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BOOK OF ABSTRACTS



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Keynote speakers for the 6th International Conference on Meaning and Knowledge Representation (in alphabetical order): Nikolai Boldyrev, Maria del Carmen Fumero Perez, Ricardo Mairal Usón, José Carlos Perinián Pascual.

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FunGramKB project since 2004, whose main goal is to develop a lexico-conceptual knowledge base to be implemented in NLP systems requiring language comprehension. After the design and implementation of the knowledge base, he also developed some NLP tools for the FunGramKB Suite: (a) a multilingual workbench for term extraction and management with domain-specific corpora, (b) an application to categorize a collection of documents into the domains of the IATE database, (c) a system that helps researchers do corpus analysis as well as running statistical and machine-learning algorithms for data mining tasks, and (d) a parser that generates a full-fledged logical structure of a sentence, having Role and Reference Grammar as its linguistic model and FunGramKB as its knowledge base. Therefore, his research has also contributed to the fields of automatic term extraction, topic detection, semantic parsing, machine learning and data analytics. He is currently implementing the FunGramKB NLP Laboratory, a user-friendly workflow environment that is mainly intended for linguists to conduct their own research experiments in human language technology. His scientific production includes over 50 peer-reviewed publications in the fields of linguistics, natural language processing and artificial intelligence. He is currently an associate professor in the Applied Linguistics Department at Universitat Politècnica de València, Spain.

BOOK OF ABSTRACTS

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VERBALISING A GENERATION GAP IN POST-BREXIT BRITAIN AND POST-ELECTION AMERICA: SNOWFLAKES AND OTHER LABELS

Generation gap has been discussed from time immemorial, yet intergenerational tension has assumed different forms throughout human history. In 2016 the UK saw the generation gap materialize in voters' attitudes to Brexit, while in the USA Donald Trump's entering the White House was largely the choice of older voters. These decisions were crucial to the states' future, and in both cases "countervoted" citizens experienced severe frustration. This fueled the debate on the social discord and brought up the generation gap issue: *Trumpers* and *Brexiteers* turned out to be the older generation, while *Clintonites* and *Remainiacs* appeared to be young people. The debate produces new meanings and, consequently, new lexemes as well as specific argumentation and its arrangement.

Overall, names for generation membership may be divided into two sets. The first set contains relatively neutral lexemes, borrowed largely from Howe and Strauss' cyclic model of generation change (e.g. *Generation X/GenXers*, *Generation Y/GenY*). Items from the second set have been coined recently and are often heavily laden with evaluative connotations. The research shows that it is Generation Y that appears in the spotlight of media discourse and, as a result, has become a source of neologisms. (The absence of newly-coined nominations for older groups or the youngest iGeneration may be explained by the former's power over public discourse and little public visibility of the latter.)

While the term Generation Y refers to those born between 1981 and 2000, there are other lexemes, ranging from neutral *millennials* to rather evaluative *boomerang generation*, *snowflakes/Snowflake Generation*, *Selfie Generation*, as well as overtly judgemental '*My Parents Never Said No*' *Generation*, *Me, Me, Me Generation*, where referential meaning is undoubtedly overshadowed by negative connotations.

Research into media texts reveals key components of the disparaging terms that embrace a range of aspects: 1. appearance (skinny jeans, beard, flannel); 2. lifestyle (constantly texting, making selfies, uploading them onto Instagram and FB); 3. social status and financial dependence (living with parents; middle class students/graduates; unwilling to get 'real jobs'); 4. personal traits (hyper-sensitive/thin-skinned;

selfish/narcissist; arrogant; uninvolved; with sense of entitlement). While the first three sets are rather objective, the subjectivity of the fourth one, namely hypersensitivity, has a paradoxical effect: opponents accuse each other of being thin-skinned. As a result, GenY views Trump and his right-wing policies as epitome of hypersensitivity to cultural and national issues. The older right-wing counterparts blame leftist parties for nurturing “wussies”: weak, ineffectual, overly tearful individuals.

The debate develops in social networks and mass media: there are numerous articles, YouTube presentations and speeches that make explicit generational stereotypes. Yet, while authors of articles display diversity of arguments and their arrangement, videos tend to follow the antithesis pattern: speakers start argumentation by asserting the GenY stereotype, argue to prove it wrong and conclude by substituting the lexemes in the stereotypical statement for their antonyms.

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COUNTING THOUGHT: EXPLORING THE COGNITIVE REALITY OF GRAMMATICAL COUNTABILITY

The present paper tackles the question of how syntactic countability relates to the mental representation of objects and substances and proposes a uniform frame representation of lexical entries.

For centuries, researchers of many disciplines have debated whether the count/mass distinction present in many natural languages might be rooted in pre-linguistic ontological knowledge, or inversely, whether syntax might provide the foundations for conceptual development.

While there is substantial evidence against both of these claims in their strongest form ([1], [2], [3], [4]), many cross-linguist investigations suggest at least a correlation between mental representation of a noun's referent and the noun's countability feature. However, the fact that a noun's countability can vary within and across languages, especially for abstract nouns and special cases of mass nouns like aggregates (*lentils* (count) vs. *čočka* (Czech, mass)) and object-mass nouns (*furniture* (mass) vs. *meubelen* (Dutch, count)) does not suggest a one-to-one mapping of conceptual and grammatical properties [5].

The current body of research examines coercion [6, 7] in the countability domain, i.e. interpretable but grammatically incongruent combinations of determiners and nouns. We interpret these coercions as syntactically-driven metonymy and provide an account based on frames. Frames are recursive attribute-value structures assumed to be the general format of mental knowledge representation and therefore an excellent framework to model the interaction of grammatical and conceptual knowledge [8, 9]. In our account, each lexical entry consists of three interlinked sub-frames: a concept, a lemma and a phonological form, which constrain and influence each other. We assume that noun phrase processing starts with the lexical access of the determiner and an expectation about the upcoming noun's conceptual nature based on grammatical (lemma-)properties of the determiner.

For instance, when a count noun-specific determiner, such as a numeral, is encountered a noun of "individual" conceptual nature is expected (compare [10] [11] [12] for similar notions). If, however, a mass noun with non-individual concept follows, interpretation involves finding a metonymic version of the noun's meaning that matches the expectation of being an individual.

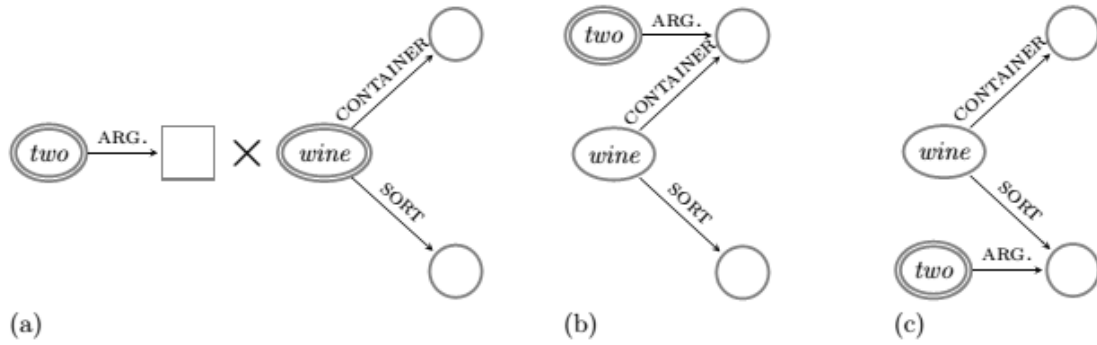


Figure 1: Simplified frame representations of examples in 1)

In our model, this coercion is accomplished by shifting the central node of the noun's conceptual frame along the attribute chain towards a node of an individual type. Noun phrase formation is accomplished by unifying the argument-value node of the determiner with a matching node in the noun frame. Contextual information provides the restrictions on which node is suitable, as exemplified in 1).

- 1) (a) Yesterday, I had too much wine at the bar. (= wine as substance)
- (b) Yesterday, I had two wines at the bar. (= two glasses)
- (b') Yesterday, I bought two wines at the supermarket. (= two bottles)
- (c) Yesterday, we tried two wines from the local winery. (= two sorts)

Similarly, we assume that the general representation of concepts is stable across languages, but that the choice of central node (that is default interpretation) is language dependent.

During our talk, we will present the explanatory power of the outlined approach using diverse, more complex examples.

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SEMANTIC PROTOTYPES AND NATIONAL ETHOS

Anthropological paradigm of contemporary linguistics stimulated the study of word meanings and concepts not as an analytical exercise but as a tool of penetrating into the ethos of a culture represented by a given language. Ethos is understood here as the fundamental character or spirit of a culture; the underlying sentiment that informs the beliefs, customs, or practices of a group or society.

As is known, two factors intertwine in the structure of a language: internal (the language consciousness of an individual) and external (the culture shared with other speakers of the same language). Ethnocultural semantics seems to be the most exciting domain of investigation for it reveals layers of a word meaning and a concept volume hidden at traditional structural approach to the meaning. The analysis of everyday concepts is in the focus of this paper since the study of the mundane implies understanding of the world of human and his/her very life as **value**. In our research we proceed from the *emic* approach to the study of language and culture where the categories of meaning are described based upon phenomenological definitions derived from the target language that are culturally and historically bound. The study of everyday culture lexical units representing respective concepts led us to an important conclusion that the seemingly universal words and concepts have different semantic prototypes. The prototype is understood here as the **ideal** mental representation of a concept. The study of ethnospecific prototypes of the universal concepts is an important task of language and culture studies because it helps clarify, on the one hand, specific features of the mentality of an ethnos, and, on the other hand, sheds light on the cognitive mechanisms of the forming of meaning.

We have studied the semantic prototypes of such “small c” culture concepts as *land*, *farm*, *work*, *job*, *street* and *truck* in the social-literary and publicist discourse of American English and came to the conclusion that the above-mentioned concepts do not correspond to universal prototypes being as simple and common on the surface as they are.

The axiological system of any ethnos includes, as a rule, the two-level hierarchy of values – the proclaimed (ideal) values and the actual (real) ones that are practiced in everyday life. The analysis of mundane concepts makes it possible to define their cultural-specific prototypes, e. g. the presence of Calvinist ethos in the information potential of such concepts as *work*, *job* and many others in American English.

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LANGUAGE AND THE STRUCTURE OF MIND: THE INTERPRETIVE COMMITMENT OF COGNITIVE SEMANTICS¹

Thought-provoking research in psychology and overlapping fields has offered growing evidence for the conception of language as a cognitive ability which is deeply rooted in the structure of consciousness and as such can greatly influence its content and functioning (see: Boldyrev 2016). Some evidence also comes from various studies of language use, its structure and categories within the framework of cognitive semantics. Many years ago G. Lakoff stated that cognitive linguistics is defined by two primary commitments: The Generalization Commitment ("to characterizing the general principles governing all aspects of human language") and The Cognitive Commitment ("to make one's account of human language accord with what is generally known about the mind and the brain, from other disciplines as well as our own") (Lakoff 1990: 40). Our claim in the talk is that the exploration of language and mind interplay needs to be accounted for also from an interpretive perspective. This approach to language can be called the Interpretive Commitment of Cognitive Semantics.

Central to this area of research are the issues related to the functions of language, cognitive schemas underlying linguistic structures and categories, the correlations between language and conceptual structures in the structure of mind. This approach is based on our theory of Linguistic Interpretation as part and further development of the Theory of Cognitive Semantics. Its main assumptions are: 1) that cognition and language use are interpretive processes; 2) therefore language performs the three main functions: cognitive, communicative, and interpretive; 3) linguistic structures, categories, and forms play a significant role of cognitive schemas mediating processes of perception and structuring consciousness.

Among the cognitive schemas underlying language use and structuring consciousness are the three types of linguistic categories: lexical, grammatical, and modus; different types of concepts and conceptual structures: spatial, temporal, quantitative, and evaluative; propositional models, various syntactic and idiomatic structures, speech patterns. These schemas help the cognitive system of a human being adopt and function properly in the world as well as extend and enrich itself through acquiring linguistic and non-linguistic knowledge.

¹ Acknowledgements: The research is supported by grant 15-18-10006 from the Russian Science Foundation.

For example, humans construe spatial concepts to map the world of people, objects, and ideas as close related or belonging to the speaker (ego-centered spaces: *my university*) or to some other person (non-ego-centered spaces: *your university*), or without such cognitive center at all (non-centered spaces: *university*); as physical or conceptual spaces (*room – knowledge*) professional or social communities (*department – club*); bounded or unbounded (*in the car – in the open air*), permanent or temporary spaces (*association – conference*); filled or empty containers (*to spill coffee from the cup – to pour coffee into the cup*). In doing so, speakers aim at constructing and conveying various kinds of meanings in discourse.

All these issues will be addressed in the talk and illustrated by evidence from language use and accessible results from psychological research.

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RESULTATIVE CONSTRUCTIONS IN COOKING RECIPES AND ELSEWHERE: ON A FAMILY OF CONSTRUCTIONS FROM A CROSS-LINGUISTIC PERSPECTIVE

A number of researchers have stated that resultative constructions, found in many languages of the world in one form or another, form a family of related constructions (Goldberg & Jackendoff 2004, Peña 2016, 2017). While general affinities within this family and its core members at the macro- and the meso-constructive level (Traugott 2008) are relatively well outlined, we know much less about the nitty-gritty details of individual micro-constructions that populate “the bottom of the mental constructicon” (Hoffman 2013: 185). In order to shed more light on the relationships between individual micro-constructions, on the core and peripheral members of the micro-family, and on how this family extends, we zoom in onto so-called selected property resultatives, such as:

- (1) a. *The gardener watered the flowers flat.*
- b. *Bill broke the bathtub into pieces.*

We first compare realizations of these resultative constructions in a specialized genre of cooking recipes in a variety of languages (mainly in English, German, Croatian, and Hungarian, but also in Russian, Polish, Italian, Spanish, Portuguese and Romanian), and then widen our perspective to consider resultative constructions in general. We focus on two aspects of resultative constructions: i. the categorial realizations of what Quirk et al. (1985) refer to as object complement, i.e. the resultative phrase ii. some semantic distinctions that have gone largely unnoticed in literature.

While the resultative phrase can be realized in English as an adjective phrase or as a prepositional phrase, there are languages in which only prepositional phrases are available. However, in addition to adjectival phrases and prepositional phrases, we show that resultative phrases can also be realized as noun phrases or adverb phrases as well, e.g. in Hungarian (2) and Croatian (3), respectively.

- (2) ... *a cukrot a vizzel sziruppá főzzük* lit. ‘sugar with water cook syrup.TRANSLATIVE_N’, ‘we cook sugar and water to a syrup’

- (3) *Luk staklasto pirjati* ‘saute onion until transparent (lit. glassy.ADV)

The choice between adjectival and the prepositional phrase (and also the noun phrase) may be motivated in some languages by what the resultative phrase denotes – the shape or the quality ensuing from the event denoted by the verb. The choice of the preposition may indicate different underlying image schemas and metaphors that various languages employ.

- (4) *Dice onions into cubes*
- (5) *Pica la cebolla en cuadrados* ‘cut onion in cubes’
- (6) *Narežite luk na kocke* lit. ‘cut onions on cubes’
- (7) *A hagymát kockára vágjuk...* lit ‘cut the onion onto cubes’

A fine-grained cross-linguistic comparison along these lines makes it possible to model resultative constructions in a more granular way, accounting for a wider range of data.

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A FORMAL MARKER IN THE SENTENCE STRUCTURE OF DIFFERENT LANGUAGES

The problem of correlation between form and meaning in a language in general and in a sentence in particular is one of the most essential problems in linguistics, especially in the cognitive approach.

As a result of our research, it is proved that formal characteristics of sentences with verbs-converses depend on the positioning of the focus of empathy, the direction of relations in the proposition and the situation and also on the type of relations in the proposition. It is revealed that formal support of relations (either propositional or situational) is obligatory if the directions of relations in the proposition and in the situation do not coincide.

In sentences with conversives (*have* — *belong to* (*possess* — *pertain to*, *own* — *appertain to*), *like* — *appeal to*, *comprise* — *compose* / *comprise* — *constitute*) the propositions of which are directed and statal, formal means of word connection (preposition *to*) is used to emphasize the direction of propositional relations:

I have a book — *The book belongs to me.*

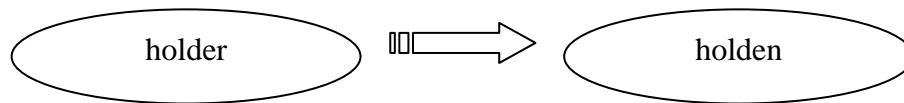
The direction of situational relations is supported in sentences with conversives (*hurt* — *suffer*, *cause* — *result* (*cause* — *follow*, *cause* — *ensue*), *give* — *take*, *lend* — *borrow*, *teach* — *learn*, *lose* — *win*, *sell* — *buy*), the propositions of which are directed and non-statal:

My back hurts me — *I'm suffering from a bad back.*

Moreover, the same conclusion has been made for the French structures with some predicates of fear while comparing them with the English ones. If the directions of the relations between the constituents of the sentence and the participants of the situation do not coincide, the use of the prepositions *of*, *at*, *by* is obligatory in the formal structure of the sentence with the English predicates (*frighten*, *scare*, *terrify*, *horrify*, *intimidate*, *alarm*, *panic*, *terrorize*), whereas the prepositions *de/par* appear with the French predicates (*effrayer*, *terrifier*, *horrifier*, *intimider*, *alarmer*, *paniquer* *u terroriser*).

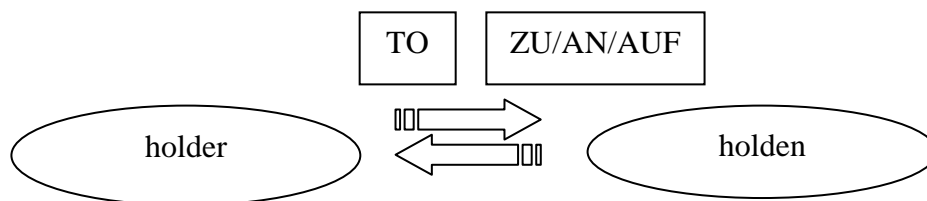
Particularly interesting is the case when the directions of the relations in the proposition and situation are the same, yet a formal marker in the sentence structure is a must. It can be observed in sentences with the verbs *hug*, *clutch*, *clasp*, *hold* and their German equivalents *halten*, *(um)klammern*, *heranziehen*, *drücken*. It should be underlined that both the non-prepositional and the prepositional variants of the

connection of notional components are possible with these verbs. The first one takes place when the verbs under analysis describe a simple situation:



*I **hugged** him as my oldest friend, as the dearest to me in the world next to my father.*
 / Ich **umarmte** ihn wie meinen ältesten Freund ...

If a complex situation is reflected, then there appears a formal marker (*to* in English and *zu, an, auf* in German) in the sentence structure in order to emphasize the character of either the members of the situation (active/passive, object/surface) or the situation itself.



*And Thian was overwhelmingly grateful that this was so, and **hugged** the silky body **to** his side.*
 / Und Thian war überwältigend dankbar, dass es so war, und er **zog** den seidigen Körper **zu** ihm **heran**.

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SEMANTIC CONTRAST BETWEEN *BEGIN* AND *START*

The present paper takes up the issue of the semantic contrast between two English aspectual verbs *begin* and *start*. Both of them presuppose the prior non-occurrence of the event that has been initiated. According to A. Freed, *start* refers to the onset of an event while *begin* refers to an initial temporal segment of the nucleus of an event [Freed 1979, p. 71]. This difference is similar to the aspectual opposition in Russian inceptive verbs e.g.

- (1) *Начался дождь* \cong 'At moment t_1 rain didn't take place; at moment t_2 rain took place; t_2 is later than t_1 '.
- (2) *Начинался дождь* \cong 'At moment t_1 rain didn't take place; at later moments t_2, t_3, \dots, t_{n-1} facts p_2, p_3, \dots, p_{n-1} took place, each p_{i+1} had more in common with rain than p_i ; if process developed normally, rain took place at moment t_n ' [Апресян 1995, с. 58].

Supposing that target language of a translation may be treated as natural semantic metalanguage we hypothesize that Russian translations of *begin* and *start* may explicate the semantic difference between these two verbs. Under this approach, in the original text only the constructions with verbal complements are considered. In the translations, we choose only that Russian equivalents which can be opposed through semantic opposition 'instantaneous initiation of event (INST)' vs 'gradual initiation of event (GRAD)' i.e.

- 1) compatible aspectual pairs of inceptive verbs with verbal and nominal complements (*начать/начинать писать, стать/становиться сговорчивее, приняться/приниматься чертить*);
- 2) compatible aspectual pairs of prefixed forms with inceptive meaning (*расцвести – расцветать, заболеть – заболевать*); forms like *заволноваться* 'to instantly get worried' are treated separately as belonging to INST;
- 3) aspectual modifiers such as giving INST reading (*сразу, неожиданно, резко, тут же, вдруг*) or GRAD reading (*постепенно, понемногу, медленно*) to the predicate.

The analysis was carried on "The Hunger games" trilogy (301,583 words total) and its Russian translations. The results were compared with the data from the Parallel Corpus based on Russian National Corpus (<http://ruscorpora.ru/search-para-en.html>). Only the alignments from literary texts, published in the 10-year period before the publication of the first novel of the trilogy (2000-2010) were selected for analysis. Here are the results:

Table 1 – INST vs GRAD semantic opposition-based contrast of Russian equivalents of *begin* and *start*.

	“The Hunger games” trilogy			Parallel Corpus		
	INST	GRAD	Total	INST	GRAD	Total
<i>Begin</i> , freq.	20	83	103	192	40	232
<i>Start</i> , freq.	22	21	43	155	16	171

As Table 1 shows, analysis has contradictory results. According to the materials of the trilogy, semantic structure of *begin* corresponds with A. Freed’s theory but the results from Parallel Corpus refute it. Corpora materials show that *begin* and *start* have INST meaning. Apparently, semantic difference between the two verbs is more complex than stated by A. Freed. Furthermore, peculiarities of conceptualization of the event of initiation in Russian, i.e. absence of imperfective correlations of inchoative verbs (verbs denoting homogenous processes) and the occurrence of *становиться* only with nominal complements, might have affected the results.

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PARSING CLAUSES IN ASD-STE100 WITHIN ARTEMIS

One of the main objectives of Natural Language Processing (NLP) is the simulation of natural language understanding. Within the different applications designed for this purpose, the ARTEMIS prototype follows the paradigm of unification grammars (Sag, I, Wasow, T. & Bender, E. 2003) and is, at the same time, linguistically grounded in Role and Reference Grammar (RRG - Van Valin & LaPolla 1997 and Van Valin 2005). The syntax-to-semantics linking algorithm proposed in this functional grammar lies at the basis of a parsing process that starts with a natural language sentence, extracts its morphosyntactic features and provides a representation of these in terms of the so-called layered structure of the clause (LSC) in RRG.

Within ARTEMIS, the semantic component is complemented by FunGramKB, a lexico-conceptual modular knowledge base that consists of an abstract conceptual module comprising an ontology, a cognicon and an onomasticon, and a linguistic module made up of a language-specific lexicon and grammaticon (Periñán-Pascual and Mairal Usón 2011).

A fundamental component in our parser is the Grammar Development Environment (GDE) where production rules (syntactic, lexical and constructional) are stored. Syntactic rules that account for phrasal constituents and simple sentences have already been described in Cortés-Rodríguez and Mairal 2016, Cortés-Rodríguez 2016; Martín Díaz 2017, Díaz Galán and Fumero Pérez 2015, Fumero Pérez and Díaz Galán 2017. In an attempt to validate these syntactic rules and to avoid some of the common problems that may arise in parsing applications, this presentation will focus on the study of clausal units within the Controlled Natural Language (CLN) ASD-STE100.

Using this CNL involves, on the one hand, adapting the library of AVMs that form part of the GDE to the restrictions regarding the clausal constituents as described in the latest version of the Specification document of ASD-STE 100 (January 2017). On the other hand, it also implies adjusting clausal structures both in terms of their internal complexity and their type of Illocutionary Force.

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SEMANTIC PROPERTIES OF HUNGARIAN VERBS

In my research, I focus on idiosyncrasy in the semantics of verbs with the aim to set up a semantic based typology for Hungarian verbs on cognitive semantic grounds. There is proof that smaller classes of verbs share clusters of semantic, syntactic and sound properties. I believe that a semantic-based typology can reveal yet unknown meaning-sound-syntax correspondences, and also, to point out certain cultural aspects of linguistic elements.

The starting point of the research is constituted by verbs which do not have a verbal equivalent in some European languages. We can see from these that there is a larger number of state verbs in Hungarian than in English and Romanian for example, and that there are verbs expressing attitude and characteristics of both living and non-living things, which like state verbs are mostly not dynamic, but static. These might be considered to constitute a link between verbs and adjectives, but are also examples of different lexicalization and categorization aspects of different languages.

Also, to give another example, there are separate verbs in Hungarian to express the two phases of perception: *érezkel* stands for physical experience, while *észlel* stands for cognitive perception. In addition to this, we can also see a double division in the verbs expressing perceptions for each sense; i.e. there is a lexeme expressing physical perception for sight, and another lexeme expressing cognitive perception for sight. This viewpoint (of seeing two phases of perception) also makes possible observations that are less accessible to English for example, language in which most of the literature is written.

In my presentation, I wish to focus on some of my realizations so far regarding the semantic properties of Hungarian verbs, also including verbs of speaking beside verbs expressing states, characteristics, perception and attitude, which were mentioned above. I will also try to define what kind of experiences and properties of our surroundings are encoded as verbs in Hungarian; as well as, contrariwise, to see what kind of activity is that which is expressed as speaking or attitude or state in Hungarian. I presuppose that there are correspondences to reveal. These are, most probably, mainly culturally defined.

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SETTING THE GUIDELINES FOR PARSING A CONTROLLED NATURAL LANGUAGE WITH ARTEMIS

ARTEMIS (Automatically Representing Text via an Interlingual-Based System), is a Natural Language Processing (NLP) parser, developed within the framework of the lexico – conceptual knowledge base FunGramKB, whose aim is to obtain the syntactic and semantic representation of natural language fragments. What makes ARTEMIS different to other language processing devices is that it seeks to be linguistically motivated, both from a semantic and syntactic point of view. Semantically, ARTEMIS exploits FunGramKB as its knowledge base and, syntactically, it is grounded on two solid linguistic models: Role and Reference Grammar (Van Valin and La Polla 1997; Van Valin 2005) and the Lexical Constructional Model (Ruiz de Mendoza and Mairal Usón 2008).

The current research dedicated to the development of ARTEMIS has focused mainly on one of its components, the Grammar Development Environment (GDE), where we find two types of constructs: the syntactic, constructional and lexical rules, which the machine needs to be able to parse natural language fragments, and a catalogue of attribute value matrixes for the description of grammatical units. Despite the effort made to develop the basic rules for the analysis of phrasal units and some types of simple clauses in English (Cortés-Rodríguez and Mairal 2016, Cortés-Rodríguez 2016; Martín Díaz 2017, Díaz Galán and Fumero Pérez 2015, Fumero Pérez and Díaz Galán 2017), there is still a lot of work to be done for a full development of the parser. However, before continuing with the analysis of more complex structures, it would be necessary to validate the performance of the parser by implementing the existing rules to empirically back up their effectiveness. We consider that the simplification of the vocabulary, syntax and style which characterize controlled languages make them the perfect candidate for ARTEMIS to use as a preliminary testing platform.

In this talk we will spell out the process followed in the adaptation of the components of the GDE to the requirements of one of the best known examples of controlled languages as is the Aerospace and Defence Industries Association of Europe (ASD) Simplified Technical English Specification (STE), ASD-STE100.

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CONTRACT LAW TERMINOLOGY: UNCOVERING THE DEACTIVATED

Contract is everywhere in the language of law. As the core of the legal language domain, it can be naturally hidden, and cognitive semantic researches of conceptualization in contract law terminology can become the key to some complicated issues. Simultaneous representation of the whole conceptual sphere as a hierarchical system of neurological levels not only uncovers the invisible layers of concepts compressed by metonymic and metaphoric processes, but also allows to reconstruct the strategies of compression. Such discursive modeling of the conceptual system along the contract scenario schema makes cognitive linguistics a valuable independent contributor to overcome doctrinal stumbling-blocks.

The substantial core of contract law is the set of ten categories: *contract, consideration, promise, consent, offer, acceptance, good faith, misrepresentation, mistake, frustration*. The categories largely derive from the domain of General English (GE), where they constitute a continuum of fuzzy concepts covering all the neuro-logical levels of Bateson & Dilts: *environment, behavior, capabilities, values and beliefs, identification, mission*. Semantically, in this domain the categories can be classified on the basis of seven key criteria: *quantity, emotiveness, actor, sphere, intention, causation, temporality*.

The content analysis of SCOPUS resources in the contract law (CL) domain reveals that all the concepts gain the status of doctrines and each doctrine splits into two or three opposing sub-doctrines with hot debates around the semantic interpretation of the key criteria. In terms of logical levels, the doctrines can be roughly divided into two main groups: the doctrines considering the key concepts only at the levels of *environment, behavior and capabilities* and the ones discussing the whole range of levels from *environment* to *values and beliefs*.

The scenario of contract formation and implementation splits into two obviously independent sub-scenarios: negative and positive. The central semantic unit of the positive scenario is the cluster of *offer-acceptance-consideration* with the connective element *mutuality of obligation*. The key concepts of the negative scenario, *misrepresentation, mistake, frustration*, do not constitute a cluster, but their conceptual spaces overlap on the level of *capabilities* and *values and beliefs*. Metaphor and metonymy converter between the GE and CL domains purifies the levels of *environment, behavior*, restricting it to facts and conducts that should be evidenced and justified. The converter makes the levels of *capabilities* and *values and beliefs* partly invisible and completely deactivates the levels of *identification*

and *mission*. The converter also decreases the classifying criteria to *actor*, *intention causation*, *temporality*, reorganizing the concepts into separate categories, for instance, *consideration* (C) decomposes into *past C*, *adequate C*, *sufficient C*, *practical benefit as C*, *misrepresentation* (M) splits into *fraudulent M*, *negligent M*, and *innocent M*.

Nevertheless, this codifying manipulation cannot purify the genuine picture of reality and protect the actors from emotions, largely not positive. The discourse analysis based on the Corpus of Contemporary American English depicts actors' obvious feelings of *fear*, *anger*, *depression*, *dissatisfaction*, *frustration* within the negative scenario. Both sub-scenarios are axiogenic triggers, hence, the concepts of the top hierarchical levels are not completely deactivated, despite the legalese framing. This can explain the winners of the doctrinal battle who interpret the contract law processes in terms of the whole hierarchy.

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METAPHOR “WALL” AS IDENTITY SYMBOL

One of the most quoted scientific books, “Metaphors we live by”, has indeed become Bible of cognitive sciences: George Lakoff and Mark Johnsen have explained that it is mostly metaphors that make up both our language and our conceptual thinking. Metaphors are one of the most powerful language means of the production of meaning and they also reveal the identity of the speaker. The proof of this statement is in the dynamic character of the concept “wall”.

Considering geopolitical situation of today it seems logical to choose the word “wall” the word of the year, just google and see what makes most of the headlines: *Europe is living proof that Donald Trump's wall idea wouldn't work* (Hiffington Post); *Brick and mortars: Walls are being raised across Europe to keep migrants out* (Independent), etc.

The word “wall” is used here both literally and metaphorically: wall is a material object built to protect, and it is also constructed in people's minds as a barrier, separating western world from Others: There's already an invisible wall between the U.S. and Mexico (The Intercept Newsletter). Separating the U.S. And Mexico the wall also constructs the identity: which side are you at: pro-wall or anti-wall? Supportive of other cultures or viewing them as the Other?

The notion of the word “wall” is controversial in many contexts: walls as material objects have been known for centuries as both means of protection, and separation: walls surround some structures to divide the land or to protect it? The answer to the questions reflects the speakers conceptual view of the world.

Metaphorization of the word has been a long process and originally walls were created to protect: Hadrian Wall (A.D. 122); Walls of Troy (13th Century B.C.); Walls of Troy, Turkey (13th Century B.C.); The Great Wall of China (7th Century B.C.).

Best known memorable walls are located in Jerusalem and Washington, D.C. The Western Wall, Israel (19th Century B.C.), constructed to make the Holy Temple the sacred place for Jewish people, gradually turn to the wall of memory and sorrows: the Wailing Wall. The other memorial wall, Vietnam Veterans Memorial Wall, both honors U.S. service members and reminds of the victims of the Vietnam War.

The metaphor of “Berlin Wall” has become the most powerful symbol of identity, to be more exact, the loss of identity: its construction started in 1961 not to let East Berliners escape to the west. It meant separation of the families, disintegration of the

German identity and marked the division of the country into two blocks – Democratic (i.e. Communist) and Federative (i.e. capitalist). This wall does not exist any longer as a material object, it was taken down at the time of “perestroika” (restructuring) in 1989. But mentally it did not cease to exist for many years after.

Nowadays, the metaphor “Berlin Wall” reminds of the mistakes of our past and also teaches us not to repeat them. Thus, metaphors both reflect our life, our attitude to the world and construct our conceptual world.

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INTEGRATIVE MODEL OF SENTENCE MEANING

At present in semantic studies of syntax sentence is considered as a sign model of a fragment of extralinguistic reality [1]. Still the problem of structural components of this model as well as of principles of its formation seems to be unsolved. If we follow from the bilateral nature of a sentence, i.e. regard it as a unit which on the one hand possesses a definite contents of extralinguistic character while on the other hand has a form meaningful in the system of language, we arrive to understanding that the basis of cognitive model of a sentence is created by two basic structures:

- 1) denotational field – a cognitive and conceptual representation of knowledge about a fragment of reality, a peculiar database containing information about basic components of the fragment of extralinguistic reality reflected by a sentence and including also information about all possible relations among these components.
- 2) significational structure – evolutionary heritage of human beings, designed for interpretation and generation of syntactic units. This structure presents a complex of linear arranged slots connected by means of logical semantic relations. The number of significational structures is strictly limited and defined by the character of relations between the predicate (the center of significational structure) and the slots connected to it. The number of slots in each structure is also fixed. It depends on the volume of short-term memory of a human being and is 7 ± 2 units.

The process of building the integral model of sentence meaning presupposes correlating of these two structures in one configuration by means of filling slots of a significational structure with components of a denotational field. This procedure is based on two mechanisms ultimately determining the final form of the integral model:

- choice of the focus of interest, i.e. the most important and communicatively significant for the speaker component of the denotational field and placing it into the second slot of the significational structure;
- choice of the center of empathy, i.e. the most structurally significant component of the denotational field and placing it in the first slot of the significational structure.

The choice of the focus of interest and the centre of empathy dictates further distribution of the elements of the denotational field in significational slots. Further arrangement is done in accordance with grammatical features and semantic rhythm of the language which is supposed to verbalize the sentence to be modeled [2].

As a result, the integral semantic model of a sentence contains both information of denotational character reflecting basic elements and connections of a certain fragment of extralinguistic reality and logical and cognitive data which are intrinsic attributes of human thought and presented in the integral model as its signification constituent. This model also incorporates communicatively biased information implied in the focus of speaker's interest which permits to "build in" the sentence in a wider context. It is the focus of speaker's interest that becomes the basis of creating of a model of a higher level, namely the deep semantic model of a text.

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SMELL OF LOVE: METAPHOR AND THE OLFACTORY IN ROMANTIC DISCOURSE

The present paper tackles the question of smell semantics and semiotics in the context of intimate communication of sexes. The authors analyze the linguistic representation of different characteristics of woman's and man's smell, identify specific features of single lexemes' use for the transmission of olfactory sensations.

The analysis shows that the main thematic area in describing of olfactory aspect in romantic discourse is the nomination of a physiological impact on a partner who senses the existential necessity of perceiving the smell of the beloved woman or man and desire for physical affinity. To verbalize this effect, metaphors are used which represent smells of sexes differently: women's smell acts as a peremptory aggressor, and the smell of a man is perceived as a tyrant, the enslaver who suppresses, paralyzes the woman's will.

An important means of describing female olfactoryness in romantic discourse is the so-called synesthesia or odor-emotional synesthesia that represents the smell as a life-sustaining food, as a thirst quencher or a veil enveloping the beloved person with an invisible cloud.

A special evaluation range of the beloved person's smell is represented by stereotyped comparisons with flowers and fruits, i.e. images, traditionally presented as sources of fascinating aroma.

In conclusion, the authors construct as an example a cognitive model of female smell that connects all the described linguistic facts into a single, logically connected scenario.

So, the smell of a woman is described as her invisible clothing or a veil covering her, it is light and almost inconspicuous. For the man in love it replaces the vital air, the man breathes the smell of his beloved woman and, in its absence, simply suffocates. A man in love enjoys the smell of the beloved woman, the smell of her hair and skin, which smell pleasantly like flowers and fruits, the "honest" natural fragrance causes positive emotions, is associated with intimate experiences.

The smell of a beloved woman is delicious and sweet, gentle and sensual, its assessment takes the entire positive scale from "good" to "divine".

In situations of passion for a woman, her smell is represented as an aggressor, it is irresistible, it is everywhere, it pursues, pervades the man in love, penetrates into his consciousness, owns his memories, destroys his moral foundations, manipulates his biological essence. The smell is perceived as a poisonous substance that stupefies, deafens, intoxicates, that cannot be resisted.

This olfactory cognitive model confirms the opinion of the smell genius P. Susskind that persuasiveness of the smell is an irrefutable, undeniable and stronger than words, than evidence, than feeling and will. In intimate communication, odors stretch like strings from the outside world, awaken various behavioral and physiological reactions, provide interaction between lovers and manage the complex process of their rapprochement. The romantic olfactory topic allows us to understand more deeply the surprising euphoric borderline state of consciousness, which we call love and to solve the paradoxical situation of being between the subjective emotionality and rationality of the collective language.

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THE REPRESENTATION OF VALUES IN THE DISCOURSE OF POLITICAL COMMENT

The features of political discourse include the prevalence of evaluation and emotionality over the facts, awareness and rationality, the predominance of manipulation of a high degree. The target of political discourse is to seize, convince, redistribute power, and form the recipient's certain attitude to a political action. Language as an instrument of influence, in which values are defined as fundamental characteristics of culture, being determined by the current ideology, is used directly or indirectly in order to form public opinion [Rastorgueva, Kashkin 2000: 45].

The main function of political comment, as a special genre of political communication, is to strike a balance between maintaining the stability of public opinion and providing the challenges of public resonance. Political discourse is personally, culturally and situationally determined by communicative practice [Karasik 2014: 146] and is divided into two main types: person-oriented and status-oriented [Karasik 2004: 193]. The discourse of political comment refers to the status-oriented type. Accordingly, assuming a certain status role, a political commentator, performs the function of an intermediary that not only transmits the essence of the political decisions made, but also provides an adaptation and subjective reasoned assessment that can become a position for the recipient.

The target of our linguistic research is to describe ways of representing values in the speeches of the American political commentators Glenn Beck, Michael Alan Weiner and Mark Levin. Currently, Glenn Beck is known for the Glenn Beck Program at the radio station Premiere Radio Networks. Michael Alan Weiner is the host of the national talk show *The Savage Nation*, recognized in 2009 as the second most monitored radio talk show in the US with an audience of over 20 million listeners at 400 stations. Mark Levin, who was formerly an employee of the presidential administration Ronald Reagan and chief of staff of the Attorney General Edwin Meese, is currently the radio host of the program and political commentator. The material for this study was the scripts of speeches and broadcasts collected during the period from October to November 2016, during the presidential election campaign in 2016, and also from January to March 2017 (during the reign of Donald Trump). In

order to identify national cultural values, we created three corpora corpuses with a total capacity of 139,153 words, which include seven full broadcasts and two performances. The main criterion for the selection was the pre-election and post-election topics. During the analysis of the corpora with the help of the corpus-managers of UCREL and Antconc, its semantic marking was done. Semantic tagging has shown the predominance of the following national and cultural values in the corpora: wellbeing, desire for change, individualism, patriotism, freedom и success. Further, the usage of the method of contextual analysis allowed to take into account not only direct indications of this or that value, but also indirect actualizations of values.

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THE CONCEPT OF PERSUASION IN A GROUP DISCUSSION: IS IT THE MATTER OF PERSPECTIVE-TAKING OR SOCIAL HEURISTICS?

In the process of communication, the issue of persuasion has been strongly associated with research on attitudes as well as attitude change. The idea of attitudes is possibly one of the earliest ideas social psychologists developed, and according to Allport (1954, cited in Stahlberg & Frey, 1997), it is the property of one of the most significant constructs in this discipline. Contrary to opinions about an object or topic, attitudes are not only considered by their cognitive and affective reactions to an object but also by their potential to elicit definite behavior. Therefore, from the cognitive point of view, attitudes have been viewed as significant causes of behavior, and ways to change certain attitudes has been the topic of an extensive amount of research. In this context, theories of persuasion have concentrated on the influence of persuasive (verbal) communication and messages on attitude change. Research in moral development as well as development of persuasive communication specifies that the effectiveness and the validity of persuasive arguments may be associated with perspective-taking ability and social heuristics that are omnipresent in the process of communication. Individuals showing higher perspective-taking ability can adjust their persuasive messages to the situational context and to the wants and desires of the recipient. At the same time, the limited rationality approach suggests that individuals can make adaptive decision with the aid of equally simple heuristics or decision algorithms that cognitive studies offer. It indicates that the performance of such simple decision heuristics frequently is related to the performance of more multifaceted decision algorithms. The aim of this paper is to qualitatively examine the processes by which groups of three adults come to a common group decision via discussion. The attention will be given to the arguments people with differing individual preferences employ to persuade each other and come to a common group decision. Moreover, it will be examined if there are some arguments that are effective in persuading others. The issue of the success of persuasive arguments will be discussed. First of all, the summary of persuasion from social psychology will be offered. Next, it will be argued that level of perspective taking and moral reasoning can be employed as a suitable criterion to judge the validity of a persuasive argument. Afterward, an alternative approach will be offered that reasons that the validity of a persuasive argument might be regulated by its social rationality that is shaped by social heuristics that are shaped by the cognitive processes. Succeeding this theoretical discussion, the current study will propose the results of the qualitative analysis.

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PARALLELS AND CONTRASTS BETWEEN THE ASD-SIMPLIFIED TECHNICAL ENGLISH DICTIONARY AND THE ONTOLOGY IN FUNGRAMKB

On the one hand, FunGramKB is a multipurpose knowledge base specifically designed for Natural Language Processing with modules for lexical, grammatical, and conceptual knowledge (Periñán & Arcas 2004, 2010a, 2010b, Periñán 2013). The conceptual knowledge in FunGramKB is composed of an Ontology, a Cognicon and an Onomasticon. The Ontology is the concept taxonomy where semantic knowledge is stored in meaning postulates (MPs), written in a conceptual representation language known as COREL (Periñán & Mairal, 2010). The concepts belong to three levels. The upper level is composed of 42 metaconcepts distributed in three subontologies (#ENTITY, #EVENT, #QUALITY). Basic concepts are at the middle level and are used as defining units to construct MPs. The third level includes the terminal concepts, which provide more specific knowledge and lack definitory potential. On the other hand, ASD-STE (Aero-Space and Defence Industries Association of Europe - Simplified Technical English) (ASD 2013) is a controlled language developed in the early Eighties to help the users of English language maintenance documentation understand what they read and avoid misunderstandings, especially for non-native speakers (Kuhn 2014). ASD-STE is based on English with restrictions expressed in about 60 Writing Rules (Part 1) and a Dictionary of Controlled Vocabulary (Part 2). The content of this dictionary includes, to a great extent, general language, despite its original purpose.

The Words in the ASD-STE Dictionary were chosen for their simplicity and ease of recognition. When there are several words in English for a certain thing or action (synonyms), this ASD-STE specification gives one of these synonyms to the exclusion of the others (whenever possible, “one word-one meaning”). However, the “excluded” synonyms are defined using the same definition as the chosen word. Consequently, we have observed that many of the selected words in this Dictionary of controlled language frequently play the same role as the basic (or terminal) concepts in this Ontology and, similarly, the lexical units (from FunGramKB English Lexicon) linked to the basic or terminal concepts in the FunGramKB Ontology could be, to some extent, compared with the excluded synonyms of chosen words in the ASD-STE specification.

In this paper, we intend to offer the results of comparing and matching basic and terminal concepts (and their corresponding lexical units) in FunGramKB with Words (and their corresponding synonyms) in the ASD-STE Dictionary and determine whether the way in which this controlled language has been designed draws similarities with the way in which this Ontology is built. To provide evidence based on authentic material, we have selected the list of unigrams extracted from *the Airbus Corpus*** (a collection of texts complying with the ASD-STE lexical and syntactic restrictions) and used it as a representative sample. Consequently, this process may prove relevant for a more solid extension of the current general-purpose module (Core Ontology) to domain-specific terminological modules (Satellite Ontologies) (Felices & Ureña 2012), taking into consideration that the ASD-STE specification was originally designed for technical and professional activities.

** The *Airbus Corpus* is made up of 2,480 files of aircraft maintenance instructions, courtesy of *Airbus Military* (Seville).

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MEANING-MAKING IN THE ACT OF LITERARY TRANSLATING: EXPERIENTIALITY IN INTERSUBJECTIVITY²

Following the programmatic call for humanization of Translation Studies (Pym 2009), the researchers working on literary translating, a discourse practice wherein the subjective nature of meaning construal is probably most visible, are currently shifting their foci from comparison of source and target texts and sociocultural systems to the enlanguaged cognitive activity of the “situated translator” (Halverson 2014), i.e. the cognizing social agent who makes the text meaningful and therein uses distributed meaning-making patterns shared by certain sociocultural groups and entrenched in source and target linguistic structures. Though the notion “situated translator” does enable accounting for the continuous interplay of bodily, social and cultural modes of meaning-making inherent in the act of literary translating, a system of sub-notions which would avoid the epistemological “trap” of eventual dissolving the individual in the social, typical of Translation Studies, is still missing from the field. The purport of the paper is to show the potential the interrelated notions of the living/lived body (Thompson 2005; Froese & Di Paolo 2011; Kyselo 2014; Cuffari et al. 2015), phenomenal experience (Zlatev 2016), intersubjectivity (Zlatev et al. 2008; Verhagen 2007; Violi 2009) and perspectivation (Talmy 2000; Langacker 2008; Verhagen 2007; Graumann & Kallmeyer 2002) offer in this respect.

In the first part of the paper a cognitive act of literary translating will be modelled as a text-mediated interactive act of joint meaning-making of the translator at least with the author and the potential target reader, intersubjective by its origin and on the translator’s side entailing carefully self-monitored perspective-taking and meta-representation. By its procedural nature, however, that act remains deeply experiential as it entails imaginative “simulation” (cf. Zwaan 2003; Bergen 2012; Caracciolo 2014) of the non-existent (fictional) world, which the translator first quasi-perceptually makes sense of and then “verbally interprets” (Boldyrev 2013) by means of the target text, both processes being driven by the translator’s unique “living/lived knowledge hypertext” (Zalevskaya 2014) and similarly unique living/lived perspective, pre-reflective by its operational nature (cf. Thompson 2005). Consequently, the meaning construed by the translator in the act of joint meaning-making and verbalized in the target text even in case of the utmost altero-centrism on the translator’s side *is* to be placed on the continuum of the inter-*subjective*, with the

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emphasis on the root of the notion. That poses a true challenge for the translator whose social function is to mediate the interactive encounter of the author and the target reader (communicating parties proper) by pre-coordinating (by means of the target text) their “joint attunement” (Tomasello 2003) to the *same* aspects of the fictional world from spatiotemporal and sociocultural perspectives *similar* to those cued by the source text. Considering this, in the second part of the paper practicability of approaching that task from the perspective of Cognitive Linguistics will be illustrated by comparative study of several Russian translations of short stories by F.S. Fitzgerald. Data from Russian and British National Corpora will be used to account for the intersubjective, i.e. socially and/or culturally specific meaning-making patterns mediating translating.

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CONSTRUCTING MEANING REPRESENTATION FOR CLINICAL AND COMPUTATIONAL PURPOSES

The primary aim of this presentation is to explore the linguistic, analytical and computational tools developed within the framework of our latest research into the area of neurolinguistics and, more specifically neuroscience. In this regard, I identify language impairment as the common core of research in the following domains:

- a) Neurodegenerative diseases, e.g. Alzheimer and Parkinson, where mild cognitive impairment is one of the most notorious manifestations (Rábano, 2015; Pérez Cabello de Alba, in press);
- b) Oncological brain tumor resection in eloquent areas of the brain, e.g. Brocca's area (Barcia et. al., 2012; Rivero-Rivero et. al. 2016), where the linguistic faculty is lost;
- c) Detection and early prevention of psychiatric disorders (depression, schizophrenia etc.) through language processing.

Based on our previous research in the area of theoretical linguistics (e.g. the work on the Lexical Constructional Model, Ruiz de Mendoza and Mairal, 2008; Ruiz de Mendoza and Galera, 2014, etc.) and on the framework of computational linguistics (see the FUNK Lab project in www.fungramkb.com), I raise a series of research questions which constitute the first step towards a more ambitious research program in Neuroscience with a focus on building computational tools which can repair some of the linguistic deficits and impairments in the brain. In so doing, we pursue to enhance the patients' life quality and early diagnose the first manifestations of some of these diseases.

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THE THEORY OF CONCEPTUAL INTEGRATION BY THE EXAMPLE OF THE «FUND FAMILY» METAPHOR

The article describes the main thesis of G. Fauconnier and M. Turner's theory of conceptual integration and the mental spaces theory it is based on.

Modern linguistics accepts the postulate about anthropocentrism of language as one of the main methodological aims of linguistic investigations. It proceeds from recognizing the central role of a human being in the formation of a meaning and a choice of linguistic means for its transference and the representation of our knowledge of language.

The theory of conceptual metaphor developed by G. Fauconnier and M. Turner, the representatives of the American school of cognitive linguistics, is one of the most interesting and perspective researches in the field of a metaphor. This theory, known also as a theory of blending, has been widely used in linguistics and has provided new opportunities for the investigation of a metaphor.

According to the theory of conceptual integration by G. Fauconnier and M. Turner, as a result of the interaction between two input spaces a cross-space mapping occurs and leads to a generic space and a blended space. The cross-space mapping unites similar elements and counterparts, existing in both input spaces into a generic space. Further, having been filled with new background knowledge, these elements form a blended space [Fauconnier 1997: 168].

The cognitive activity of people (cognition) is aimed at investigation of the world around us and formation of the ability to orient ourselves in this world on the basis of the knowledge obtained, that is inevitably connected with the classification activity, namely the necessity to identify and compare objects and events.

The processes of conceptualization take a central place in this classification, where a concept is a term that explains the units of mental and psychical resources of our conscious and the informational structure that reflects the knowledge and experience of a person [Kubryakova 1997: 89].

Comparing the semantic concepts by the human intelligence leads to appearance of a metaphor. On the one hand, a metaphor assumes the existence of some similarities of its semantic referents. On the other hand, it implies their differences, because the aim of a metaphor is to create a new meaning. Being a cognitive phenomenon, a metaphor influences people's way of thinking. A conceptual metaphor plays an important role

in conceptualization of the world, bringing into correlation difficult mental observations with more simple and specific ones.

A metaphor meets a person's abilities to catch and create similarities among very different individuals and classes of objects. It is vital for both practical and theoretical thinking. [Арутюнова 1999: 380].

The theory of conceptual metaphor by G. Fauconnier and M. Turner has provided some opportunities for a more thorough investigation of the theory of metaphor. The article provides the analysis of the "fund family" metaphor formation as a result of conceptual integration.

The metaphor «fund family» (family of funds) is formed on the basis of a metaphorical projection of the prototypes from the input mental spaces into a generic space. After that a generic space, supplemented by the background knowledges and logical conclusions, forms a new conceptual structure «fund family».

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SEO-TEXTS AS A TYPE OF CONTEXTUAL ADVERTIZING: COMMUNICATIVE, PRAGMATIC AND LINGUISTIC ASPECTS

Despite the fact that numerous works are devoted to the advertising discourse, all the genres of this type of discourse have not received detailed descriptions in the linguistic literature. The advertising discourse is a multidimensional formation characterized by the significant genre diversity so its investigation and conceptualization are quite challenging.

The main difficulties of the description of genre organization of advertising are motivated, according to L. A. Kochetova, by several factors: the dimension of the advertising discourse that uses different messaging channels, which leads to the semiotic complexity of the genre and its permanent transformations, modifications, etc.; the difficulty of identification of the genres of advertising discourse, arising from the continuous development and differentiation of the genre system, which results in a diffusion of genres and innovations in the genre of advertising [Kochetova 2013, 267].

One of the relatively new and little studied genre of advertising media discourse is the so-called SEO-text. Search engine optimization (SEO) is a complex of means to influence the position of the links on the website in the result of the search process. SEO-texts are placed mostly on the home page, in the section "About the company", in the form of information articles in special sections of sites, in the form of news, a text for a catalogue, a price list.

The main feature of SEO-texts is that unlike the vast majority of advertising texts which are focused on the human perception, they are targeted at one more so-called technogenic addressee, namely, search engines (Google, Yandex, Bing, etc.). The task of SEO-copywriter is to create a text, which will not only be adequately perceived by a human addressee and will have a certain impact on them, but also will bring the website to the highest position of search results when the user enters a certain search query.

High website ranking in search results eventually leads to higher sales of a company, which owns a site. It is achieved by introducing the key words nominating the advertising objects in the texts located on a site (the words that fully or partially match the search request of the site-user).

We hypothesized that such type of texts as the SEO-optimized text has a number of significant differences from the "prototypical" advertising text. In order to reveal

these differences we have created two corpora of texts collected from the main pages of the websites of various trading companies that operate in a highly competitive fields such as cosmetics, real estate, fashion etc., and from the texts of the web versions of popular periodicals such as Cosmopolitan. The focus of the analysis of quantitative data was on the lexical variation in each corpus compared to the historically formed prototype of the advertising text.

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HOW WE CODE AND DECODE DISCOURSES: 8D CONTENT MODELLING FOR COLLECTING A ROBUST KNOWLEDGE BASE FOR UNDERSTANDING NATURAL COMMUNICATION

In 1993, the causal genetic approach (CGA) to discourse content modeling introduced an 8-D functional content matrix [1]. It came together with introducing the category *Sign's Subject* (sign-represented communicant) to Methodology of Science: to the set of methodologically relevant categories: *Reality*, *Subject*, *Science*, *Science's goals*, *Sign's Reality*, and, consequently, *Sign's Subject* [2].

With a functional value of *Sign's Subject* tested and verified with implementing CGA's methods of reconstructing communicants and communicants' corteges out of discourses [3,4,5,6], linguistic methodological knowledge enriched with the existence of two types of pragmatic meaning. Being a linguistic branch and dealing with language in use and its contexts, pragmatics confronts necessity of absorbing two type of contents at once: the one attached to *Sign's Reality* and the one attached to *Sign's Subject*. Otherwise, there are two tools of coding and decoding in *natural communication* accepted as a holistic *organon* (like the *organon* of hearing, seeing, etc). This content producing and acquiring organon is the pragmatics of interaction (subject-bias / *Subject-Subject* pragmatics) and the pragmatics of information (object-bias / *Subject-Object* pragmatics): together they are just one, e.g. the pragmatics of communication.

Sign's Subject element, added to previously three-fold semiotic model of meaning, makes a crucial change to how we perceive communication in functioning (if we are ready for this). What is crucial is the acceptance, *first*, of a 4-fold *semiosis* of sign as a linguistic unit (be it a micro or macro one) and, *second*, an 8-fold *semiosis* keeping in mind its multiplication tendency of development. The process of multiplication, rooted in colliding such causes of content production as *factors* (space relevant) and *facta* (time relevant), split cognizing meaning into referential and format-based, syntagmatic meaning into speech and language patterns-based, paradigmatic meaning into language fields' and genres' based ones.

Multiplied content elements (8D content dimensions) are doomed to reestablish different types of relationship forming functional dichotomist cluster groups, such as *Knowledge (4D) & Attitude (4D)*, *Subject (4D) & Object (4D)*, and *Sense (4D) & Essence (4D)* ones. Each cluster has the same set of content elements (syntagmatic, paradigmatic, cognitive and pragmatic). Each of these elements is responsible for keeping the contents' structure loose (flexible) and hard (holistic) at the same time.

They manage it because they are of a different nature: they shape communication as a matrix intertwined within linear, systemic, structural, and hierarchy types of relationship. Each matrix parameter has its own function in producing the whole, making discourses organized and in motion. Compare it with four models of current civilization development: as if together and as if by themselves [7].

My presentation of the CGA content modeling steps will go from general to particular and, then, back revealing content *semiosis* and *genesis* [8] and thus discourse type of thinking in action. Theoretical modeling presentation is planned to be enriched by illustrations and examples from actual communication and research projects to prove the relevance of each step and its usefulness in an applied research dealing with different types of discourse, the discourse of lingodroids included.

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ON CUMULATION: A COGNITIVE PERSPECTIVE FOR GRAMMATICAL STRUCTURES

The talk touches upon cumulation as one of the linguistic-and-cognitive tools that provide ground for understanding and interpreting the way extra-linguistic activities are reflected in surface language structures. Generally, cumulation is seen as a result of processing a variety of information that is then structured by language means. It is argued that discussion of cumulation in a cognitive perspective makes it possible to explain the nature of semantic compatibility in complex nominative structures.

To illustrate, attributive noun phrases with multiple pre-posed modifiers in series are selected (e. g. *two deep clear eyes*). The syntactic unit mentioned ranks among debatable in both teaching English and describing it theoretically. Research into its morphologic and semantic properties is neither wholesome nor uniform. It results in a set of rules that reference grammars fix in semantic terms, differing both in the quantity and quality of possible elements, but offers no explanation as to why those rules apply.

Thus, it remains unexposed what relations and principles determine the surface representation of an attributive structure – the arrangement of modifiers subordinated to the noun head-word and their rigid irreversible linear order. Application of well-recognized traditional and more modern methods of grammatical analysis hardly brings about any convincing result.

We aim to prove that man's cognitive ontological mechanisms, working to assure that the grammar system of language is highly balanced, make cumulation a means for collecting data on objective reality and fully depend on sensory and motor development of a person. It follows then, that a pre-posed attributive phrase:

- 1) must be interpreted as a unit of complex nomination conveying a cumulated meaning not fully reduced to the meanings of the components though based on them;
- 2) reflects in the surface distribution of its modifiers the order in which the qualities and properties of the object in question are perceived.

The aspects of perception will eventually be described through dichotomous oppositions, as the qualities attributed may be seen as temporary or permanent, changeable or constant, alienated or non-alienated, foregrounded or backgrounded, etc. The full list of such oppositions is yet to be confirmed.

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SEMANTIC MEMORY LOSS IN MILD COGNITIVE IMPAIRMENT AND ALZHEIMER'S DISEASE: A LINGUISTIC APPROACH

In neurodegenerative disorders, semantic memory loss is one of the first clinical symptoms that contribute to the diagnosis of a neurological condition. Within those disorders, Mild Cognitive Impairment (MCI) constitutes the onset of a process which will degenerate into more severe Alzheimer's disease over time.

In this work, we want to explore if there is any pattern in the loss of semantic memory in patients with MCI and Alzheimer's disease. For that purpose we utilise a corpus of oral definitions (Peraita & Grasso, 2010) of a sample of semantic categories of both living beings (dog, pine-tree and apple) and non-living beings (chair, car and trousers). With the help of the ontology in FunGramKB (Periñán & Arcas 2004, 2005, 2006, 2007, 2010), we will map the categories and features distinguished in the corpus so that we can identify the information missing in the semantic chain corresponding to the categories under study.

We believe that NLP tools can enrich semantic memory loss studies and will enhance the model of semantic memory organization such as the one used by Grasso, Díaz & Peraita, (2011). We also believe that the detection of a more fine-grained pattern of semantic memory loss would contribute to an early diagnosis of MCI.

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A LEXICON-BASED APPROACH TO SOCIAL SENSORS FOR PROBLEM DETECTION

The use of social sensors for the development of emergency response systems has become a relevant research topic over the last decade. Social sensors operate in a manner comparable to electronic sensors: micro-bloggers are the sensors, since they collect the information that is important to communicate, whereas the actual micro-blogging service (e.g. Twitter or Facebook) is the transceiver, since it enables the dissemination of the information. Therefore, micro-texts from social media can be very valuable for the real-time detection of the concern that affects people. In this lecture, we address the development of a system that exploits Twitter users as social sensors for the detection of environmentally-related problems (e.g. floods, landslides or pollution, among many others). The lecture primarily focuses on the external knowledge resources that were required, the processing of tweets, the discovery of relevant features and the detection of the problem as a two-fold task: topic categorization and sentiment analysis. In this regard, two main approaches can be distinguished: a machine learning approach, which is usually implemented through a supervised method, and a symbolic approach, which is based on lexicons. A supervised machine-learning method (e.g. KNN, Naïve Bayes or SVM) requires a training dataset, that is, a collection of text data that have been manually annotated as positive or negative with respect to the target event (i.e. the problem). This training dataset should be carefully tagged as well as sufficiently large and representative. This requirement conflicts with the development of a system like ours, which was intended to classify new tweets on the ground of dynamically created categories of environmentally-related problems. The effort to expand a given training dataset to fit new categories makes applicability to new domains a non-trivial task. For this reason, the solution was aimed at dealing with problem detection from an unsupervised lexicon-based approach. The evaluation of this research demonstrated that our symbolic approach provides better results than a supervised classification method.

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OFFENSIVE ANIMAL METAPHORS AND SIMILES IN PUBLIC TEXTUAL CYBERBULLYING

Cyberbullying is one of the most prevalent issues related to online safety of young people (O'Neill and Dihn, 2015). Because of its ability to transcend temporal and physical constraints, cyberbullying is pervasive, and it can have a serious impact on the emotional and psychological wellbeing of its victims. In addition, because cyberbullying interaction no longer entails the physical presence of victims and bullies as in the case of traditional bullying, it typically relies on language to target the victims. Thus, understanding the language used in cyberbullying is a necessary step towards designing an effective and efficient detection system.

In this vein, we first formulate a definition of what constitutes public textual cyberbullying, specifying the necessary and sufficient elements that are required to label a given instance as cyberbullying. We define public textual cyberbullying in terms of three dimensions: (1) the personal marker/pointer, (2) the dysphemistic element, and (3) the direct link between the previous two elements, by means of which the dysphemistic element is linked to/targets a certain person or a group of people that is denoted by personal marker/pointer. We then analyse the most common forms of offensive conceptual metaphoric instances that we have found in our dataset³—those that map from the conceptual domain of ANIMAL to the conceptual domain of PEOPLE.

From a grammatical perspective, we follow Sullivan's analysis of metaphor (2007) and describe the cyberbullying metaphoric instances in terms of six primitive metaphoric constructions: domain constructions, predicating modifier constructions, compounds, predicate-argument constructions, prepositions phrase constructions and copular constructions. We approach simile constructions in a similar manner, since, according to Sullivan (2007), they can also be viewed as conceptual mappings.

From a cyberbullying perspective, we discuss offensive metaphoric constructions in terms of the necessary and sufficient elements of our definition, and describe a set of rules to detect such cyberbullying forms. We developed the detection rules by

³Our dataset originates from Ask.fm

extracting the relevant grammatical and cyberbullying information that is encoded in the cyberbullying lexical database. In addition, we used the bidirectional Stanford Dependency Parser (de Marneffe & Manning, 2008) to obtain the grammatical dependencies among sentential components. Finally, we experimentally test these rules on two datasets – a development set and a novel test set – to obtain a measure of their ability to capture animal metaphoric forms of cyberbullying. The results show that the performance of our rules matches the human performance on both sets, indicating a high degree of efficiency and generalisation.

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SYNCRETIC MEANING OF ADJECTIVES IN ENGLISH AND EVENKI LANGUAGES

The close connection of adjectives with nouns is beyond doubt and was repeatedly noted in studies devoted to various languages. It has already been said in our previous studies about the prerequisites for the emergence of attributive meanings in nouns, more precisely, in those primary syncretic forms that, by the nature of their semantics, could simultaneously have an object and characterise it on some basis. In modern, secondary, syncretism, this principle is preserved, although not necessarily in the same lexico-semantic groups of words that differed in this quality during the formation of the category of adjective. It is also clear that the number of these groups has expanded over time quantitatively - in the number of such forms, and qualitatively - syncretic character began to acquire derived words.

At the same time, modern adjectives have a number of specific features that are peculiar to adjectives and allow them to be singled out as an independent grammatical category. Undoubtedly, all these features arose gradually in the process of language development and this historical sequence can be tried to reveal, relying on the analysis of the current state of the language.

At the first stage the semantic of the syncretic word, which presupposed the designation, or the name of the object by its quality and, at the same time, the name of the quality itself, could be the main and only feature. Moreover, in the primary syncretic word, these two sides were so closely connected that the separation of these two meanings is practically impossible. Some idea of these forms is given by modern syncretism, and provided the consideration of such secondary forms is isolated, outside the text. At the second stage of adjectives formation, it is necessary to separate the attributive meaning from the syncretic form in some external, objective way, which shows what in this particular usage attributive function acquires the leading meaning. This was the order of words, in which the defining word was placed before the determined word, which became the external sign of its attribution. The fixation of a certain constant position in the phrase contributed to reveal the attributive meaning of the syncretic form, opened the possibility of a semantic evolution of this meaning, since the position of the second component of the phrase could occupy different words that nominated different objects, which led to the appearance of new shades of the meaning of the attributive word and actualization of its potential opportunities. And this, in turn, gave it the opportunity to serve as a definition for an even broader range of objects.

The third stage of development of adjectives is associated with the emergence of suffixation, which served as the final design of this category of words in an independent grammatical category. This process was lengthy, also divided into stages, which can only be identified conditionally, and closely related to the development of suffixation in the names of nouns.

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THE ROLE OF COGNITIVE METAPHOR AND METONYMY IN MEANING CONSTRUCTION IN AERONAUTICAL LANGUAGE AND THOUGHT

This paper, framed in the study of scientific and technical language, shows the results of a qualitative and quantitative analysis of the Aeronautical discourse based on the cognitive theory of metaphor and metonymy (Lakoff and Johnson 1982, 1999; Lakoff 1987; Barcelona 2002, Radden, 2002). Adopting this approach, metaphor comprises a cognitive process in which concepts are mapped from a conceptual domain into a different domain, while in metonymy the source domain provides an access to the target domain. This study is carried out on the assumption that both cognitive mechanisms, as constituent parts of Aeronautics, play an important role in meaning construction within its language and conceptual system, and help to reveal how inferences are made (Panther 2005). They provide evidence as to how scientists and technicians perceive, comprehend, and structure the world around them. The metaphors and metonymies discussed relate to a larger analysis of metaphorical and metonymic terms in science and technology included in the terminological database METACITEC⁴. Scientific and technical terms from the Aeronautical field with clear metaphorical word-building were selected and analysed; then, the most relevant technical and sub-technical terms included in this language were searched by means of the “Wordsmith” programme with the purpose of exploring their potential to generate new related metaphors and metonyms; the terms found were classified into metaphorical and metonymic expressions and image metaphors. Then, metaphorical and metonymic expressions were categorized into groups according to the conceptual metaphors and metonymies they manifest, establishing the semantic networks found and the grammatical relationship among the elements the complex lexical units exhibited. Finally, this work explored correlated meaning implications and the reasons why these mapping, and not others, were established (Ruíz de Mendoza, 2014). Results showed that the three common states of matter, solid, liquid, and gas, provide their terms to the metaphors THE AIR IS THE EARTH, THE AIR IS THE SEA, and A GAS IS A LIQUID. The latter, which contributes to create the

⁴Financial support for this research has been provided by the Regional Community of Madrid and by the UPM. METACITEC I: CCG06-UPM/HUM-0559 “Creación de una Base de Datos de Metáforas Científico-Técnicas (Bilingüe Español-Inglés). METACITEC II: CCG10-UPM/HUM-5771 “Desarrollo y actualización en español y en inglés de las bases de datos dinámicas de metáforas conceptuales hacia el lenguaje de la ingeniería, la arquitectura y de la actividad física y deporte”.

conceptual system of Fluid Mechanics, is based on the analogy provided by the physical experience that if surface effects are not present, flow behaves similarly in all common fluids, whether gases or liquids. Terms like “turbulence”, “cascade concept”, “near wall turbulence” or “shear stress” attribute properties of solids and liquids to gases, resulting in a kinetic metaphorical combination of these three states of matter in the physical world. These results contribute to explaining why these mappings and not others were established in Aeronautics, and shed light on the role of metaphor and metonymy in constructing new meaning within this field.

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PARSING PHRASAL CONSTITUENTS IN ASD-STE100 WITH ARTEMIS

ARTEMIS (“Automatically Representing Text Meaning via an Interlingua-Based System”) is a NLU prototype designed to obtain the syntactic and semantic representation of linguistic structures; to achieve such a goal it has been implemented as a parsing device within the multiple lexico-conceptual knowledge base FunGramKB. ARTEMIS consists of three submodules: while the CLS Constructor and the COREL Scheme Builder are in charge of providing the semantic structures underlying a language fragment, the Grammar Development Environment (GDE) is responsible for establishing the morphosyntactic makeup of sentences from a functional standpoint along the lines of Role and Reference Grammar and the Lexico-Constructional Model. Since it is designed as a NLU device, the first step in the processing of linguistic structures would logically involve the activation of the GDE (first syntax, then semantics).

Even though there are already some contributions along this line (Cortés-Rodríguez and Mairal 2016, Cortés-Rodríguez 2016ab; Martín Díaz 2017, Díaz Galán and Fumero Pérez 2016, Fumero Pérez and Díaz Galán 2017), mainly directed to developing the basic rules for the analysis of phrasal units and some simple clauses in English, ARTEMIS is still a prototype pending to be fully developed. However, before proceeding to the analysis of more complex structures, it is necessary to validate such rules. To carry out this task, using as a target language a Controlled Natural Language (CNL), as is ASD-STE100, is a sensible option given its syntactically and semantically simplified structure and restricted vocabulary.

The adaptation of the GDE components to the requirements of such a CNL would benefit not only ARTEMIS, offering it a validating platform, but also the users of ASD-STE100, who will obtain a parser adapted to their needs.

Following the lines established in Fumero Pérez (this conference), our presentation concentrates on the steps that must be taken in such an adaptation process for the analysis of units at phrase level in ASD-STE100. In this process, the most radical variation will result in the need to account for the complex and fully productive word-formation processes that are described in the Specification document for ASDSTE100 (January 2017), together with other changes affecting the inflectional possibilities of nominal, adjectival, and adverbial units.

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MODELING NATURAL LANGUAGE ON PHYSICAL CONCEPTS

The system of language comprises elements, the constituents of which are, from the times of Aristotle, intuitively revealed, but not settled into formal logical structures, responsible for production and organization of the language system elements. An organic entirety of such structures is a formal logical model of the system (or systematization) of language units, because any lexical and syntactical phenomenon could and should be construed within the framework of the model. A formal logical model, systemizing the units of language, embraces all its levels (layers) and represents the units of language in corresponding images. Thus, we do not speak about a verb or a noun as about a prevalent phenomenon, but we find them in images of different levels, for example in dictionary or language. In this regards it is important to put question about the dimensionality of one or the other language unit, what will give a mathematical accuracy to the model. In fact, it comes about the elaboration of a formal logical model, which takes into account the dimensionality of the objects to be modeled, what is not new for modeling in general, but is of a indisputable scientific novelty in relation to the natural language. In the system of natural language one traditionally distinguishes its levels [1], but there has been made no trying to define the dimensionalities of the objects, residing on these levels.

We suppose to develop a formal logical model for the systematization of natural language units in a kind of stereo metrical scale, allowing associating linguistic objects with point, interval, square, cube etc. The actuality of our investigation is, correspondingly, in our following the information paradigm, dominating in modern society, besides the model being developed comprises more information, relevant to the language, than all other models. Moreover, our model is not restricted by applying only mathematical categories; we intend to explain the obtained results from the physical point of view, searching for correspondences of linguistic laws to physical ones. Even in case our conclusion will have a metaphysical character, we will be able to defend them with the strictness of formal logics, what will make them valuable for being applied in computer linguistics in the field of building algorithms of the processes, occurring in the natural language.

The goal of this paper is to shed light on the physical basement of natural languages, which is just an assumption in trying to understand why words exist and are organized. The natural language is considered to be positioned on two well-known physical levels – Newtonian and Quantum mechanics. The formation of word (a portion of sound, having a portion of meaning) is thought to happen on the quantum

level, while the arrangement of words and word complexes is believed to take place on the classical mechanical level. The notion of semifinitive is introduced and developed to cover the categories of time, space, mass and energy as the categories, constituting the most parts of a language, which have concern to verbal and substantive units.

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BUILDING AN INTEGRATED MODEL OF METAPHORICAL REASONING

Metaphor, has long been known to serve as a cognitive mechanism of human reasoning, and is used by language speakers mostly unconsciously. It affects the ways people think about complex phenomena of the reality, which ultimately results in forming particular conventions, values, beliefs and ideologies. Despite certain cross-linguistic similarities in the set of primary metaphors underlying metaphorization processes, there are considerable differences at the level of inferences and entailments (Lakoff 2008) found in various languages. This fact makes metaphor a particularly exciting and promising topic for interdisciplinary studies and calls for the necessity to build an integrated model of metaphorical reasoning from cross-linguistic perspective reflecting areas of both overlaps and differences in conceptualizations of complex abstract entities.

Taking into account the major tenets of various theories of metaphor that have been proposed (Contemporary Theory of Metaphor, Lakoff 1993; the Conceptual Mapping Model, Ahrens et al. 2003; the Structure Mapping Model, Wolff and Gentner 2000), and the Attribute Categorization Hypothesis, McGlone 1996), collections of metaphors have been assembled and published for use by researchers. Some of those are: The Master Metaphor List (MML) (Lakoff, 1994), grouping linguistic metaphors together according to their conceptual mapping; the Hamburg Metaphor Database (HMD) (Eilts and Lönneker 2002) for French and German fuses, EuroWordNet synsets with the MML source and target domains for a robust source of metaphoric semantics in those languages. In recent years, the computational linguistics community has been involved in the detection of figurative language (Bogdanova 2010; Li and Sporleder 2010, Peters and Wilks 2003, Shutova 2011) one aspect of which is the identification of metaphoric expressions in text (Fass 1991, Mason 2004). More recent work has examined noun-verb clustering (Shutova et al. 2010) which starts from a small seed set of one word metaphors and results in clusters that represent source and target concepts connected via a metaphoric relation. These clusters are then used to annotate the metaphoricity of text. However, the approaches mentioned above seem to overlook some important aspects of analyzing metaphor at different levels of its functioning.

The complex integrated approach to the study of metaphor proposed in the current research is an attempt to combine some of the methods mentioned above, taking into consideration the intricate system of relations between metaphors (primary and complex), and build a semantic media-Wiki cross-linguistic repository . The resulting model does not merely present the list of metaphors found in the languages under

consideration (initially Russian and English, with prospects of expanding the range of languages) but is the ontology of metaphor families with all the inherent relations arising among image schemas, frames, cross-domain mappings. Relations among metaphors are automatically graphically presented. Within the proposed model the (semi)automatic extraction of linguistic metaphors from texts is also envisaged, based on the templates that have been previously manually entered. Since the Russian language is still missing repositories such as FrameNet and MetaNet, creating such a repository will lay the foundations for further application of the obtained data in future studies.

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INSIDE VENTRICLE SYSTEM IMMUNE CELL NETWORKS FOR THE MECHANISM OF MEANING: B-LYMPHOCYTES FLOATING IN CEREBROSPINAL FLUID (CSF) NETWORK WITH GLIAL CELLS IN NEOCORTEX (A HYPOTHESIS)

Pavlov (1927) supposed a synaptic connection established between sensory and motor areas in neocortex as meaning mechanism for signs, although he had observed but didn't recognize the counter evidences as "Differential Inhibition" and "Mutual Induction".

The author looked for other brain mechanisms and hypothesized intraventricular system immune cell networks for linguistic processing. According to Jerne (1974), "immune system, when viewed as a functional network dominated by a mainly suppressive Eigen-behavior, but open to stimuli from the outside, bears a striking resemblance to the nervous system. Both systems display dichotomies and dualisms. The cells of both systems can receive as well as transmit signals. In both systems the signals can be either excitatory or inhibitory." Dichotomy divides the world into two, A or not-A, and executes pattern recognition. Dualism formulates a logic which integrate two signals and produces an output. "The nervous system is a network of neurons in which the axon and the dendrites of one nerve cell form synaptic connections with sets of other nerve cells. In the human body there are about 10^{12} lymphocytes as compared to 10^{10} nerve cells. Lymphocytes are thus a hundred times more numerous than nerve cells. They do not need connections by fibres in order to form a network. As lymphocytes can move about freely, they can interact either by direct encounters or through the antibody molecules they release. The network resides in the ability of these elements to recognize as well as to be recognized." Jerne (1984) indicated that B-lymphocytes fulfill all the necessary functions required to behave as conceptual devices. They are mobile ad-hoc networking neurons.

Phonetic linguistic stimuli can be received by CSF-contacting neurons (CSF-CN, (Vigh 2004)) at brainstem reticular formation, and then transferred to B-lymphocytes floating in CSF (cerebrospinal fluid), which function as conceptual devices. The concepts network with glial cells at neocortex containing sensory memories for "daily concepts" as well as with other conceptual devices in CSF for logical or "scientific concepts" (Vygotsky 1935).

The meaning of a daily concept develops in accordance with individual experiences connected to a particular word stimulus. As conceptualization itself is a generalization, we can share generalized memories by using daily concepts. However, to be precise, the meaning of a daily concept varies and differs by time,

place, accumulation of personal experiences, etc. It is not easy to define or to establish a unified definition for daily concepts.

The meaning of a logical concept is obtained through thought operations. Dualistic thought operations of AND and OR yield “logical concepts” of ‘Relationship’ and ‘Class’, respectively. I.e. “offspring AND boy” = “son”, “son AND son” = “grandson”, concepts of relationship. “Lemon OR Orange” = “Citrus”, a concept of class. Through arbitrary and fractal dualistic integrations, any complex scientific concepts can be constructed. As all logical concepts go through logical operations, it is easy to have clear and transparent definitions. The rule is that, without definition, we should not use logical concepts.

Intra Ventricular System Immune Network Requirement Analysis for Language and Intelligence exploiting the logic of dichotomy (antigen-antibody responses)





<i>Memory Type</i>	<i>Active/Passive</i>	<i>Ag / Ab Structure</i>	<i>Location</i>	<i>Biology</i>	<i>Mobility</i>
Sensed Stimuli	Passive (to Activate)	Epitope 	Brainstem Reti-cular Formation	CSF-Contacting Neuros	Fixed
Word Memory	Passive/Active	Paratope  /Idiotope 	Floating in CSF/VS	Mobile Neuron (B-lymphocyte)	Mobile
Sensory Memory	Passive	Epitope 	Temporal Lobe (Neocortex)	Microglia	Fixed

Table 1 Network Requirement Analysis for Language inside Ventricle System

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FUNCTIONAL WORDS: REPRESENTING A DIFFERENT TYPE OF KNOWLEDGE⁵

The distinction between content words and functional words is well-established in many linguistic frameworks. These grammatical categories are recognized to be essential and universally available for most natural languages, to prove their significance for a language system. It is evident that languages differ in the inventory on contents words but seem to be rather limited in functional categories. The question arises what exactly the category of function words is, and what the conceptual groundings are to categorize different-type language units as functional ones.

Traditionally functional words are considered to be grammaticalized which is largely described in terms of “semantic weakening”, “semantic bleaching”, “desemanticization”, “generalization of semantic content” and so on (see Guimier 1985; Heine, Claudi, & Hünnemeyer 1991; Heine 1993; Lord 1976, and other works). We agree that their meaning is more abstract (more grammatical), and sheds any reference to particular entities, properties, or situations in reality, and they are needed as “semantic glue” holding together the meanings of content morphemes (von Stechow 1995). However we do not consider grammaticalized words to be meaningless and claim that they yield a new, more complex functional meaning. It is the anthropocentric perspective which allows studying functional meanings in the context of representing a different type of knowledge and knowledge interpretation of the world. We give up with the idea that a functional word serves as a means of conceptualization of the world as it is structurally organized, and as it is perceived and interpreted in language as well (see Boldyrev, Tolmacheva 2014). We focus on how a functional language unit signals grammatical meaning in terms of representing various types of knowledge. The process of grammaticalization is viewed as a rearrangement of meaning, not a change of meaning.

The cognitive approach is understood to be a valuable tool for studying functional word meaning representation considering its cognitive bases. The paper studies the cognitive grounding of linguistic auxiliaryity and examines the factors of secondary interpretation of linguistic units being used as functional words.

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DESIGNING AND DEVELOPING A WORD SENSE DISAMBIGUATION MODEL FOR NATURAL LANGUAGE PROCESSING

The following proposal presents a work in progress on the design and development of a Word Sense Disambiguation (WSD) model for Natural Language Processing (NLP). In general terms, lexical ambiguity refers to the phenomenon of association between a lexical item in a text or discourse and a meaning that can be differentiated from other meanings potentially attributable to that lexical item. In the particular scope of PLN, WSD is defined as the ability of a machine to identify the meaning of a lexical item in certain contexts based on computational procedures. According to the above, any work on disambiguation needs to involve the process of matching the linguistic context of appearance of the word, either with information from an external source of knowledge, or with information about the previously disambiguated cases of the word, derived from a corpus. The focus is to determine the most accurate coincidence between a linguistic context and the information sources needed to assign a sense to each co-occurrence.

Two main approaches for WSD have been developed so far. On one hand, the research in the field of computational linguistics between 1990 and 2010 attempted to solve the WSD problem predominantly with corpus-based approaches (Ide and Véronis, 1998; Hong, 2015). These specific perspectives have resulted in adaptive systems based on syntactic content, that seek differences between the senses of units that are lexically ambiguous. These types of methods pretend to find all possible meanings for a specific word. On the other hand, the symbolic methods try to establish a computational algorithm for knowledge representation. According to Cantos-Gómez (1996), the process of lexical disambiguation from these methods is typically based on models for linguistic analysis that have been adapted for PLN tasks. Also, these methods have been shown effectiveness on a reduced scale in comparison to the wide of statistical methods.

The aim of this proposal is to design a formal representation for a computational procedure to be able to solve the WSD process in a PLN tool based on the integration of statistical and symbolic methods from an interlingual and knowledge-based approach. After this, we will propose a model of WSD that will be applicable in the prototype for information extraction ARTEMIS⁶ (Periñán-Pascual and Arcas Túnez,

⁶ Automatically Representing Text Meaning via an Interlingua-based System.

2014), within the knowledge base FunGramKB⁷ (Periñán-Pascual and Arcas Túnez, 2004; Periñán-Pascual and Mairal-Usón, 2009), in the linguistic framework of Role and Reference Grammar⁸ (Van Valin and La Polla, 1997; González-Vergara, 2006).

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⁷ Functional Grammar Knowledge Base (for further information about the FGKB project, visit www.fungramkb.com).

⁸ RRG is a linguistic model that assumes a functional-structural approach to explain language, in consideration of its syntactic, cognitive and pragmatic aspects. This framework holds a computational adequacy that has been applied on FunGramKB architecture (for an overview, visit <http://linguistics.buffalo.edu/people/faculty/vanvalin/rrg.html>).

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FRAME OF CONFLICTING SOCIAL RELATIONS AND MANIPULATION OF PUBLIC OPINION IN POLITICAL MEDIA DISCOURSE

By the frame of conflicting social relations we mean a cognitive model representing a stereotypical conflict situation; by social relations – institutionalized relations between large groups of people (political parties, social classes, nations, countries).

The frame of conflicting relations is actualized at both the sentence and text levels. At the sentence level it is objectified by verbs denoting social relations (*oppose, confront, protest, fight, struggle, revolt, rebel*), *word combinations (wage war)*. A social relations verb interprets various elementary physical actions united by a common purpose as a hyper event. This common purpose is the basis of the notion nominated by the verb.

The frame of conflicting relations consists of four subframes which model different types of conflict interaction: ‘opposition’, ‘protest’, ‘armed clash’, and ‘competition’. The frame is profiled as one of these subframes.

The frame includes obligatory and terminal components. Obligatory components that are always fixed consist of Subject, Object, Specification of the action, and Predicate; terminal (optional) components are Time, Place, Goal, and Manner.

At the text level the frame becomes the cognitive model of a text and can be regarded as a generalized model of its referential situation. The verb of social relations in this case represents the macropredicate of this model, the components of the frame become macroactants of the text: Agent, Counteragent, Temporative, Locative. The frame actualized at the text level contains not only static but also dynamic characteristics of the social situation – scenario which is included into the frame of conflicting relations as its terminal component. The scenario of the frame consists of several scenes – prerequisites of the conflict, its beginning, the conflict interaction itself, the end of the conflict, its consequences.

Predicates representing the scenes of conflict interaction proper (*kill, shoot, injure, wound, destroy, break windows, burn tires, shout slogans*) specify the macropredicate of the frame of social relations (a cognitive model of a text), i.e. they are predicates of the frame ‘social actions’. Thus, the conceptual sphere of conflicting social relations is closely connected through the component ‘specification of the action’ with the conceptual sphere of conflicting social actions.

The frame of conflicting relations is typical of political media discourse. Its verbalization has some peculiarities depending on the type of text, e.g. in brief news items the frame scenario is not actualized.

The frame can be verbalized by different lexical means which gives the possibility to manipulate public opinion. Agent (an aggressor) and Counteragent (a victim) of one and the same frame being objectified in surface structure may change their roles, e.g. *anti-government protesters, rebels, separatists* in some Media become *bandits, armed gangs, and terrorists* in others.

Changing a frame that reflects the situation objectively into one that distorts the recipient's mental picture of the world serves as a manipulation technique too, e.g. the frame '*anti-terrorist operation*' verbalized instead of the frame '*civil war*'.

The violation of the temporal order of scenario scenes also makes the manipulation of public opinion possible.