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**Conceptual motivation and term-formation
in mechanical terminology**

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Abstract. Like in other terminologies, the terminology of mechanics in general, as well as its basic terminology is distinguished, among other things, for its Albanian composition by construction, for the relations it has with the general lexicon of the language, as well as with the terminological lexicon of other fields, especially with basic theoretical fields of knowledge. Of a particular importance here is the view of the motivation of the conceptual content of the terms of this field from the point of view of their construction, which represents the mechanism of functioning of the terms, where the relations of form with the content stand out.

The accomplishment of the aim of the study has become possible through relying on a sound theoretical base, argued and contemporary; which has got as a starting point the observation of terminology as a system of a field that is an identified and independent knowledge, which responds to the conceptual system of the respective field. The reliance on this idea, which is based on the relationship between concepts, has created the possibility to raise and to resolve a range of problems connected with the respective terminology.

Key words: Conceptual motivation; Term-forming; Phrases; Terminology of mechanics in the Albanian language

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Introduction

As it is already accepted, we will use the concept of "term-formation" here, since during the construction of terms we are dealing with the formation of word terms (which could be covered by the concept of word formation), as well as the formation of word-group (word combination) terms that are not covered by the concept of word formation. From what we said above, it turns

out that the concept of "term formation" is doubly related to the motivation for both word terms and word-group (word combination) terms (Duro, 2001:47).

In most terminologies of different fields of knowledge, especially in the applied fields, as well as in the field in question, each term in the system of terms, where it belongs, with its external form is more transparently related to the concept that marks, therefore, more

clearly and accurately reveals the internal form through its constituent elements, but also the form taken in its entirety, when it does not break down into constituent elements. Thus, for e.g. *gungë₂(cam₂)* like a term is semantically related to the meaning *gungë₁ (cam₁)* as words from the general language. This can be realized from the following presentation of these two units in both languages:

gungë-a₁ (cam₁): “part raised on the back or chest” (Fjalor, 2006:588).

gungë-a₂ (cam₂) (like term): “Curved profile link with linear or point contact with another link moving during contact with it.”

Working methods

In order to illustrate and argue the ideas in this paper, we have relied on the material extracted from the literature of the two subfields of mechanics, as well as basic teaching texts and technical standards and basic works in both languages (Kostallari, 2018, 339). We have also relied on the collection and filing of the case, its processing, as well as the relations with the problems that are treated.

In a special way, the lexical subjects extracted from various terminological dictionaries (polytechnics, techniques, mechanics, etc.) and non-terminological (explanatory, bilingual), in which the terms of the respective field are met, have been consulted (Thomai, 2017:249).

Motivation in terminology

Motivation, therefore, in terminology (Pllana, 2014: 72), even when the unit is formally unanalyzable is more or less defined and conditioned by a common or close feature that serves as a basis and as an internal form, where the term is supported during its formation like for e.g. in this case the common denominator for both units "raised part with a certain curvature." This is more or less noticeable in foreign languages, the basis of motivation may be the same but in other cases it may be different. For instance, in Albanian *rrënjë (dhëmbi) (e rrotës)* – the root (of tooth) (of the wheel) is related to the root (of tooth) of the oral organ, which are

approximate to the root (tooth) of a human oral organ, as the root (of tooth) in the wheel. The same is observed in English: *root₂ (of tooth)* in the wheel motivated with *root₁ (of tooth)* of the human oral organ (Pllana, 2017:188).

The term *sy (i pistonit) – boss (of piston)* in Albanian is motivated by the *eye* (in English *the boss*), has a more or less different meaning, which comes from the definition from the dictionary.

Forms of motivation from the word-formation point of view with the topic

Motivation takes more or less complex forms when the term breaks down into constituent elements, into morphemes which may also be constituent parts with a clear lexical meaning, as it is also observed in English. Thus for instance *rrotullueshmëri-revolvability* is motivated from the word-formation point of view by the topic *i rrotullueshëm (revolvable)*, which, the last one is broken down into “*i aftë për t’u rrotulluar*” “*capable to be revolved*”, which makes that *rrotullueshmëri (revolvability)* to be broken down into *capability to be revolved*. On the other hand, *i rrotullueshëm (revolvable)* is motivated by the verb *revolve*, which marks a certain action. From the point of view of motivation *i rrotullueshëm (revolvable)* can be compared with *rrotulluese (revolving)*, which is broken down in the sense “is able to do something”. Thus for e.g. when *i rrotullueshëm (revolvable)* is associated with *hallkë (link)*, e.g. *hallkë e rrotullueshme (revolving link)* (Kurti, 1991:529), it is understood that the link performs this action on its own, whereas when we say *hallkë rrotulluese (revolving link)*, we understand that the link, let’s say, by rotating itself, rotates another element having this action as the main function. This differentiation is very important to be done through word-formation motivation, because in many cases a kind of confusion is created in the use of one determining element instead of the other. Thus for e.g. *hallkë rrotulluese (revolving link)* (Duro, 2009:153) can be understood in two ways; as a link that rotates

itself (but that does not rotate another link) and a *revolving link* is understood as a link that rotates another link. This can be observed also in *i lëvizshëm* (*movable*) and *lëvizës-e* (*moving*), for instance *an element lëvizës₁* (*moving element*) – “an element that moves by itself” and “an element that moves another element”. This means that on the basis of word-formation motivation, conceptual differentiation into two units must be made, i.e. *hallkë e rrotullueshme* (*revolvable link*) and *hallkë rrotulluese* (*revolving link*), *element i lëvizshëm* (*movable element*) and *element lëvizës* (*moving element*) and not a single unit for both concepts.

The degree of motivation in word-group (word combination) terms with several component parts

The degree of motivation increases significantly, especially in word-group (word combination) terms with several compound parts, in which motivation is done by each element separately which is seen in both languages, such as *mekanizëm katërhallkësh me çerniera* (*hinged four-bar mechanism*), where the motivation passes from the first element to the second and the third element, which together reveal the concept expressed by the whole term. In this case the term takes the form of semi-definition and more constituent elements are added, it can lose the virtue of being a term. In these cases, it is self-evident that in phrases the equivalence from one language to another is more emphasized and the constituent elements of the term find equivalence from one language to another, although the forms of term construction can be specific to each language, e.g. *mekanizëm me levë* (in Albanian) – *lever motion (mechanism)* (in English), but it may also be *leverage* in English.

A special case of motivation is the break-down of meaning of the foreign term, which is related on the one hand to its origin from the language in which it was formed, but also to the break-down of constituent elements, which can be modeled in some way. For e.g. *bosht* in Albanian has its equivalent

shaft in English, which are motivated more or less in approximate manner as in Albanian. On the contrary, in the term *aksialitet-axiality* motivation can also be done through word-forming elements, which is related sequentially or directly for e.g. *aks* → *aksial* → *aksialitet* or vice versa *aksialitet* ← *aksial* ← *aks*. This is confirmed in Albanian with the presence of three different elements: *aks* → *aksial* → *aksialitet*. This motivation is almost close in English as well: *axis* – *axial* – *axiality*.

This motivation may become clearer if we present the term *aksialitet* (*axiality*) with Albanian elements, where the break-down becomes clearer. For example, if we form *aksorësi* (*axiality*) it would be motivated (Pllana, 2014: 119):

aks → *aksor* → *aksorësi* - (*axis* → *axial* → *axiality*)

aks → *aks-* (*axis*)

aksial → *aksor* (term hibrid) - (*axial-hybrid term*)

aksialitet → *aksorësi*-(*axiality*)

This can be more emphasized in the term *dezaksialitet* (*desaxiality*), which is motivated by each element taken separately, for which equivalence elements can be found in Albanian. This process from the point of view of construction of terms related to calcification is among the ways for the Albanianization of terminology, especially when there is a responsible equivalent in Albanian. For e.g., in our case we may have this procedure **de (dez=pa)**, **aks** – is common, **al=or** and **itet=ësi** (*axis*, *axiality*) (Beer, 2004:224). The Albanian term thus takes the form of a hybrid unit, where the basic semantic element is a foreign word, while the word-forming elements are Albanian: **pa-**, **-or**, **-ësi**. The same is observed in English for *desaxiality*.

Motivation of one-word terms

A. Terms motivated from outside the field without sign change

1. Terms with doubled (unmodified) conceptual content)

a. Terms derived from the words of the practical activity of the field

As it is known, a large part of the fields of knowledge has been built on the basis of practical activities, which have an empirical (not purely scientific) character in terms of knowledge content, but which have been the basis for the creation of fields of knowledge, where empirical experience was raised in science. This has led to the introduction of a number of objects (concepts) in the system of objects (conceptual) of fields of knowledge, especially on their practical side. Some fields such as construction, medicine, especially agriculture, had as objects of study mostly universal concepts, such as in construction (buildings, their parts), in medicine (human, constituent parts), in agriculture (plants, animals) etc. Consequently, together with the objects (concepts) introduced in the systems

In Albanian language

dhëmbë (sharre)
mprehje (dhëmbësh)
kalitje (çekiçi)
teh (i thikës)
balestër (automobili)
 (nga *balestër* (karroce))
sustë (e shtratit)
arkë (e farës)
sitë (e drithit)
shoshë (e drithit)
dorezë (e plugut)
pllakë (shtrimi)
zinxhir (tërheqës)

b. Terms borrowed from other languages

We have also addressed this problem above, but here we will briefly link it to the phenomenon of motivation. As a rule, the motivation of foreign terms presents great difficulties, especially for users of terminology who face them for the first time and especially when foreign languages are not known from where the relevant terms come from. However, here we are interested in the fact that how foreign terms have entered the relevant field and what further path they follow. It is generally observed that some have entered directly with their external form, subject to the phonetic laws of Albanian and English, while the rest enter their word-

of the respective fields, they have passed a part of their names, but are already raised to a higher level by their content. This means that the concepts remain the same, but their content, let's say, is doubled, as, for example: *rrënjë-root* (a common word) - *root (plant) as term*, *kokë-head* (of human) as an unusual word and *kokë –head* (human) in anatomy (Fjalor, 2006: 470). The same situation can be seen in a small group of terms used in mechanics, coming mainly from various trades and professions. Although this category of terms requires a special study, we will present here only a small amount of terms in an approximate manner in both languages. In parentheses we are giving the defining words that reveal the meaning of the term (Pllana, 2014:191).

In English language

tooth (of saw)
sharpening (of teeth)
hardening (of hammer)
edge (of knife)
leaf-spring (of car)
 (from *leaf-spring* (of cart))
spring (of frame)
box (of seed)
sieve (of grain)
screen (of grain)
handle (of plough)
plate (of laying)
chain (of towing)

formation system, creating more or less hybrid forms.

From the point of view of motivation, terms can be divided:

a) Without motivation of the internal form, but motivated in the language from which they come: *kinematikë*, *makinë*, *aksoidë* (*kinematic*, *machine*, *axoid*).

b) With motivation through the analysis of its constituent elements: *aksialitet*, *dezaksialitet* (*axiality*, *desaxiality*).

c) With mixed motivation, when the term enters the word-formation system of the respective languages: *mekanizim*, *polarësi* (*mechanisation*, *polarity*).

B. Terms with changed (modified) conceptual content

a. Terms derived from the general language

These include terms that are built on the basis of common speech. They are distinguished for high motivation, are clear in terms of composition, but, due to the associations they create with the units where they come from, are characterized by a certain multi-understanding, which leads to a decrease in the accuracy of the expression of the concept. Sometimes they have internal semantic developments, which increase the degree of motivation, but reduce the degree of accuracy of the concept.

These include the following terms: *hallkë, zinxhir, bosht, fill, ije, majë (dhëmbi), rrënjë (dhëmbi), lodhje, rrip, shirit, faqe, trup, brinjë, vesh, xhep, varg (zinxhiri), vesh, thumb, shtresë (vaji)* etc. A large proportion of them also have equivalents in English, as: *link (hallkë), chain (zinxhir), shaft (bosht), yarn (fill), flank (ijë), root (rrënjë), fatigue (lodehje), belt (rrip), tape (shirit), face (faqe), body (trup), rib (brinjë), ear (vesh)*, (Fjalor, 1969: 66-210) etc.

b. Terms derived from other terminologies

As a general rule, essentially, in these terms the meaning of the field, from which it comes, remains, but in the field in which the term enters it emerges in material form, as it relates to the system with concrete objects.

Some terms were introduced into the terminology of mechanics from other terminologies, which rarely function as separate, and more often are met in compound phrases. We are just giving an example, describing the relevant field: *ekuacion, barazim (equation, equalization)* (math.), *forcë, baraspeshë (force, equilibrium)* (phys.), *reaksion, shkrirje (reaction, melting)* (chemistry), *kënd, rreth (angle, circle)* (geom.) etc. Motivation of these units, especially in compound phrases, as, for example in *kënd i trysnisë, rreth i kokës (angle of pressure, top circle)* (në rrotat me dhëmbë- toothed wheels) becomes direct and relates in two ways: on the one hand, with the field they come from (e.g. from math,

physics.) whereas, on the other hand, with the new concept they create in the respective field, as they can be compared *kënd (angle)* (geom.) and *kënd i trysnisë (angle of pressure)*.

Thus, we can bring some examples by confronting the units in both respective fields, as well as giving in parentheses the term (word and field) that reveals the concrete meaning in each language (Fjalor, 2002: 23-245):

In English

- 1) *cylinder* (geom.) - *cylinder* (of engine)
- 2) *parallel* (geom.) - *parallel* (of steering)
- 3) *circle* (geom.) - *circle* (of tube)
- 4) *radius* (geom.) - *radius* (of crane)
- 5) *axis* (geom.) - *axis* (axis of wheel)
- 6) *body* (geom.) - *body* (of fluid)
- 7) *point* (geom.) - *point* (dead point)

In Albanian

- 1) *cilindër* (gjeom. si figurë) - *cilindër* (i motorit)
- 2) *paralele* (gjeom. si figurë) - *paralele* (e timonit)
- 3) *rreth* (gjeom.) - *rreth* (i rrotës)
- 4) *rreze* (gjeom.) - *rreze* (e rrotës)
- 5) *aks* (gjeom.) - *aks* (i rrotës)
- 6) *trup* (gjeom.) - *trup* (pune)
- 7) *pikë* (gjeom.) - *pikë* (e vdekjes)

Conclusion

Terms generally turn out to be much more motivating than common words, certainly when viewed within the field of knowledge to which they belong. This more complete and direct motivation is provided by their double connection of the sign both with the meaning (concept) that it really expresses and with the meaning from which it comes.

Terms with changed conceptual content that are built on the basis of general language are distinguished for high motivation. They are clear in terms of composition, but, due to the associations they create with the units where they come from, are characterized by a certain multi-understanding, which leads to a decrease in the accuracy of the expression of the concept.

The base terms are represented mainly by one-word units, and as such they have priority from the viewpoint of the structure in a multiple way. From this viewpoint they contain the autochthon layer of the terminology in question, in the Albanian language, as well as in the English language. By viewing the quantity part of this layer in both languages, one will see that the English language comes out as richer in terms of units. This appears also from the comparison which is made of the vocabulary of the Albanian language in this terminology with that of the English one, where to the most part of the borrowed terms in Albanian the authentic English terms will respond with their own terms in English, build on the ground of common words, like: *sleeve, float, screwdriver* (Engl.), and respectively foreign in Albanian: *manikotë, galexhant, kaçavidë*.

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