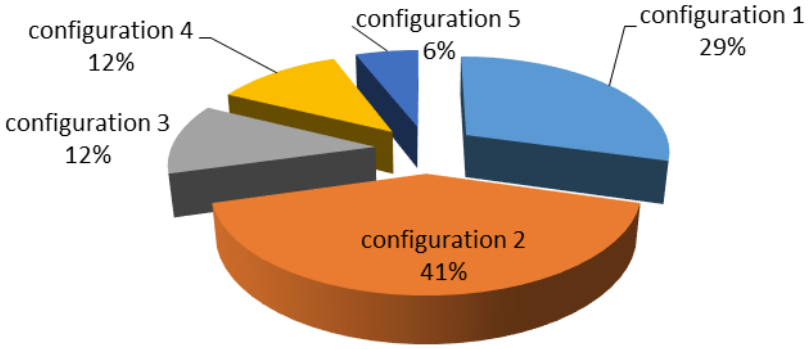


Fig. 3.Configurations of English and Latin four word terms

After analysing English four-word terms, the following regularity was observed: second and third secondary elements in 1,2,3,4,5 configurations are *agreed attributes*. More common are Latin four-word terms whose second and third secondary elements are *agreed attributes*, whilein the third configuration,*non-agreed attribute*+ *agreed attribute*(12% of CTs).

Conclusions

Greek and Latin shaped the conventions of scientific − not only medical − writing for over 2000 years. In the Middle Ages both Latin and Middle English were acceptable in medical communication. 19th century was when the reign of Latin in teaching and writing medicine virtually ended. The effect of that reign, however, is visible to date in the relative similarity of medical languages in the Western world, especially in Western languages. The importance of the exact and precise description of anatomy and disease has been emphasized since the very early stage of the development of Medicine.

M. Prives, V. Bushkovich, N. Lisenkov *Human Anatomy (*1985) textbook *Human anatomy* consists of two volumes. Volume I includes: the weight-bearing and locomotor system, the science of the viscera, the science of the organs of internal secretion. Volume II includes: the science of the vessels, the science of the nervous system, the science of the sensory organs. At the end of both volumes there are subject indices. Compound terms used in the first volume are discussed in previous articles. Most of anatomical terms in volume two are two-word and three-word terms. This article analyses three-word and four-word terms and discusses the variety and frequency of grammatical configurations. English three-word anatomical terms and their Latin equivalents form two more commonly used types of grammatical configurations: Adj_{NC}+ Adj_{NP} + S_N ≡ S_N + Adj_{NP} + Adj_{NC}; Adj_{NP} + Adj_{NP} + S_N ≡ S_N + Adj_{NP} + Adj_{NP}. Most of the secondary elements of three-word terms are made up of agreed attributes. The second and third secondary elements of English four-word terms are *agreed attributes*. Latin four-word terms in which the second and third secondary elements are *agreed attributes* are found more often.

Resource

HA – Human Anatomy – Prives, Mikhael; Bushkovich, Viacheslav; Lisenkov, Nikolai. *Human Anatomy (Vol.I)*.1985, Mir Publishers.

References:

1. Berghammer, Gabi. Translation and *the language(s) of medicine: Keys to producing a successful German-English translation.* TheWrite Stuff Vol. 15, No. 2, 2006; The Journal of the European Medical Writers Association; 40; 40–44.

2. Bujalková, Mária; Džuganová Božena. *English and Latin Corpora of Medical Terms – A Comparative Study.*Int. International Journal of Humanities Social Sciences and Education, 2(12), pp. 82-91, (2015). Available at: https://www.researchgate.net/publication/291332458_English_and_Latin_Corpora_of_Medical_Terms_-_A_Comparative_Study.

3. Bujalková, Mária. The *Coexistence of Latin and English in Medical Terminology and its Contribution to ESP Teaching* .International Journal of Humanities Social Sciences and Education (IJHSSE) Volume 5, Issue 6, June 2018, p. 7.

4. Dumčius, Jonas, Kuzavinis, Kazimieras., Mironas, Ričardas. *Elementa Latina*. Vilnius: Jandrija, 1999. 265 p.

5. Jones Peter V., Sidwell Keith C. *Latin*. Cambridge University Press, 2002. 673

6. Litevkienė, Nijolė *Lithuanian and Latin Composite Anatomical Terms. Doctoral dissertation.*2006. Kaunas: VDU.

7. Litevkienė, Nijolė. *Lotyniškų ir lietuviškų sudėtinių anatomijos terminų skirties atvejai*, PROFESINĖS STUDIJOS: teorija ir praktika, 2014, No13, p. 73–81.

7. Prives, Mikhael; Bushkovich, Viacheslav; Lisenkov, Nikolai. *Human Anatomy*.1985, Mir Publishers. pp. 15–19.

8. Terminologia Anatomica. International Anatomical Terminology.Thieme, Stuttgart/New York, 292 (1998).

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