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**SHELL WORDS IN ANATOMY: A CONTRASTIVE STUDY OF BULGARIAN AND ENGLISH ANATOMICAL SYSTEMS**

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**Abstract:** Shell words are a particular category of lexemes that make up an open-ended functionally defined class of abstract nouns having the potential to be as conceptual shells for complex, proposition-like pieces of information. Examples include: “fact”, “case”, “idea”, “problem”, “position”, “cause”, “situation”, “something”, etc. The idea of a particular class of words that group semantic features, but are not related to a referent is also found in many authors. Such words have greater reference potential and thus become useful for naming different referents (onomasiological salience). From a theoretical point of view, the need for a context to determine the meaning of a single lexeme is in fact equivalent to deleting the difference between polysemy and vagueness. Shell nouns are indexical words or “hollow words, envelopes” because their meaning is incomplete; they only point to what can fill the envelope, but still give it some structure. Thus, the meaning associated with these shell units is both context-related and in turn generates a linguistic context. At first glance it seems strange that generalized words such as shells are not hyperonymic, but in connection with the nature of the anatomical terms (physically perceived) it is important to note that it is precisely words from the basic level that are conceptualized as sensory and functional gestalts. The eventual clash between the specificity of the object and the abstract nature of terms causes the conflict in terminology. Once again, the choice of a linguistic rather than a terminological approach to the names of the anatomical objects is argued. The current research assumes that shell function may be applicable to specific nouns, i.e. anatomical terms, the so-called *termini generales*. In both Bulgarian and English anatomical terminologies, there are about 190 such terms that are head words in anatomical expressions and occur in all parts of anatomy, e.g. terms such as: *glava* (en – head), *greben* (en – crest), *gynka* (en –fold), *klon* (en – branch), *list* (en – leaf), *plocha* (en – plate), *sloy* (en – layer), *tyalo* (en – body), *vryzka* (en – “link”, “connection”), etc. What is special about them is that with their help are formed the names of organs in the different systems. Their semantic value is contextually defined. They “mark” large branches in the anatomical terminology system and are expressions of terminological multiplicity. Obtained through specialization of commonly used nouns, general terms are a manifestation of re-terminologization through metaphorical projection. In our view, *termini generales* have lost their metaphorical status (if they have one) and some of them serve as shell nouns. We also perform a cross-linguistic Bulgarian – English analysis of shells in both anatomical systems.

**Keywords:** shell words, metaphor, anatomy, cross-linguistic study

## 1. INTRODUCTION

Shell words are a particular category of lexemes that “make up an open-ended functionally defined class of abstract nouns that have, to varying degrees, the potential for being used as conceptual shells for complex, proposition-like pieces of information.”[1] Examples include: “fact”, “case”, “idea”, “problem”, “position”, “cause”, “situation”, “something”, etc. Shell nouns are indexical words or “hollow words, envelopes” because their meaning is incomplete; they only point to what can fill the envelope, but still give it some structure. Thus, the meaning associated with these shell units is both context-related and in turn it generates a linguistic context:

Example: The government's **goal** is to reduce taxes.

The shell noun, which serves as the head of the nominal phrase, together with the determiner “the” and the modifier “government”, form the shell-content complex (in bold typeface), while the content of the shell is underlined. The understanding of shell units in the current analysis of anatomical terms is freer than that of Schmidt's. First, on the grounds that the unspecified pronoun (in Bulgarian – “neshto”) is mentioned in this group of shells, “thing” - that is the specific noun in English (English for “neshto”), we have assumed that the shell function may be applicable to specific nouns.

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Although these terms are not abstract concepts, in a functional aspect they play a role very similar to the examples given by Schmidt [1]. The idea of a particular class of words that group semantic features but are not related to a referent is also found in other authors. According to Geeraerts, such words have greater reference potential and thus become useful for naming different referents (onomasiological salience)[2]. From a theoretical point of view, the need for a context to determine the meaning of a single lexeme is in fact equivalent to deleting the difference between polysemy and vagueness: The level of the generalized terms is salient from an onomasiological point of view: in the lexical field of a taxonomy, the level of the generalized words defines a group of salient features. In this sense, the basic level embodies a group of preferences: given a referent, the most likely name for this referent among the alternatives that taxonomy offers will be a name located at the basic level (ibid.). At first glance it seems strange that the generalized words are not hyperonymic, but in connection with the nature of the anatomical terms (physically perceived) it is important to note that it is precisely words from the basic level that are conceptualized as sensory and functional gestalts. The eventual clash between the specificity of the object and the abstract nature of terms causes the conflict in terminology[3]. The choice of a linguistic rather than a terminological approach to the names of the anatomical objects is argued in the article.

The hypothesis of a class of shell words can be presented as follows: these are words that allow a meta-semantic generalization of all their existing extensions of meaning to a level of schematicity, which in turn serves only as a shell to index new meaning in some context. This description contains the idea of onomasiological salience.

## 2. SHELLS IN BULGARIAN AND ENGLISH ANATOMICAL TERMINOLOGIES

In both Bulgarian and English anatomical terminologies there are about 190 general terms (termini generales) that are head words in anatomical expressions and occur in all parts of anatomy, e.g. terms such as: *glava* (en – head), *greben* (en – crest), *gynka* (en – fold), *klon* (en – branch), *list* (en – leaf), *plocha* (en – plate), *sloy* (en – layer), *tyalo* (en – body), etc. [4,5] What is special about them is that with their help are formed the names of organs in the different systems. They "mark "large branches" in the anatomical terminology system" and are expressions of terminological multiplicity, and according to Kantcheva have metaphoric motivation [4,10]. Obtained through specialization of commonly used nouns, general terms are a manifestation of re-terminologization through metaphorical projection. In our view, termini generales have lost their metaphorical status (if they have one) and some of them serve as shell nouns in the sense of Evans. [6,7,8,9] Contrary to shells, conceptual metaphors do have content and are largely independent of context. [11,12,13,14]

## 3. BUILDING THE CORPUS AND APPLYING THE THEORETICAL FRAMEWORK

The study material is a corpus of 851 Bulgarian and English units as well as nomenclature Latin names. This corpus is based on a wider 1380 term, the latter being reduced after several siftings. We have identified 87 general terms in Bulgarian and respectively 58 in English. The methodological and theoretical basis of the study is based mainly on Vyvyan Evans' "Theory of Lexical Concepts and Cognitive Models". Evans presents the lexical representation of the language unit in the following way: in the TLPCM, the semantic structure is determined by the lexical concept, which is a component of linguistic knowledge, representing the semantic pole of the symbolic unit, encoding various types of schematic language content. The latter, in turn, includes information relating to selection tendencies associated with a particular lexical concept.

At the core of the semantic composition in the LCCM approach lie two of the compositional mechanisms, integrating information with language and conceptual content derived from the context. They facilitate the integration of words and other grammatical constructs to make a simulation at the level of a speech act. These two mechanisms are lexical-conceptual selection and fusion. The first mechanism serves to identify the most appropriate lexical concept associated with a given form during the performance of the speech. Once chosen, this concept should be integrated with other language concepts in the speech act and then interpreted in the light of the conceptual structure to which it provides access. This process constitutes the second mechanism of semantic composition, the so-called fusion - consisting in turn of two processes - lexical-conceptual integration and interpretation. The first involves the integration of lexical concepts into a composite unit called lexical-concept unit (LCE).

## 3. AN ANALYSIS OF MAJOR SHELL ITEMS IN BULGARIAN AND ENGLISH ANATOMICAL TERMINOLOGIES

Some of the major shell words identified in Bulgarian anatomical terminology corpus are: *glava* (en – head), *greben* (en – crest), *gynka* (en – fold), *klon* (en – branch), *list* (en – leaf), *plocha* (en – plate), *sloy* (en – layer), *tyalo* (en –

*body*), *vyzel* (en – *knot*), *polyus* (en – *pole*), etc. In the English corpus, the most frequently used shells are: *back*, *ball*, *band*, *belly*, *branch*, *head*, *joint*, *limb*, *neck*, *tract*, *valve*, *wall*, *window*, etc.

We shall present analyses of a Bulgarian and an English shell words to exemplify our method of identification.

For example, let's take a part of the word combination *prashkovidna vryzka na penisa* (en - *fundiform ligament of the penis*; translated literally as “slinglike connection of the penis”), in which the headword *vryzka* is a shell word.

The analytical procedures (on Evans) are as follows:

*Vryzka*

Choice of lexemes (symbolic units) – *prashka* (“*vid*”, en – “*type*”) + Integration – *vryzka* + Fusion

In the cognitive model of *prashkovidna vryzka*, we can find the image schemas of “*vryzka*”, “*prashka*”: *type* is a shell (“*hollow*”) noun, filled with the content of “*prashka*”, and the whole is integrated into a concept.

Let’s widen the scope of the example *prashkovidna vryzka* with another one, also having the shell word “*vryzka*”.

1. *Prystenovidna vryzka na radiusa* (en – *annular ligament*, translated literally as “*ring-shaped connection of radius*”)
2. *Lychista vryzka na kitkata* (en – *radiate carpal ligament*, translated literally as “*radiate wrist connection*”)
3. *Krystosani vryzki na kolyanoto* (en – *cruciate patellar ligament*, translated literally as “*crossed connection of the knee*”)

*Prystenovidna vryzka na radiusa*

Selection of lexemes (symbolic units) “*prysten*” “*vid*” (en-“*type*”) (+integration) “*vryzka*” “*radius*” “(+integration)

FUSION

*Prysten-o-vid-n-a* + *vryzka na* + *radiusa*

Compound noun with connecting vowel + suffix + female gender      predicative + preposition + definiteness

The image schemas of [VRYZKA], [PRYSTEN] are present in the cognitive model; “*vid*” (en – “*type*”) is a shell noun filled with the content of “*prysten*” (en- “*ring*” (not shown in the diagram); [RADIUS] is present as the ground in the figure –ground relationship (Talmy 1972) and the whole is a concept.

*Band*

The term can be found in most branches of anatomy:

- Myology – fascia, thin board, band
- Nerve System – flat band
- Splanchnology - ventricular (fold) band of larynx
- Arthrology - ischiocapsular band

The main meanings of the lexical concept [BAND] are related to the word “*strip*”, and hence the semantic affordances and features of the lexical concept - bands can surround, bind, it can take on a different shape, can be combined with other bands, so the semantic feature 'long, narrow and soft' is responsible - if it is put into other ones, then the second meaning of the definition – “*stripe*”. The material / texture is also plastic - the referent to the word “*band*” can be made from fabric, but also from metal - the fifth meaning of the definition - in the cognitive hypermodel it is schematically represented as “*something flexible, soft*”. This schematicity of the lexical concept helps its ability to be turned into a shell - in anatomy, as defined in the definition of *band*, what is in focus is the feature Shape: “*long, narrow, soft*” - ie. the other features of the dictionary entry are dropped and in the specialized language of the anatomy *band* acquires indexicality (type) whose tokens are the uses in the terms - in this sense *band* resembles the Bulgarian words *vryzka* and *gynka*. This indexicality is combined with the modifying component in the terminological compound to compose the overall meaning of the term, e.g. in a flat band, calque of the Latin *taenia thalami*, the fusion includes feature Shape – “*something flat*” plus “*something long, narrow and soft*”.

#### 4. GENERAL TERMS WITH PRESERVED METAPHORICAL NOMINATION

To make the distinction between conceptual metaphors and shells more precise, we will refer to still another category within that of the general terms (*termini generales*). Similar to shell words, *termini generales* with metaphorical nomination also serve as heads in multiple word combinations in anatomical terminology but, in our view, they have retained to a certain extent in their cognitive profiles their specific features formed on the basis of metaphorical mapping and therefore cannot be considered shell units. The metaphoric nature of these terms may be

"revived" as opposed to the "hollow" shell words, or terminological use has not at all erased their metaphorical motivation.

#### *Venets*

The lexeme *venets* (en – translated literally “wreath”) is present in two terms – *zyben venets* (en – literal – “dental wreath”) and *lychist venets* (en – Lit. – “radiant wreath”), with English matches *gingiva* (*gums*) and *radiate crown*. The Latin nomenclature are *gingiva* and *corona radiata* (*corona* – “crown”, “wreath”, *radiata* – “radius” – “spokes of the wheel”, “beam”). The dictionary meaning of the word enables us to analyze the cognitive model profiles of “venets”:

(BTR 2102): Venets:

1. Woven circle of flowers and twigs for decorating the head
2. Crown for a wedding, which is placed on the heads of the bride and the fiancé.
3. Made of metal or painted halo around the head of a saint in an icon.
4. Figurative. Successful completion of difficult and significant work or the best achievement in any activity..
5. Specialized. The fleshy jaw sheath at the roots of the teeth.

It is possible to assume that the two terms in Bulgarian have been given their names separately, unrelated to each other, so they can be considered independent lexical concepts from the lexical concept of the commonly used language unit, denoted by [VENETS]. Its primary cognitive model contains the feature 'circle of something' (similar to the verb „wreath”), and along with it the affordances including Material (flowers and twigs) and Function (for decoration) are included in the lexical concept). The prevalent image schema in the cognitive model profile is connected with “roundness” and that is why the lexeme is used to designate a half-circle in the mouth [VENETS]<sup>2</sup>.

The case with the synaptic term *lychist venets/radiate crown/corona radiata* is quite different. Both terms gloss is a 'crown of rays'. Here [VENETS]<sup>3</sup> is the result of a metonymic narrowing of meaning - a holistic perception of head decoration, also noted in the semantic development of “corona”/“crown” (also originally "something curved, flower head decoration"). The adjective “radiant” is an exponent of the semantic features Material /Shape. The compound term *radiate crown* is a case of literal similarity with the halo of rays depicted around the saints' heads. In English anatomy, the equivalent of *zyben venets* is the opaque *gingiva*. Because of the frequent use of [VENETS]<sup>2</sup> in everyday life, metaphoricity here is "sleeping". Clearly, this is a secondary cognitive model or a **metaphorical** nomination on Shape, not a shell word. The strong word-word relationship (according to Evans's idea) between “venets”<sup>1</sup> and “venets”<sup>2</sup> suggests the possibility of reviving metaphoricity.

## 5. CONCLUSION

In previous analyses of metaphoricity in anatomical terminology, it was assumed that terms such as *vryzka*, *gynka*, *glava*, *hod*, *yama/groove*, *duct*, *spine*, *process*, etc. are motivated by the possibility of mapping features by similarity between the content of the common use words and anatomical objects which are named (or, more precisely, the concepts of them), therefore such terms are deemed metaphoric, since two domains are involved. In the approach we use, we have attempted to check Evans's suggestion of the existence of nouns with a function commensurate with that of the famous shifters (pronouns like ‘I’, ‘you’, ‘this’). Such lexical elements have a semantic structure, but their referential meaning is not fixed and changes according to the context. That is why they are called "hollow nouns or "shells". With their schematic semantic structure, they readily accept context reference and, in that sense, are word-indexes. The interesting conclusion of the analysis is that it is possible that within the specialized language of anatomy certain nouns to have acquired index character - head, vagina, stomach, abdomen, lip, duct, process and their Bulgarian counterparts: *glava*, *vlagalishte*, *stomah*, *korem*, *ustna*, etc. Others, even when entering the anatomical terminology, had been indexed – *vryzka*, *koren*, *vyzel*, *gynka*, *gryb*, *dryjka/groove*, *band*, *process*, *spine*, *tract*. We may conclude that index words cannot be considered metaphors, as the former are not formed with the use of mapping operations.

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