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Reasons for Concepts Interaction and Cognitive Bonds Formation

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Abstract: The paper discusses principles of naïve reality categorization and the genesis of some deep-rooted cognitive bonds that have a long lasting history and represent interaction of concepts and ideas in collective consciousness. It is proposed that the reflected images of the phenomena and the imaginable or obvious relations between them form a structure that represents a subjective impress of the world in the individual and collective consciousness. The adjacency of ideas and peculiarities of concepts organization within the world map are inevitably reflected in languages at different periods of historical development. The predefined cognitive bonds are systemized according to the possible grounds for their development. Some possible reasons are studied and described.

Key words: Classification · Categorization · Naïve knowledge · Concept · Cognate word · World map · Meaning · Cognitive bond · Reconstruction

INTRODUCTION

Segmentation of reality into constituent parts, their classification and interpretation form a subjective impress of the world in the individual and collective consciousness. The reflected images of the phenomena that were considered significant due to various reasons, related to life activity, or provoked emotional reactions have been the foundation for it since ancient times. The environment was not perceived and interpreted as a mere multitude of objects and processes, but a system of interacting and interrelated phenomena that was reflected both in consciousness and language. Imaginable or obvious relationship between the likening phenomena leads to the approximation of concepts and the formation of links between them in a world map structure.

By means of sense perception a person obtains a certain volume of knowledge about external common and distinctive characteristics of objects, including color, shape, etc., as well as their position in space in reference to other objects, peculiarities of behavior and interaction, etc. [1]. The volume of the incoming information may vary. Thus, a person can see and hear the movement of water in a stream, but can't hear the clouds floating across the sky. However, a person can prognosticate or use imagination to fill in the gaps in perception. The lack of knowledge and understanding of certain phenomena may trigger the rise of mythical images. The interacting elements of reality that may influence each other or a person run through the filter of subjective assessment and are reflected in consciousness as a structure, a system of correlations between the external phenomena of the outside world and the internal state and feelings. Thus, comparative analyses of cognate languages and the study of semantics development make it possible to reconstruct some deep-rooted cognitive bonds that have a long lasting history and survive to this day, systemize them and define possible reasons that underlie the interaction of ideas and concepts.

MATERIALS AND METHODS

The study considers the peculiarities and reasons for links formation between certain concepts that are deep rooted and reflected in various language phenomena in different Indo-European languages at diverse periods of their development. The complex method of concepts analysis is used that presumes the study of the words naming the concept, reconstructed semantics of Proto-Indo-European roots and their derivatives,

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metaphors and associations, figurative nominations of a concept, contextual synonyms, nonce words, set expressions and idioms, comparisons, various types of texts, including author's interpretations and dictionary definitions, articles and essays on the topic, etc. The study relies on comparative historical method and component analysis. The etymological and derivation analysis are applied to define how the initial semantics of Proto-Indo-European roots with exactly or nearly the same meanings is being reconsidered as derivatives are formed and what parallel figurative, secondary meanings are developed. To study the peculiarities of reality categorization and its reflection in the language the method of frame semantics and modeling [2] is used. The principles of cognitive bonds modeling, based on the adjacency of concepts, were considered in earlier papers [3].

RESULTS AND DISCUSSION

As a set of cognitive bonds between concepts had been established we tried to analyze their nature and systemize them according to the grounds of their origin. The following reasons that stand behind cognitive bonds formation were defined.

Reason 1: Proximity in space. In other words, when an object is singled out from the environment, vision communicates the information about the position the object takes among other elements of reality, what other objects it is adjacent to, interacts with and with which does not. One of the cognitive bonds that has been established due to this reason is the one that links the concepts SKY and CLOUD. The adjacency of these two concepts is quite obvious since clouds appear in the sky and nowhere else. Thus, among the derivatives of Proto-Indo-European root **neb(h)-* – "wet, clouds" [4]/ "cloud, overcast sky" [5] are Russian *nebo* – "sky", Avestian *nabah* – "sky", Hittite *nepis* – "sky" [4; 6], Spanish *nube*– "cloud", Greek *nephele* – "cloud"; Sanskrit *nabhas* – "fog, cloud, sky" [7], etc.; English lexeme *sky* (from **(s)keu?-/*(s)kû-* – "to cover") meant "cloud" in Old English and is cognate to Old Saxon *skion* –"cloud cover" [6], etc.; *welkin* (from **wel-g-* – "to moisten, damp, wet" [4; 5; 6]) used to mean "cloud, raincloud" (*wolcen*) and is cognate with German *Wolke*– "cloud"; Welsh *wybr, wybren* – "sky" used to mean "cloud" [8]; Old Indian *sva´rga-* - "sky", Old High German *giswerc* – "rainclouds", Dutch *zwerk* – "raincloud, overcast sky", etc. go back to **swerg-* - "overcast sky" [9]. Clouds float across the sky, take different shapes and finally disappear. Should a person be asked what a cloud looks like, he is sure to look at the sky. Since clouds appear and disappear in the sky they may be considered part of it in naïve understanding. In this respect the idea expressed by this reason approximates to the "part/whole" image-scheme described by M. Johnson but still is not identical to it. Thus, the underlying form of the lexeme *otter* suggests the relation of this animal to water, etc.

Reason 2: Dominant character. Evidently, classification and systemization of objects and phenomena presumes singling out general and unique distinctive features, information about which is obtained by means of organs of sense perception. Since there may be several qualifiers that define a referent among others, the characteristic feature, being considered the prevailing, dominant one, is placed in the focus of attention. No wonder that such a feature is very often preserved in the underlying form of words. On the other hand, it usually reflects naïve superficial knowledge about an object obtained by observation or experience of interaction with it. The dominant feature does not only define an object in a multitude of things, but may also represent a separate idea or concept with which a cognitive bond is established. Thus, the essence of one concept is understood and revealed with the help of another one. The etymological analysis of the lexemes objectifying the concept RIVER, shows that it is grounded on the idea of movement. Water in the river is not static, constantly flowing and can move objects in space. It is difficult to imagine that words for river could convey an idea of rest or statics. So the formation of the cognitive bond between the concepts RIVER and MOVEMENT seems logical since movement of water is one of the distinctive features that define it in the landscape. Russian *reka* – "river", English *river* from Latin *rivus* – "stream, brook", Old Irish *riathor* – "waterfall", Irish *rîan* – "sea", Spanish *río* – "river", etc., [6] as well as Russian *reiat* – "soar, stream", *rinutsia* – "dash", English *rise* go back to **sreu-* – «flow» [7]/**[e]rei-/*rî-* – «start moving, rush» [5]; English *stream* – "a flow of water, brook", German *Strom* – "high water river",Old Indian *sravate* – "flow, stream", Russian *struja* – "jet, spurt", *bistriy* – "fast", *stremitsia* – "rush, strive for", etc. go back to **ser-/sor-/sr-* - "run, stream, flow" [5]. English *spring* means both "a stream of water" and "move suddenly, leap"[6], etc. In Proto-Indo-European the word **Hap$^{[h]}$-* - "fast running river" belongs to the active class as opposed to the general name for "water" which is inactive. Old Indian *dhánvati* – "move quickly", Avestian *dânu* – "river", etc. go back to **d^{h}en-* [10].

Reason 3: Simultaneity of manifestation. This cause presumes that two phenomena accompany one another, happen simultaneously or one is conditioned by another. The cognitive bond LIGHT-VISION may serve as an example, because a person sees better in daylight, while in the darkness one can see hardly anything or nothing, especially in case of visual impairment (*twilight vision*). Another example is the cognitive bonds that the concepts LIGHT and DARKNESS establish with the concept TIME. The understanding of the latter was and is, to certain extent, related to the cyclicity of day and night, seasons as the length of daytime gradually changes. Thus, lexemes *murk* and *morning* go back to the same root **mer-* - "shimmer, shine" [4; 7]. English *day*, *dawn* as well as Sanskrit *nidâghá-s* – "summer" [6] go back to **dei-* - "shining" [7]/**dei-n-* [9]. Russian *rassvet*– "dawn", *polusvet* – "twilight" are derived from *svet*– "light" (**k'wei-/*k'woi-/k'wi-* – "shine, grow white") [5], Spanish *alba* – "dawn", originates from **albho-* - "white" [5]. One of the derivatives of **nebh-* [6]/**nebhos-* – "not bright, overcast sky" [5] is Old Norse *njól* – "night" [6]. The described cognitive bond is represented in the expressions *evening glow, afterglow, bright and shining future*, Russian *svetloe vremia sutok* – "daytime", Spanish *entre dos luces* – "in the twilight", etc.

Reason 4: Similarity of appearance. This reason that may stand behind the formation of cognitive bonds within the structure of the world map presumes obvious or imaginable similarity of appearance of reality elements. The establishment of such cognitive bonds results in the formation of language units with figurative, metaphorical meaning. This may be exemplified by the cognitive bond that links the concept SKY and COVER. English *sky* goes back to **(s)keu?-/*(s)kû-* – "to cover", Welsh *wybr, wybren* – "sky" go back to **wer-* – "cover" [6; 8], German *Himmel* – "heaven" [4; 6], English heaven originate from**kem-* – "to cover" [4; 6; 11]. The source of English *ceiling* and *celestial* is Latin *caelum* – "sky". Hereby the sky is compared to a vaulted ceiling, roof, dome as well as other objects that cover, hide something or serve as a covering or coating (thus, in Russian there are *nebesniy svod* – "vault of heaven", *zvezdniy polog* – "a ceiling of stars", literally "canopy of stars", etc.). This also might be the explanation for the existence of cognate lexemes in different Indo-European languages that go back to the same roots and express the meanings "cloud", "mist", "fume", "smoke", "vapor". (e.x. Russian *oblako dima* – "pall of smoke", literally "cloud of smoke", *dimka* – "haze" that derives from dim – "smoke", etc.).

Reason 5: Similarity of behavior and functioning. This reason, as well as the previous one, is based on the associative thinking [12]. This concerns drawing an analogy between the behavior of certain processes and phenomena. Thus, for example, this reason lies in the foundation of the historical adjacency of the concepts WEAVING and SPEAKING. The process of combining words together and speech production was interpreted and compared to an act of weaving and useful arts. Thereby, the lexemes *text* and *textile* together with Latin *textum* – "textile, connection, style", *texo* – "weave, compose" [5] go back to Proto-Indo-European **tekþ-* - "to weave" [4; 6]/**tek-* - "weave" [9]. Among other derivatives are *tissue* in English, *tejer* – "to gossip" and *tejedor* – "taleteller " in Spanish, etc. Russian lexeme *stroka* – "line" is cognate with *strochit* – "to stich, to scribble" [5], English lexeme *yarn* expresses both "strand of fibre" and "long story, rumour". The following expressions are also worth noting: English *weave words*, *tongue tie*, Spanish *hilar el discurso*, literally "to spin fibers of discourse", *ensartar disparates* – "to say nonsense", literally "to string/thread nonsense", etc. The art of rhetoric, ability to organize words in speech in a specific way to create a masterpiece whether it is a song, a poem or an oration is acknowledged to be a practical skill since olden times. When a person lacks an ability to speak well, in Russian it is said *dvuh slov sviazat ne mozhet* – "can't put (literally "tie") two words together" and *lika ne viazhet* – "be stone blind", literally "doesn't tie up bast fiber" if he is drunk at the time.

Reason 6: Derived ideas. This reason presumes that the interaction of concepts is based on the chain of manifestations, logical assumption that one phenomenon generates another. Thus, by means of organs of sense perception a person obtains some knowledge about the world (cognitive bonds VISION-KNOWLEDGE, HEARING-KNOWLEDGE). AUTHORITY is stipulated by the presence of physical and/or mental power (cognitive bond FORCE-AUTHORITY). Cattle was very important to the society of ancient Indo-Europeans and some researchers believe that wealth was measured by a count of it. As a result the cognitive bond linking CATTLE and PROPERTY was established. For example Proto-Indo-European **peku-* is reflected in both Latin *pecus* – "cattle" and *pecûnia* – "money" that are preserved in Spanish *pecuario* – "cattle-breeding", *peculio* – "personal possessions, money", *peunia* – "money, coin", English *pecuniary*. Old English *feoh* (modern English *fee*) derived from Proto-Germanic **feHu* used to mean "cattle" and "wealth". Old Russian *skot* meant "cattle", "wealth",

"tax imposed on peasants" and is cognate with Gothic *skatts* – "money" and German *Schatz* – "wealth" [5; 11]. The word *cattle* itself is cognate with *chattel* and go back to Latin *capitale* – "property" [6; 7].

Reason 7: Oppositions and contrasting. This reason stems from the dialectical principles of thinking, that are grounded on the unity and conflict of opposites while perceiving and interpreting phenomena of reality. Thus, mutually exclusive concepts in the course of thinking form imaginable oppositions in the world map structure. The adjacency of such concepts seems very obvious and logical. Among cognitive bonds that refer to this reason are LIGHT-DARKNESS, HEAT-COLD. Despite the inconsistency of the two phenomena, one is used to reveal the essence of the other and this event is inevitably reflected in the language. Thus, in Russian hard frost can literally "burn", "scorch"; when a person is running high temperature, it literally "freezes him"; in English there is an expression *go hot and cold all over*, the idea of eternity is expressed in the idiom *till hell freezes over*, etc. Remarkably, Proto-Indo-European root **preus-* is considered to express both meanings "freeze" and "burn" [11] (or solely "fry, burn»" [4], "burn" [9]) that are reflected in the semantics of the derivatives *frost*, *freeze* and cognate forms in other Germanic languages that bear the same meanings, Old Indian *prušvâ* – "hoarfrost, frozen water", *prûna* – "live coal" [9], Latin *pruîna* – «hoarfrost, frost», Albanian *prus* – "burning coals" [4], Welsh *rhew* – "frost", Sanskrit *prustah* – «burnt», etc. [11].

Reason 8: Personal impressions and feelings filter. Undoubtedly, peculiarities of interaction with the environment run through the filter of personal impressions, feelings and emotional states caused by the external influence. Thereby, such personal state and feelings are analyzed in the inner assessment system and are brought into correlation with the phenomenon of the outside world that triggered these reactions or those akin to it. Thus, a person normally feels better, excited and have positive emotions of happiness, joy when it is daylight, sunshine (cognitive bond LIGHT-HAPPINESS), because light brings warmth, sense of security as opposed to the darkness, nighttime, overcast sky, etc. When a person is excited, his eyes are *shining with happiness*, *glitter with excitement*. The ultimate source of the words *bliss* and *blithe* is Proto-Indo-European root **bhlei-* – "shine" [7]. The words *glad* and *gleg* go back to **ghel-* – "shine" [7; 11] In Russian a person can *svetitsia, siat ot radosti*, literally "glow, shine with joy" that is equal to English *beam with delight* and *be radiant with joy*. An expression *ogonek v glazah* – "mischievous twinkle", literally "a flame tip in the eyes" is applicable to a joyful, energetic person.

Next two reasons are closely related to the ability of the pre-established cognitive bonds generate new ones as more complex formations based on cognitive bonds within the world map structure are being established [13].

Reason 9: Conceptual knots formation. If two or more concepts establish cognitive bonds with the third one, in a course of time they may also become adjacent and linked by a newly established cognitive bond, that closes up the circle. Thereby, the establishment of cognitive bonds may gradually trigger approximation of concepts that were not adjacent and the formation of a new cognitive bond between them. For example, the interlinked concepts (OVERCAST) SKY, DARKNESS and COVER form a conceptual knot. Similarly, concept KNOWLEDGE establishes cognitive bonds with the concepts adjacent to the concept FORCE that are then represented in the language, for example, *bagazh znaniy* – "mental furniture", literally "baggage of knowledge", etc. (KNOWLEDGE-PROPERTY), *znat'* – "noble" from the word *znat'* – "know" in Russian, etc. (KNOWLEDGE-AUTHORITY).

Reason 10: Mirroring of cognitive bonds. New cognitive bonds formation with a concept expressing one of the mutually exclusive ideas and their representation in the language may be a reflection of the pre-established cognitive bonds with the second concept in the link. Naturally, this secondary link established as a result of this mirroring process is less represented in the language (there are no derivatives from Proto-Indo-European roots that would express it). Thus, the cognitive bond INVISIBILITY-IGNORANCE is a result of reflection of VISION-KNOWLEDGE.

CONCLUSION

It is quite clear though that the defined reasons are a result of generalization and the borders between them seem, to certain extent, relative. On the other hand, such division of rather stable and long-lasting cognitive bonds helps to understand the principles that underlie the approximation and interaction of ideas that reflect the phenomena of the world, as well as the peculiarities of their representation in the language. Thus, the naïve interpretation and reflection of reality, as well as interaction with its elements, is conditioned, on the one

hand, by the work of organs of sense perception that impose restrictions on the obtained information content (thus, such characteristics as size, position and adjacency of objects in space, etc. are in the focus of attention) and, on the other, by personal impressions and feelings, state and earlier obtained experience that serve as a foundation for comparison and identification.

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