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FunGramKB

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LECTURE: **Linguistic Linked Data**

Dr Asunción Gómez-Pérez, a world-wide known expert on the field of Ontologies, Semantic Web and Linked Data, holds a PhD in Computer Science. She is Full Professor at Universidad Politécnica de Madrid, director of the Artificial Intelligence Department (2008, -) and director of the Ontology Engineering Group (1996, -). Before joining the UPM, she made a postdoc (1994-1995) in the Knowledge Systems Laboratory at Stanford University, where she started to work in the area of ontologies. After that, she returned to Spain and created the Ontology Engineering Group. In fact, she is the person that introduced the ontology research in Spain. According to Chambers, Mijojevic and Ding (2014), she is right now one of the three most-influential woman researchers in the semantic Web community worldwide. In 2015, she received the Aritmel National Award for Researchers in Computer Science and the National Ada Byron Award for Women in IT in Spain, and the UPM honored her with the Research Award. She has published more than 300 papers, and her research contributions are highly visible. For example, her book on ontology engineering has almost 2,500 citations, so it has become a reference in this field, being used in many courses worldwide. She led the development of the two best-known methodologies for building ontologies, i.e. Methontology and NeOn, which are widely used by ontologists in academia and industry. She coordinated 5 European projects and participated in more than 24 European projects. She also has a long record of collaboration with companies. Since 2011, she has represented the University in the World Wide Web Consortium (W3C).

Méndez Rodríguez, Eva (Universidad Carlos III de Madrid, Spain)
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LECTURE: **From KOS to LOV: Knowledge Organization Systems and Linked Open Vocabularies at the crossroad of scientific domains**

Dr Eva Méndez Rodriguez holds a PhD in Library and Information Sciences and she is an expert in metadata. She defines herself in her Twitter profile as an open knowledge militant (@evamen). She has been a lecturer at Universidad Carlos III de Madrid since 1997 and Tenured Professor since 2008. She has also taught and carried out research at other universities and institutions. She has been an active member of several international research teams on various standards for the Web. She is member of the US Academy Louis Round Wilson-Knowledge Trust and the Advisory Committee of the DCMI (Dublin Core Metadata Initiative). During the 2005-06 she was awarded a Fulbright Research Scholarship, as part of the European Union postdoc programme, at the Metadata Research Center at Chapel Hill University North Carolina (USA). She has taken part in and led several research projects and acted as advisor to many more in the fields related with standardization, metadata, semantic web, open data, digital repositories and libraries, in addition to information policies for development in several countries. Since 2006 she has been participating as an independent EC expert on the assessment and monitoring of various projects for a number of programmes in different fields such as Digital Libraries and Open Science. From 2009 to 2012 she was Director of the University Master's degree in Digital Libraries and Information Services. She is one of the original signatories of The Hague Declaration on Knowledge Discovery in the Digital Age. In 2015 she won the Young Researcher of Excellence award of her University, and from May this year she is Deputy

Vice President for Strategy and Digital Education of the Universidad Carlos III de Madrid (Spain).

Pérez Cabello de Alba, Beatriz (Universidad Nacional de Educación a Distancia, Spain)
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LECTURE: **How can NLP contribute to the study of semantic memory loss in patients with Alzheimer disease?**

Dr Beatriz Pérez Cabello de Alba is an Associate Professor of English Language and Linguistics at the UNED in Madrid (Spanish National University for Distance Education), where she teaches Linguistics, English for Specific Purposes (ESP) and Translation (legal, scientific-technical and economic-commercial English). She also teaches several courses in the UNED European Masters of English Applied Linguistics. Her research interests cover lexicology, lexicography, ontological semantics and natural language processing. She has collaborated in several competitive research projects funded by the Spanish Science and Research Ministry. She is currently implementing a subontology within FunGramKB. She has been a visiting scholar at the Universities of Amsterdam and Verona. She has also been a visiting professor at Chulalongkorn University in Bangkok, an associate professor at Kingston University and an assistant professor at the London School of Economics and Political Science.

Periñán-Pascual, Carlos (Universitat Politècnica de València, Spain)
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LECTURE: **A workbench for practical text mining and analytics**

Dr Carlos Periñán-Pascual studied English Language and Literature at Universitat de València and received his Ph.D. degree in English Philology at UNED in Madrid. Since his doctoral dissertation on the resolution of word-sense disambiguation in machine translation, his main research interests have included knowledge engineering, natural language understanding and computational linguistics. As a result, he has been the director and founder of the 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.

ABSTRACTS (in alphabetical order)

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The equipollence hypothesis and literary analysis: a view of the principles of cognitive modeling in Nabokov's poetry

Within the framework of the Lexical Constructional Model. Ruiz de Mendoza and Galera (2014) have provided the broadest-ranging account of cognitive modeling to date. In this account, the authors, in application of what they term the *equipollence hypothesis*, give ample evidence that essentially the same principles of communication and cognition hold across levels and domains of linguistic enquiry (see also Ruiz de Mendoza 2013). The reason for the explanatory efficacy of this research methodology, i.e. looking for evidence of phenomena attested in one domain, is to be found in the quasi-universalistic nature of the cognitive grounding of the activity of cognitive operations on cognitive models. This grounding is part of a comprehensive philosophical framework, based on empirical research, known as embodied realism (cf. Lakoff and Johnson 1999). The present paper will take the application of the equipollence hypothesis one step further into the field of literary analysis, with a special focus on the thematic structure of poems. It will do so by examining the pervasive influence on two samples of Nabokov's poetry of a well-known cognitive model, the DIVIDED SELF metaphor, popularized in Cognitive Linguistics by seminal research carried out by Lakoff (1996). The DIVIDED SELF metaphorical system consists of seeing the human being as an ensemble of the experiencing consciousness, called the *Subject*, and its bodily and emotional aspects, called the *Self*. We use this idea in everyday expressions such as *I made myself go to class*, *I'm not myself today*. This metaphor is complex and pervasive in our culture. We will argue that this metaphor can even help to structure a literary piece thematically, thus becoming a motif. We will give evidence of this assertion in connection to two poems by Nabokov, entitled *Hotel Room* (1919) and *The Execution* (1927). In the case of these poems, we will contend that there are textual clues that lead to a plausible correlation between elements of Nabokov's biography, literary motifs in the poems under scrutiny, and the DIVIDED SELF metaphor. More specifically, we will argue that the expression of the Subject is related to Nabokov's days of the twenties and thirties in the emigrant life provided by the Berlin and Paris refugee centers whilst the Self is related to Nabokov's past days in Russia and his longing for his native land. Finally, we will also explain how Nabokov's use of the DIVIDED SELF metaphor structures thematically both poems. The implication of this analysis for the Lexical Constructional Model is that the same cognitive models that apply in lexical and constructional analysis may hold for the thematic organization of literary pieces. This proposal is also consonant with previous work in the field of Cognitive Poetics (Freeman 2006).

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Metaphorical amalgams in grammar: a pedagogical implementation

Some scholars (cf. Dirven 2001; De Knop and De Rycker 2008) have suggested that the cognitive-linguistic emphasis on meaning as constraining form may cast light on pedagogical implementation. One area where this approach has not taken shape yet is the study of conceptual complexes based on high-level metaphor, as exemplified by *He beat John into silence* versus *He beat silence into John*. The former builds the state-location correlation into a "mother" metaphor whereby actions with an effect are seen in terms of caused motion. The latter sees the object of an effectual action in terms of two complementary source concepts: the destination of motion and the new possessor of an object (Ruiz de Mendoza & Galera 2014). In this presentation we put forward a sample of teaching activities based on a "user friendly" account of such patterns and their related usage constraints.

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Meaning in Mind within the Sociocultural Commitment of Cognitive Linguistics

Cognitive linguistics as a highly interdisciplinary approach to the study of language and mind has, particularly recently, recognized the necessity to "integrate the cognitive and social perspectives into a single theoretical framework" (Dabrowska, Divjak 2015, p.6).

In the talk, we argue that a fundamental theoretical framework on language cannot be fully integrated without the sociocultural perspective as a commitment providing an account of language, language use, and discourse construction that are entirely dependent on the speaker(s) and their knowledge of the world that, in turn, is deeply grounded in cultural and social patterns of behavior acquired my man as a member of a group. This Commitment we claim to be Sociocultural for it is based on the assumption that linguistic abilities and language use being deeply rooted in our general cognitive abilities are socio- and culture-specific and represent our knowledge-dependent interpretation of the world we live in as members of micro- (society) and macro- (culture) groups. The Sociocultural Commitment of Cognitive Linguistics is revealed through Context Dimensions that fully demonstrate how meaning is created by speakers of different cultural backgrounds within their contexts of knowledge that predetermine their language use and discourse construction. We examine *static vs. dynamic dimension* of context, as well as *collective vs. individual dimension* alongside the *metaconceptual dimension* of contexts of knowledge to suggest that they underlie the Sociocultural Commitment of Cognitive Linguistics, thus presenting the results of the research project that has been carried out in the framework of Tambov School for Cognitive Linguistics in Russia.

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ARTEMIS: state of the art

ARTEMIS (Automatically Representing Text Meaning via an Interlingua–based System) is a parsing device based on a sound linguistic model, Role and Reference Grammar (RRG), whose function is to bind natural language fragments with their corresponding grammatical and semantic structure. It complements, in this way, the Functional Grammar Knowledge Base (FunGramKB) (Periñán-Pascual and Arcas Túnez 2010).

At its present state of development, ARTEMIS is primarily concerned with the processes involved in Natural Language Understanding; in other words, it seeks to obtain the appropriate syntactic and semantic underlying representations of any piece of natural language. In order to fulfill this goal, ARTEMIS must resort to the information that is stored in the following components:

(i) The syntactic information from the GDE in ARTEMIS
(ii) The grammatical and semantic information that appears encoded in the lexical entries of lexica in FunGramKB
(iii) The grammatical and semantic information related to the Constructions in the Grammaticons of the knowledge base.

While the CLS Constructor and the COREL-Scheme Builder, within ARTEMIS, are in charge of deriving the surface and deep semantic representations of sentences, the GDE includes the grammatical rules necessary for the morphosyntactic parsing of natural language expressions. However, this set of grammatical rules is still underdeveloped, since in the seminal works where ARTEMIS is described (Periñán-Pascual 2013, and Periñán-Pascual and Arcas Túnez 2014) the rules proposed are not fully consistent with the functional approach that supports RRG´s grammatical analyses.

This workshop offers a state of the art description of ARTEMIS, focusing on the process of rule designing for the effective computational parsing of simple clauses and phrasal constituents following the format of the Layered Structure of the Clause in RRG.

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Meaning construction in Spanish classroom settings: Idealized Cognitive Models

If language is only the tip of a huge cognitive iceberg, and when we participate in any language activity, we pull unconsciously on innumerable models, frames, mappings, construal, mental spaces and so forth (Facounnier, 1994) then we might say that teachers' language in use is only the tip of a vast cognitive iceberg of the educative field. It is well known that the Spanish educative system after seven law reforms in just 35 years requires serious reflection, not to mention the PISA report (OCDE, 2004; 2012).

We understand teachers to be an essential variable in the educative equation and will pay special attention to their language use online. We will focus on the role of metaphor and metonymy in meaning construction and grammar in classroom settings, and how does it affect to the necessary conditions required for learning to take place. We have selected relevant teachers' expressions from the corpus gathered in real learning institutions to study the Conceptual Metaphors found in their enactive discourse. We have used the Conceptual Metaphor Theory of Lakoff & Johnson (1980) as well as Ruiz de Mendoza & Otal Campo's findings on metonymy (2002).

The wonder of language among other phenomena invites us to the discovery of meaning and self. In the present study we propose the discovery of our educative self, but keeping in mind it is situated in a Spanish context, embodied in a series of public teachers, distributed among professional peers and dependent on *habitus* (Bourdieu, 1994) because language is a social activity (Bernárdez, 2004). Expressions studied such as "deliver the class" revealed a substantial amount of information related to the meaning and self-construction of our educative identity. The research showed that Reddy's (1979/1993) conduit metaphor still plays an important role at structuring teacher's meaning construction in classroom settings due to some extend to the enculturation process as reflected in the reification of the term "class" for instance. Such structuring principle does not reflect the complexity of the teaching/learning context, but an atomistic and mechanic view of it.

Key Words: Cognitive linguistics, Conceptual Metaphor, Teachers.

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The process of building a taxonomic hierarchy for an aircraft ontology to be integrated in FunGramKB

In previous research, we applied a stepwise methodology for the construction of domain-specific ontologies compatible with FunGramKB (Periñán & Arcas 2010, 2014) and, as a consequence, we designed the *Globalcrimeterm* subontology (Felices & Ureña 2012, 2014; Carrión & Felices 2014; Felices 2015; Alameda & Felices 2016) following three phases: corpus collection, terminological work (automatic extraction and manual filtering) and conceptual modeling tasks (conceptualisation, hierarchisation and subsumption). However, the high occurrence of terminological banalisation as well as the social nature of this criminal law subdomain highlighted the limitations for building a consistent domain-specific ontology (Felices 2016). To overcome this problem and other common NLP difficulties (polysemy and ambiguity) which have hindered the construction of the aforementioned subontology, we intend to explore two different solutions: (i) to develop a new domain ontology based on a more technical discipline which may eventually give support to aircraft maintenance management systems ; (ii) to operate with a well-known English-based controlled language, ASD Simplified Technical English (ASD-STE) (Wojcik, Holmback & Hoard 1998; Møller & Christoffersen 2006; Kuhn 2014), and make it compatible with the Core Ontology and the corresponding English lexicon in FunGramKB. Taking into consideration the complexity of both tasks, in this paper we intend to take the first step towards the modeling of an aircraft ontology, which is based on the development of its taxonomic hierarchy.

For reaching this purpose, we explore the *state-of-the-art* of aeronautical ontology-building (domain, task or application ontologies) (Reiss, Moal et al. 2006; Zhou Yang et al. 2012; Ast, Glas & Roehm 2013; Yuchang Wu, Ebrahimipour &Yacout 2014) and the languages used, particularly the Web Ontology Language (OWL). In general, we follow the principle that ontologies consist of concepts and roles and the concepts are organized in a hierarchical structure formed by IS-A relations between these concepts. Consequently, the hierarchy starts with the whole system (i.e., an aircraft) and follows traditional decomposition of the system down to the elementary components (top-down approach). At the same time, the organisation of the core conceptual structure of the aircraft ontology is being carried out by seeking expert advice and by consulting specialised sources such as technical handbooks, specialised dictionaries and glossaries (bottom-up approach).

In the same vein, we have been able to collect a corpus of approximately 3,000 files of aircraft maintenance instructions, courtesy of *AirbusMilitary.* For the exploration of this corpus and the identification and extraction of term candidates (i.e. unigrams, bigrams and trigrams) we use the new complementary FunGramKB tool for NLP: DEXTER, an online multilingual workbench especially designed for the discovery and extraction of terms (Periñán 2015; Periñán & Mestre 2015).

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Coercion as conceptual integration: Evidence from the family of subjective-transitive constructions in English

This paper argues that coercion, far from being resolvable in terms of metaphoric and metonymic extension alone (Ziegeler 2007, 2010), is of pivotal importance to account for the semantico-pragmatic and discourse-functional properties of the family of the English subjective-transitive construction, understood as a web of interrelated form-function pairings (Gonzálvez-García 2009, 2011), as in (1)(a)-(d) below.

(1) a. '*You think him* ***guilty****?'*. (BNC H8A 2441) (evaluative subjective-transitive construction)
b. *They called me* ***a Frankenstein*** (…). (BNC CH0 1835) (declarative subjective-transitive construction)
c. (…) *We want him* ***back*** (…). (BNC KRL 1263) (causative-volitive subjective-transitive construction)
d. *I like my women* ***big and round and female***. (BNC BMR 271) (generic subjective-transitive construction)

More specifically, the cursory bottom-up, data-driven analysis on which this talk draws shows that the kinds of type-shifts allowable in the family of the subjective-transitive construction in English requires us to posit a variety of lower-level (verb-class or verb-specific) constructions. These lower-level configurations are shown to accommodate instances of coercion via a reflexive construction (2a), coercion in interaction with the imperative construction (2b), and coercion in interaction with a past tense construction and a locative XPCOMP (2c):

(2) a. *And he listened to you and* ***knew himself*** *soothed*. (WebCorp). http://www.thepoem.co.uk/limelight/crucefix.html
b. **Call** me a sinner, **call** me a saint, **call** me your favourite, **call** me the worst. (WebCorp). http://www.lyricsmode.com/lyrics/s/shinedown/call_me.html
c. I **had** you **on campus** today.

Thus, it is proposed that coercion should be understood in terms of a continuum specifying degrees of cognitive entrenchment and associated linguistic conventionalization (cf. Langacker 2009, *inter alios*) rather than as an all-or-none property leading to a full matching or, by contrast, a semantic conflict between specific lexical items and constructions. Thus, what actually needs to be refined is the notion of the (degree of) semantic (in-)compatibility between lexical items and construction meaning, a question still far from being resolved in the Construction Grammar literature. Crucially, this presentation shows that the Lexical Constructional Model (LCM henceforth) takes explanatory adequacy a bit further and

provides a finer-nuanced version of the degree of compatibility between lexical semantics and constructional semantics than the Override Principle can at present furnish in the different flavours of Construction Grammar (see Butler & Gonzálvez-García 2014 for further discussion). At a higher level of granularity, it is argued that the Override Principle qualifies as a specific case of the general principle of conceptual integration whereby higher-level conceptual patterns incorporate lower-level ones (see further Ruiz de Mendoza 1997, Ruiz de Mendoza & Díez Velasco 2002, Ruiz de Mendoza & Galera Masegosa 2014). By viewing the configurations in (1)(a)-(d) above as being licensed by the high-level metaphor A (GOAL-ORIENTED) MENTAL ACTIVITY IS AN (OBJECT-ORIENTED) EVALUATIVE STATE, the LCM affords a maximally explanatory account of lexical-constructional integration. This metaphor accounts for the double nature of the syntactic object as semantic object of the main predication and as the goal of the mental activity designated by the secondary predication. Such an account is by and large compatible with the premises of cognitively-oriented versions of Construction Grammar, while avoiding the formalization problems of Sign-Based Construction Grammar (Michaelis 2011).

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A preliminary classification of complementary-alternation constructions at discourse level in English

In recent years, researchers have investigated a variety of approaches to the study of discourse, most of which have focused on the use of discourse markers that trigger discourse relations such as contrast, addition, concession, etc. (e.g. Schiffrin, 1987; Blakemore, 2002; Fraser, 2005; 2010). Among these, the complementary-alternation relation has received very little attention, an exception being the well-known discussion of the *X Let Alone Y* construction by Fillmore, Kay and O'Connor (1988).

Another case in point is Mairal and Ruiz de Mendoza's (2009) paper on meaning construction, which approaches the complementary alternation meaning relation from a constructionist perspective for the first time at discourse level. The authors study this discourse relation in comparison to other semantic extension relations such as meaning addition (*She is an excellent mother and a good neighbour too*) and meaning exception (*He believes there is no genius other than himself*). In their paper, the authors explain that complementary alternation constructions present two alternates that are not exclusive of each other (e.g. *No one insulted him nor did physical harm to him*). However, this view of the complementary alternation relation is in need of a more complete treatment that takes into account the ins and outs of each case of complementary alternation. Such study will allow us to offer a classification of complementary alternation constructions at discourse level in terms of their intrinsic meaning potential. The present paper deals with the problem of meaning differences among constructions in this category by making use of Langacker's (1987) notions of *meaning base, profile* and *active zone.* These notions are useful for the classification of discourse constructions in general. The paper will thus offer a list of all the complementary-alternation constructions that arise from the analysis of data extracted from computerized corpora such as the BNC, COCA and WebCorp. Finally, it will offer a preliminary classification of complementary alternation constructions in English, following the previously mentioned Langackerian notions.

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Metaphor as a device for understanding cognitive concepts

The paper addresses the metaphor as a cognitive-semantic device which is able to reveal intuitive mechanisms of thinking process, thus filling the blanks in the fund of logically objective human knowledge and opening the possibility to describe abstract concepts of human mind in terms.

The perception of metaphor has changed significantly since the end of the 20th century. Metaphor is no longer considered to be a purely literary trope; the boundaries of its usage have shifted greatly. G. Lakoff and M. Johnson (Lakoff, Johnson 1980) were the pioneers in ascribing completely new characteristics to metaphor and changing its overall perception. G. Lakoff (Lakoff 1993) provides a new vision of metaphor coming through a complicated path from the source domain to the target domain. We understand the metaphorization widely as “development of image schemas”, which are meant as cognitive images being nearly identical with the primary meaning of the word.

The paper substantiates the principal possibility of conceptual modeling of metaphorization process and describes its baseline algorithm, identifies “not single”, but complex metaphors and establishes the cognitive-semantic features of their functioning. The main conclusion of reasoning is confirming of the hypothesis that different image schemas have different strength of heuristic potential, which determines the fullness of metaphorical descriptions of concepts.

We believe that different semantic spheres with specific set of features offer in each individual case their own special arsenal for developing of image schemes, which vary in level of meaningfulness. Further we state that each sphere has a specific inherent heuristic (structural, dynamic, qualitative) potential and possibilities of forecasting the metaphoric choice among conceptual metaphors and of discovering in this way their new, unusual sides.

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The exploitation of mental concepts in constructing intercultural manipulative messages: a case study of Polish and English

Generating intercultural communicative competence seems to be a multifaceted process as it involves the need to save one ‘s own identity in the face of change while concurrently validating the identity of the other that seems to be difficult. Cultural anthropologists and sociologists have formerly worked to recognize culture dimensions that can be widespread to the members of a given group based on that group’s attitudes, beliefs, and behaviors (Hofstede 1986). The main objective of this paper is to discuss the aspect that culture can be perceived as a dynamic process; one that is formed by interaction across cultures, politics, economics as well as social change (Samovar, Porter and McDaniel 2007: 16) by exploiting various mental (cognitive) concepts while shaping discourse. As a consequence of this, it is significant to not only comprehend the theoretical foundation of cultural identification, but also the practical operation of culture in life. Of great importance seems to be the aspects that are recognized to posit difficulties in carrying messages from one culture to another. Secondly, the the notions of schemata, frames, scenarios and cultural scripts are outlined. Frame analysis has been often used by scholars to examine discourses as well as the capability to comprehend people’s perception of the world. Scholars from a range of disciplines exploit the terms ‘frames’. ‘scenario’, ‘schemata’ as well as ‘cultural scripts’ interchangeably to illustrate a range of incompatible concepts concerning one’s subconscious understanding of the world. The aim of this part is to study a range of ideas regarding the issue of the aforementioned found in the writings of authors, for instance Erving Goffman, Teun van Dijk, George Lakoff, Minsky, Goffman, David Snow, and others. This part suggests the theoretical situations for describing these mental structures as structures of discourse which people exploit to make sense of the information that is faced. The attention is given to several discourses one encounters in everyday. The attention is given to the examination of various kind of discourse that can be deceptive in its nature, for instance, complimenting as well as political discourse in both Polish and English to show how the above-mentioned concepts are used. Basically, this part argues that different kinds of discourses can be a subtle (or, perhaps, not so subtle) way of manipulation with people who are socially and culturally determined. The paper basically suggests that understanding deception appears to be a matter of restructuring deceivers’ communicative purposes and goals from their discourses. The question of a universal generalized structure of deception scenarios vs their propositional particulars is emphasized.

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Automatic domain-specific learning: Enriching a conceptual taxonomy of aeronautical servicing

The onset of the 21st century is witnessing the increasing importance of the big data as well as the recent advances in the techniques that allow mining these data for machine learning. A major challenge continues to be the implementation of algorithms to extract meaningful patterns and knowledge from big data in order to support humans in their decision making processes. Ontology learning, i.e. the induction of conceptual hierarchies from text, plays a major part in how knowledge can be obtained. This paper discusses the main steps involved in the process of ontological enrichment of a taxonomy of aeronautical maintenance built from a corpus of 2000 text documents. Enrichment is defined here as the process of allocating new concepts in a specific node of an existing conceptual taxonomy. The process includes four main steps. Firstly, the domain-specific corpus, which is written in ASD-Simplified Technical English, is chunked using regular expressions in order to obtain context windows for later processing; secondly, word-by-word matrices are produced showing co-occurrence patterns among words in the chunks; thirdly, functional and common-vocabulary stoplists are applied; and fourthly, a Normalised Pointwise Mutual Information (NPMI) metric is applied to infer the superordinate and/or sister concepts of the candidate concepts.

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Metaphorization in the process of nomination of lexical units within the framework of concept "blood relations"

This article is a cognitive linguistic study of the various ways in which conceptual metaphor and relative cognitive processes are exploited for creative purposes in the concept of "blood relations" and accompanying images. The focus is on the elaboration of conventional metaphors and their use as a creative basis, rather than on their mere identification. The textual content forms the starting point and significant attention is paid to the interplay between text and image.

The attempt to explain the new through the known and to integrate, to structure the picture of the world with the help of generalization in the process of conceptualization of the real world is implemented through the language.

It compares the main features of a new thing with the features that are already known and identifies their similarities, together with its corresponding concept metaphorical transfer of the name.Polysemantic words as *mother, father, sister etc.* in their first meanings, which are included in the group "blood relations", are vivid examples of this transfer of the names.

So, lexical-semantic variant of *mother – a female who has given birth to offspring (the female that gave birth to the offspring)* (CED) includes representations of the functions performed by such an individual, and its properties. On the basis of generalization of substantive features of these lexical-semantic variants all other meanings are formed, reflecting the maternal qualities and functions:

- a female substituting in the function of a mother – woman serving in the role of a mother (surrogate mother);
- motherly qualities, such as maternal affection –maternal qualities as maternal love: it appealed to the mother in her;
- a female or thing that creates, nurtures, protects, etc something is female or object that produces, nourishes, protects something.

Here is a generalization of the features characterizing a referent, and, on the basis of this phenomenon, there is an extension of the meanings.

Generalized functional traits serve as the basis for the transfer of the name when referring to the mother prioress of the monastery – a title given to certain members of female religious orders: mother superior – that is, in the sphere of professional relations.The transfer of maternal functional properties such as care, feeding, protection, is not manifested in this meaning, it can only be assumed.But when the words from the concept "blood relations" transfer to the group of "professional relationships" the conceptual feature of association takes first place, clearly shown in the new meaning: member (association). Mother superior – the head of a community of nuns, the one who provides, supports this unity. Thus in this case the process of re-categorization takes place. The study of concept "blood relations" based on its conceptual content contributes to a more profound and complete study defining ways of reflecting in the specified language by the human categorization of the world.

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Implicational constructions in the Lexical Constructional Model: a case study

Constructions, defined as stable form-meaning or function pairings following Goldberg (1995, 2000), may operate at four levels: argument structure, inferential, implicational, and discursive levels. Much attention has been paid to argument structure constructions to the detriment of constructions at other levels. This proposal contributes to filling this gap by offering a fine-grained analysis of hyperbolic constructions, which are implicational in nature, from the point of view of the Lexical Constructional Model, as devised by Ruiz de Mendoza and Mairal (2008). These patterns result from cognitive entrenchment and associated linguistic conventionalization of inference-based meaning. Moreover, hyperbolic constructions are self-standing and consist of fixed and variable elements. The former are idiomatic or non-compositional elements and the latter are constrained by the entrenched meaning implications derived from the fixed elements. These meaning implications are subjective or emotional inasmuch as they arise from the speaker's perspective. From a cognitive point of view, they result from the mapping of a hardly conceivable scenario to a factual one. For instance, in the hyperbolic construction *God's (honest) truth* (e.g. *I'm sorry if such criticism offends you, but it's simply God's honest truth*) the source domain has God's (honest) truth, which is regarded as absolute truth, impossible to be held by humans. The target domain has the speaker's truth, which should be taken as seriously as if it were God's absolute truth. Our account is very much in line with Ruiz de Mendoza and Galera's (2014) emphasis on the cognitive processes involved in the production and interpretation of hyperbole. Hyperbolic constructions bring about an adjustment activity whereby the speaker's disproportionate increase of a magnitude is made compatible through mitigation with real-world proportions. On the basis of examples of hyperbolic constructions like 'God-related' ones (e.g. *God's (honest) truth, Gospel truth, As God is my witness, God/Goodness/Heaven/Christ knows*, etc.) taken from *COCA* and *Google*, we also provide evidence in support of Ruiz de Mendoza's (2014: 190) hypothesis that hyperbole is to be aligned with metaphor in the sense that an increased magnitude is used to construct an imaginary mental scenario whose structure and logic is used to understand a real-world state of affairs.

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A lexical database for cyberbullying detection

Cyberbullying has recently become one of the most prevalent issues associated with online safety of young people, particularly on social networks. Previous work on technical approaches to cyberbullying detection has been driven by two paradigms: the social network analysis paradigm which focuses on modelling interactions among users of a social network (Honjo *et al*, 2011), and the classification paradigm (Yin *et al*, 2009) which employs supervised, unsupervised and semi-supervised machine learning techniques. However, their contribution is limited by several factors: the ability of social network users to hide their true identity and to provide false information; the limited set of linguistic parameters, such as predefined lists of profanities, bad words foul terms, bullying terms, pejoratives and obscenities, or vulgarities; and the fact that the majority of previous approaches targeted the detection of offensive, hurtful, profane and violent language rather than cyberbullying.

To address these limitations, we first provide an operational definition of textual cyberbullying that is linguistically motivated. The definition brings together the linguistic elements that constitute the necessary and sufficient parameters in order to qualify an instance as cyberbullying. Specifically, our definition accounts for the conceptual underpinnings of cyberbullying – intention of harm, repetition, power imbalance between victim and bully, and the medium of the Internet (Hinduja and Patchin, 2009) – by specifying three essential elements: (1) victim personal markers/pointers, (2) dysphemistic language, and (3) the link between 1 and 2 which provides the means by which dysphemistic language targets a certain person or group of people that is denoted by personal marker/pointer.

Consequently, we propose a simple, but efficient, cyberbullying lexical database that is enriched with grammatical and semantic information, mainly cyberbullying specific information. Morphologically, the cyberbullying lexical database organisation follows the lemma-based model, since it greatly reduces the level of redundancy (Trost, 2003), while, syntactically, the cyberbullying database is organised around grammatical categories, such as nouns, verbs, adjectives and adverbs, each category having specific information that is relevant to cyberbullying detection.

The overall architecture of the cyberbullying lexical database is determined semantically for the construction and deconstruction of meaning in the cyberbullying context. The lexical entries are grouped into networks of synonyms, each group of synonyms representing a unique sense or concept which is encapsulated into the lexical entry. Such organisation is very similar to that of WordNet lexical database (Miller, 1995) and it was designed in this manner so that the cyberbullying database can be extended using the WordNet database to extract synonymous terms based on grammatical category and semantic sense.

However, in order to facilitate cyberbullying detection, the lexical entry also encapsulates cyberbullying specific information provided by the definition of textual cyberbullying. Specifically, we further organise the lexical entries according to their respective functions

defined by the first two dimensions of the cyberbullying definition: personal marker/pointer and dysphemistic element (obscene/profane, insulting/offensive, violent and non-explicit – positive, neutral and negation element). The third element, the link between personal marker and dysphemistic language, is not included as a function in the cyberbullying lexical database, since it is envisaged that this will be detected by other means, such as dependency relations within the sentence.

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Cognitive operations in Romanian

Drawing on previous work by Ruiz de Mendoza (2008), Ruiz de Mendoza and Mairal (2011), Ruiz de Mendoza and Galera-Masegosa (2014), among others, this study sets out to analyze different patterns of combination of cognitive operations in Romanian. We will first examine how metaphors interact to give rise to metaphoric amalgams and then move on to explore the operations of domain expansion and reduction in metonymic complexes. As pointed out by Ruiz de Mendoza and Galera-Masegosa (2014: 96), metaphoric amalgams require some kind of conceptual integration of the internal makeup of the interacting metaphors. These authors acknowledge the existence of two kinds of metaphoric amalgams, namely single-source metaphoric amalgams and double-source metaphoric amalgams. While the former involve the incorporation of one of the metaphors in a complex into the internal conceptual configuration of the other the latter derive from the mapping of two different source domains onto the same target domain. To better understand the intricacies of such operations let us look at an example of a low-level single-source metaphoric amalgam. A sentence like *Nu mai sta* ***ca o cloșcă*** *în pat toată ziua* (*Don't stay in bed all day* ***like a laying hen***) makes use of the metaphor PEOPLE ARE LAYING HENS, which is a specification of the more general metaphor PEOPLE ARE ANIMALS. This metaphor is conceptually enriched by the subsidiary metaphor LACK OF MOTION IS LAZINESS, which allows us to conceive of inactive people in terms of hens that sit on eggs for days before they hatch. In Romanian it is also possible to come across single-source metaphorical complexes that amalgamate high-level metaphors. Consider the following sentence *Scumpirile la carburanți* ***au adus românii la disperare*** (*The increases in oil prices* ***have brought Romanians to the verge of despair***). The meaning of the last part of the sentence is contributed by the combination of two high-level metaphors, i.e. (CAUSED) CHANGE IS (CAUSED) MOTION and STATES ARE LOCATIONS, which can be further developed into A CHANGE OF STATE IS A CHANGE OF LOCATION. The subsidiary metaphor A CHANGE OF STATE IS A CHANGE OF LOCATION is activated as a requirement of the target domain, which refers to a resultant state (being desperate). External events causing a psychological change to people are seen metaphorically as gradual physical motion of an inanimate entity from one location to another. The corresponding mappings between the source and target domains are schematized in the table below:

SOURCE (gradual physical motion) ⟹	**TARGET (psychological state)**
Causer of motion	Causer of change (external events)
Object of motion	Object of change (people)
SOURCE (change of location) ⟹	**TARGET (change of state)**
Source of motion	Initial state
Destination of motion	Resultant state (despair)

Table 1. Single-source metaphoric amalgam in *Scumpirile la carburanți* ***au adus românii la disperare***

Keywords: cognitive operations, metaphoric complex, metaphoric amalgam, metonymic reduction/expansion.

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Metaphoric amalgams and argument-structure constructions in the Lexical Constructional Model

Each representational layer of the *Lexical Constructional Model* (LCM) specifies conditions for the activation and integration of selected conceptual structure into meaningful representations that can be incorporated, under further constraints, into other representational levels (Ruiz de Mendoza & Mairal 2008). Some of these conditions take the form of cognitive operations. Metaphor and metonymy are examples of such operations (Ruiz de Mendoza and Galera 2014). In this presentation we will be concerned with how these operations combine and act on high-level cognitive models to give rise to specific argument-structure constructions in English. The data analyzed so far reveal three interaction patterns. First, we have *single-source metaphoric amalgams*, where a metaphor is built into another metaphor as in the *reflexive resultative* construction. For example, in *I pulled myself out of a deep sleep*, the DIVIDED SELF system, which is based on thinking of the rational aspects of people (the SUBJECT) as being separable from the emotional and bodily ones (the SELF) (Lakoff 1996), becomes part of the source domain of the metaphor CHANGES OF STATE ARE CHANGES OF LOCATION. The SUBJECT is the entity that causes the SELF to change from location by "pulling"; this maps onto the real situation in which the protagonist (corresponding to the SUBJECT) uses his will power to get his bodily self (the SELF) to rise from sleep. Another pattern is called *double-source metaphoric amalgams*. Here, there is one target domain but two source domains, each of which maps onto different aspects of the target components. In the target of *She slapped some common sense into me*, there is a person that has experienced psychological change (i.e. acquiring some common sense) after being slapped. One source domain maps motion caused by physical impact onto change motivated by psychological impact, while a second complementary source domain maps a transfer of possession onto causing psychological change. The complementariness between the two sources allows us to see the psychologically affected entity in terms of both the destination of motion and the new possessor of an object, and the new psychological property as both a moving object and a possession. A third pattern arises from combining high-level metonymies. Consider the sentence *The rock star pushed his way through the crowd* ('The rock star caused the crowd to make way through them by pushing them', where 'the crowd' is the object of one action and the actor of another). The MANNER OF ACTION (pushing) stands for the causal ACTION that includes such manner (making way by pushing). In addition, the expression also treats the RESULT of such an action (the way made) as if it were its OBJECT. This kind of metaphor is based on the fact that the result of some actions is often an object, as evidenced by the first pair in this alternation: *He carved a toy out of wood/He carved the wood into a toy*. Finally, the expression omits the real causal object (the crowd), also an actor, which has to be recovered metonymically. The construction is thus motivated by a combination of two high-level metonymies mediated by a correlation metaphor: MANNER OF ACTION FOR ACTION (INVOLVING ACTOR1) + RESULTS ARE OBJECTS + RESULT FOR ACTION INVOLVING ACTOR2.

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From cross-linguistic to typological adequacy in the Lexical Constructional Model: the case of iconicity as a constructional constraint

The Lexical Constructional Model (LCM) makes special emphasis on the role of constraints as either licensing or blocking factors for the level-internal and level-external integration of lexical and constructional structure. In its inception various principles of conceptual consistency (whether involving low-level or higher-level event structure configurations) and construal phenomena, e.g. in the form of metaphor and metonymy, were postulated as broad-ranging constraining factors (Ruiz de Mendoza and Mairal 2008; Mairal and Ruiz de Mendoza 2009; cf. the overview in Ruiz de Mendoza 2013). In more recent work (Ruiz de Mendoza and Galera 2014), iconicity has been postulated as one further constraining factor to be taken into account. Iconicity is generally understood as the situation where a linguistic pattern emulates, in whatever degree, a given state of affairs. The literature on iconicity in language is extensive (see Haiman 1985, Simone 1995, and the references therein). In the LCM, however, iconicity is seen as an extreme case of the cognitive operation of resemblance (which holds for some cases of metaphor and for simile), i.e. it acts on stored or constructed knowledge constructs (called cognitive models). Cognitive modeling, or the principled activity of cognitive operations on cognitive models, is a universal phenomenon, but it does not apply homogeneously across languages. For example, while English makes use of highly compact secondary predications to express caused result, this is not the case in other languages, or at least not to the same extent. In English this secondary predication captures iconically the perceptual immediacy that holds between the object of a material action and the effect that such an action has had on its object. That is why English can bring the object (box) and the result (flat) in *He smashed the box flat.* However, this configuration is not possible in other languages like Spanish and Chinese, both of which need to break down the whole sentence into a causal and a resultative subevent: Sp. *Aplastó la caja dejándola plana* lit. 'He smashed the box leaving it flat'); Ch. Ta ba xiangzi ya bian le (lit. 'He make box press flat PAST'). Interestingly enough, these two languages apply iconicity in a different way. In Spanish the expression of the action precedes the expression of the result of the action. In Chinese the object is first profiled as the object of a generic causal action that has a result ('make box'), while the non-causal aspect of the action is expressed separately (press flat). This exploitation of iconicity relates to a typological issue. English conflates action and manner of action in the verb slot of motion and resultative constructions (*He staggered into the room*). This does not happen in Spanish or Chinese for different typological reasons. While Spanish codes manner of action in a subordinate constituent such as a satellite, Chinese, as a serial-verb language (cf. Slobin 2004), expresses manner and action in separate grammatically equivalent forms. This means that iconicity, while being preserved as a general constraint affecting constructional organization, is itself constrained by more global typological properties of languages.

The paper further explores other cases of non-homogenous iconic behavior across the three

languages (English, Spanish, Chinese) and calls for endowing the LCM with typological adequacy through systematic cross-linguistic analysis of constructional constraints.

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Building a Spanish grammaticon: pronominal constructions

Pronominal constructions and the pronominal particle "se" are pervasive in Spanish. A Natural Language Processing application needs to differentiate and understand the semantic differences and nuances that the pronominal particle marks. Therefore, a catalogue of pronominal constructions at different linguistic levels based on Teomiro (in press) will be presented as well as the codification of such constructions in order to include them in the grammatical module of FunGramKB (Periñán-Pascual & Arcas-Túnez, 2010; Periñán-Pascual & Mairal Usón, 2010).

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Construing Europe: The role of metonymy based polysemy in meaning construction and knowledge representation

The paper addresses the role of metonymy based polysemy in meaning construction and knowledge representation in terms of the concepts of Europe and the European Union. The study is based on a corpus of news articles retrieved from the *Guardian* from May 2004 through December 2009 (approximately 1 million words) and focuses on lexical items *Europe* and *EU*. To facilitate the process of data analysis, WordSmith Tools 4.0, computer software offering a number of text analysis tools, such as wordlist analysis, keyword analysis, or concordance analysis, has been used. The study takes its theoretical underpinnings from LCCM Theory, a theory of lexical representation and semantic composition, which delineates the roles the linguistic and the conceptual systems play in meaning construction (e.g., Evans 2009, 2013). It is argued that the lexical items *Europe* and *EU* manifest conceptual polysemy as defined in Evans (2015a, 2015b). The paper demonstrates that the immense semantic potential of the two lexical items is primarily the function of conceptual polysemy which is underlain by the cognitive mechanism of meaning extension by means of metonymy. As far as the role of metonymy based polysemy in meaning construction is concerned, the study shows how the context, specifically the co-text, determines the activation of a respective portion of the cognitive model profiles of the lexical items *Europe* and *EU*. In terms of knowledge representation, to account for the coherent body of multimodal knowledge which the *Europe* and *EU* lexical items afford access to, cognitive model profiles of the two lexical items are constructed.

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