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In Memoriam

The journal editors and the Department of English Studies at the Universitat Jaume I wish to pay tribute to our colleague, friend and teacher, Dr. Xavier Campos Vilanova who passed away earlier this year. Xavier showed a passionate enthusiasm for the study of the history of the English language and literature, but also for everything he did. From taking photographs, researching on the meaning of the number seven, to studying the history of Castelló – his home town –, he went deep into everything that touched his heart. Xavier kindly accepted to supervise my doctoral thesis (Campoy) on phrasal verbs many years ago even though it did not fit his plans at the moment, since he was then deeply engaged in the study of Old English. I felt this issue on phrasal verbs would be a great opportunity to thank him for his generosity and open mindfulness. It is his wide smile and his distinctive laugh that could fill the room that we will always remember.

Mª Carmen Campoy and the editorial team

Castelló, 22 Dec. 2011

From the Editors

MULTIWORD PATTERNS: CONSIDERING PHRASAL VERBS AND THEIR UNDERLYING SEMANTIC SYSTEMS (I)

This is the first of two issues dealing with multiword patterns. The main focus of these issues is that of phrasal verbs with a special emphasis on the semantic patterns from which they arise. This first issue on this topic includes five articles related to the study of English particles as part of phrasal verbs and in lexical bundles. The issue tackles different perspectives in the analysis and use of phrasal verbs. Most articles adopt a cognitive approach in their investigation of the use and analysis of these units. Two of them, Navarro and Chung et al. also follow a corpus-based approach in their analysis.

Ruiz de Mendoza and Galera-Masegosa's article (*Going beyond metaphtonymy: Metaphoric and metonymic complexes in phrasal verb interpretation*) analyses how systematic combinations of metaphor and metonymy can play a crucial role in the interpretation of complex and opaque phrasal verbs. These scholars draw on previous insights on metaphor-metonymy interaction patterns, ranging from metaphtonymy (Goossens 1990) to metonymic and metaphoric "complexes" (Ruiz de Mendoza and Mairal 2007, 2011, Ruiz de Mendoza and Pérez 2001). In this paper they focus particularly on two kinds of metaphoric complex: amalgams (metaphors that are integrated into the source-target structure of other metaphors, or double-source metaphoric mappings) and chains (complexes that make use of a single conceptual domain as both target and source to other domains). After the illustration of their postulates along a series of complex examples, Ruiz de Mendoza and Galera-Masegosa conclude that the conceptual makeup of phrasal verbs goes beyond compositionality in terms of meaning and interpretation. It is, nevertheless, largely "predictable and calculable", when the interaction of metaphor and metonymy, for example, in terms of complexes, is taken into account.

In the second article, *Towards an integrated model of metaphorical linguistic expressions in English*, Strugielska puts forth an alternative to Conceptual Metaphor Theory in the form of an *integrated* – as opposed to an isolated – model for metaphorical expression. Thus, her proposal presupposes that some expressions

generally classified as metaphors can be seen as largely affected in relation to their figurativeness. Her most important contention is that in the approach to metaphor proposed here conceptual primitives are seen as dialogical elements of semantic profiles, with their prominence relying mostly on the contrast between simple verbs and VPCs.

Both the analysis of particle verbs with *in* and *out* and the notion of strategic construal compose the common ground shared by the contributions of Geld and Geld and Maldonado. By way of this notion, the authors relate Langacker's (1987) "construal" to the process of strategic thinking about the meaning of Particle Verbs (PVs) by two different groups of users of English as a L2 (L1 Spanish vs. L1 Croatian), and analyse the contribution of their elements to different degrees. The reader is advised to read these two articles in our "whole version" format, where it is possible to use links that relate one article to the other.

Geld adopts a general perspective in the analysis of a series of parameters involved in the process of making sense of a series of (relatively opaque) PVs with *in* and *out* by the aforementioned groups. Her analysis derives from a language proficiency test and the reflections of the informants about 20 PVs portrayed in a research questionnaire. It shows how these parameters interact and affect meaning construal in L2, and leads her to conclude that the strategic construal of PVs varies mainly in terms of *language-internal* factors like topological vs. lexical determination (the meaning of the particle overrides the meaning of the verbal element and vice versa) and compositionality (meaning derived from a balanced interaction of both elements), the degree of informativeness of the particle, the nature of the verbal element (light vs. heavy), in combination with *typological* factors such as L1-L2 interface (verb-framed vs. satellite-framed languages) and *language-external* factors like L2 proficiency, years of learning and even the learning environment.

Although the research conducted by Maldonado and Geld departs from the data obtained in the questionnaire employed in Geld (see above), their focus of attention falls mainly onto the contribution of the particle in PV constructions (particularly *how* it is interpreted by learners of English as L2). In terms of specifics, their concern is to describe strategic construal of *in* and *out* in PVs by focussing on a particular set of the

aspects of meaning construal in L2 suggested by Geld (see above), among which topological determination and compositional meaning become central.

In their analysis, they describe the construals of both particles – including nine categories for *in* and ten for *out* – as derived from the data obtained in the questionnaire employed in Geld –, which are schematic representations of the informants' construals. The strategic construal of particles is analysed in relation to the meaning of the whole VPs. The results of their study confirm their three initial hypotheses, namely:

- L2 users are well aware of the symbolic nature of language even while dealing with highly schematic linguistic categories
- The strategic construal of both particles is comparable to their cognitive linguistic description in English as L1
- The strategic construal of both particles shows a cognitively motivated path from the topological to the aspectual.

Navarro's article, *Lexical decomposition of English spatial particles and their subsumption in motion constructions*, is an innovative attempt to account for several aspects of spatial particle semantics within the framework of the Lexical Constructional Model (LCM), a – relatively new, but well-grounded and increasingly expanding – semantic-syntactic system of representation of lexical units and constructions, that takes on both cognitive and functional tenets.

The author first develops the logics for spatial particle semantics within the LCM in terms of the formalism of a Lexical Template (LT). Then, with the help of the COCA as a source of data, Navarro exemplifies his claims by way of the semantic decomposition of seven prepositions. This allows him to take his last step and illustrate how these LTs are subsumed (roughly, how they "fit" into particular constructions by way of a series of cognitive operations that assume semantic-syntactic and pragmatic/discursive constraints on each of the construction elements) into two kinds of motion constructions: caused motion and intransitive motion. The author concludes with a series of remarks concerning the contribution of particles to constructional meaning, and their possible interaction with different verbal Aktionsart types.

Chung, Chao, Lan and Lin analyse the semantic features of the lexical bundle [(VERB) PREPOSITION the NOUN of] including bundles where the verb plus particle is not a prepositional or adverbial verb and some bundles where a phrasal or prepositional verb appear. This five word bundle is contrasted with the four word bundle [PREPOSITION the NOUN of]. By contrasting these two lexical bundles they also investigate on the semantic features the intersection bundle shares. Data for their analysis was obtained from the British National Corpus.

The Book and Multimedia Review section of this volume ends with two reviews, the first one by Pedro Fuertes-Olivera who goes over the main features of the *Macmillan Collocations Dictionary for Learners of English.* Fuertes-Olivera examines among other things the information the dictionary contains as regards typographical representation, collocational information and the dictionary guide. He pays close attention to the collocational patterns and further inspects the case of business collocational patterns.

The second review analyses both *TermStar XV* and *WordSmith Tools* as Terminology Management Systems. These are compared to similar software systems. A table comparing the main features of various TMSs under analysis in the review is also provided. Nuria Edo's review has the added value of considering these programmes for a very specific purpose: that of developing specialised dictionaries. She considers the potential of these systems in term extraction and term in-corpus analysis as well as regarding data processing, management and storage. Their potential for the creation of terminological cards and for the retrieval of specific information as well as the user-friendliness of both export and import task management and environment design are considered.

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Going beyond metaphtonymy: Metaphoric and metonymic complexes in phrasal verb interpretation[1]

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ABSTRACT

A metaphor can combine with another metaphor, or a metonymy with another metonymy, into a single meaning unit, thus giving rise to either a *metaphorical* or a *metonymic amalgam*. The combination of a metaphor and a metonymy, as discussed in Goossens (1990) and Ruiz de Mendoza and Díez (2002), gives rise to so-called "metaphtonymy". Amalgams and metaphtonymy are cases of *conceptual complexes*. Several such complexes have been identified in previous studies (e.g. Ruiz de Mendoza and Díez 2002, Ruiz de Mendoza and Mairal 2011). Here we revisit such studies and postulate the existence of *metaphoric chains* as an additional case of metaphoric complex in connection to the semantic analysis of phrasal verbs. Metaphoric chains, unlike *amalgams* (Ruiz de Mendoza and Mairal 2011), do not involve integrating the conceptual structure of the combined metaphors. Instead, metaphoric chains involve a mapping sequence in which the target domain of a first metaphoric mapping constitutes the source domain of a subsequent metaphor.

Keywords: *metaphor, metonymy, metonymic chains, phrasal verb, metaphoric amalgams, metaphoric chains*

I. INTRODUCTION

Phrasal verbs can be studied from a constructional perspective as form-meaning pairings where form cues for meaning activation and meaning is non-compositional (Dirven 2001). Because of their formally fixed and (at least partially) non-compositional semantic nature, phrasal verbs can be considered a special category of idiomatic expression, and their analysis has consequently been regarded as subsidiary to that of idiomatic expressions (cf. Kuiper and Everaert 2004, Makkai 1972).

The Cognitive Linguistics approach to metaphor and metonymy provides an explanatorily elegant framework to account for much of the meaning underlying idiomatic interpretation (cf. Hampe 2000). In this framework, the point of departure is the assumption that the meaning of phrasal verbs is mostly non-arbitrary but largely predictable and therefore sensitive to the use of cognitive operations in their interpretation (cf. Galera-Masegosa 2010, Langlotz 2006). Kövecses and Szabó (1996)

offer an insightful contribution to the analysis of idiomatic expressions through metaphor. However, there are many cases in which idiomatic interpretation –including phrasal verb interpretation– often requires more complex analytical machinery than simply postulating single metaphors. For much idiomatic use, it may prove fruitful to study patterns of interaction involving metaphor and metonymy. These interactions were firstly addressed in Goossens' (1990) pioneering work. More recent studies have provided more refined and systematic patterns of interaction between metaphor and metonymy (cf. Ruiz de Mendoza and Díez 2002). However, our corpus of analysis suggests that further developments are needed in order to fully account for the complexities of phrasal verb interpretation. We thus incorporate into our set of explanatory tools the following conceptual interaction phenomena involving metaphor and metonymy:

a. Metaphor-metonymy interaction patterns
b. Metonymic complexes
c. Metaphoric complexes: amalgams and chains

We argue that the phenomena in (b) are essentially lexical although they may also motivate some grammatical phenomena (e.g. categorial conversion of a noun into a verb). Only the phenomena in (a) and (c) can underlie idiomatic expressions: while those in (a) account for situational idiomatic expressions, the ones in (c) seem to be specific to the meaning make-up of phrasal verb constructions.

Within this framework, we aim to provide a detailed picture of the various conceptual interaction phenomena identified above. Section II revisits the most relevant approaches that regard metaphor and metonymy as conceptualizing mechanisms. In section III we account for the different ways in which metaphor and metonymy may interact with each other. We also identify several metonymy-metonymy and metaphor-metaphor combination patterns. We critically review existing accounts and make new proposals on the topic. In addition, we present *metaphoric chains* as a new way in which two metaphors may combine, which has proved to be essential in phrasal verb interpretation. In this pattern of interaction the target of a first metaphor constitutes the source of a new metaphoric mapping whose target domain reveals the overall meaning of the expression. Section IV summarizes the main findings of our study.

II. METAPHOR AND METONYMY REVISITED

II.1. Conceptual Metaphor Theory (CMT)

II.1.1. Earlier version

Conceptual Metaphor Theory (CMT) was first proposed by Lakoff and Johnson (1980) and developed by Lakoff and a number of associates (e.g. Gibbs 1994, Gibbs et al. 1997, Kövecses 1990, 2000, 2002, 2005, Lakoff 1987, Lakoff and Johnson 1999, Lakoff and Turner 1989). Challenging traditional views of metaphor as an embellishing device mainly used within the realms of literature, CMT claims that metaphor is not primarily a matter of language but of cognition: people make use of some concepts to understand, talk and reason about others. In this context, metaphor is described as a "conceptual mapping" (a set of correspondences) from a source domain (traditional vehicle) to a target domain (traditional tenor). The source is usually less abstract (i.e. more accessible to sense perception) than the target.

At the first stages of development of CMT, some preliminary efforts were made to classify metaphors. Lakoff and Johnson (1980) put forward a division between ontological, structural, and orientational metaphor. A few years later, Lakoff and Turner (1989) added image metaphors and redefined ontological in terms of a folk model about nature called the Great Chain of Being, which specifies physical and behavioral attributes of human beings, animals, plants, natural objects, and artifacts. Here are some examples of well-known conceptual metaphors together with a specification of their main correspondences, as discussed in the Cognitive Linguistics literature:

> LOVE IS A JOURNEY: lovers are travelers; the love relationship is a vehicle; lovers' common goals are the destination; difficulties in the relationship are impediments to motion; etc. (e.g. *But even without such problems, we often find ourselves spinning our wheels in dead-end relationships*[2]).
>
> ANGER IS HEAT: an angry person is a (generally pressurized) container that holds a hot substance (the anger) in its interior; the pressure of the substance on the container is the force of the emotion on the angry person; keeping the substance inside the container is controlling the anger; releasing the substance is the expression of anger; external signs of heat are external signs of anger (e.g. *I find*

that my blood starts to boil when a person complains about the state of the local economy and has two foreign cars in their driveway?[3]).

THEORIES ARE BUILDINGS: theories can be built, pulled down, demolished, buttressed, etc.; building tools are instruments to formulate a theory; building materials are elements in the theory (e.g. *Yet his longer addresses depended upon powerfully built paragraphs to construct rock-solid arguments*[4]).

ARGUMENT IS WAR: we see arguing as engaging in battle, people arguing as enemies, arguments as weapons, and winning or losing as military victory or defeat respectively (e.g. *You're going to have to defend your theory rather than getting on the offensive*[5]).

II.1.2. Later version

In recent years, Lakoff and Johnson (1999) have argued for the integration of Christopher Johnson's (1999) theory of conflation, Grady's (1997) theory of primary metaphor, Narayanan's (1997) neural theory of metaphor, and Fauconnier and Turner's (1996, 2002) theory of conceptual blending. In Grady's theory, complex metaphors (e.g. LOVE IS A JOURNEY, THEORIES ARE BUILDINGS) are made up of primary metaphors that develop through conflation (the experiential association of discrete conceptual domains). In this theory, journey metaphors are complex forms of the primary metaphor PURPOSES ARE DESTINATIONS, and THEORIES ARE BUILDINGS is the complex form of the more basic metaphors ORGANIZATION IS PHYSICAL STRUCTURE and PERSISTING IS REMAINING ERECT.

Ruiz de Mendoza and Pérez (2011) suggest that an account based on primary metaphors presents two main advantages. First, it has a stronger generalizing power. Thus, the multiplicity of "journey" metaphors (e.g. LOVE/A BUSINESS/A CAREER/A TASK, ETC., IS A JOURNEY) is better explained in terms OF PURPOSES ARE DESTINATIONS. Consider, in this respect, the expression *This is getting nowhere*, in different contexts of use, such as a problematic business, excessively difficult schoolwork, a failing lab experiment, a couple in crisis, or a debate on a controversial topic, among many other possibilities. What these contexts have in common is the existence of goal-oriented activities, which are seen as steps taken to reach a destination. By accounting for *This is getting nowhere*

on the basis of the primary metaphor PURPOSES ARE DESTINATIONS we avoid postulating specific metaphors for every possible target. Second, this more general account traces the source of metaphorical thinking back to the conflation of concepts arising from co-occurring events in experience. This gives metaphor theory pride of place within psychology and the brain sciences (cf. Grady and Johnson 2002). Thus, PURPOSES ARE DESTINATIONS is a primary metaphor that arises from our experience of going to places that we plan to reach. Other examples of primary metaphors (Lakoff and Johnson 1999) are AFFECTION IS WARMTH (based on feeling warm while being held affectionately; e.g. *I accepted the warmth of her kiss letting it carry me away*[6]), UNDERSTANDING IS GRASPING (holding and touching an object allows us to get information about it; e.g. *He was very good at catching concepts*[7]), and CHANGE IS motion (based on our correlation of certain locations with certain states, such as being cool in the shade, hot under the sun, and safe at home; e.g. *She went from sadness to joy as people shared her pain*[8]).

II.2. Conceptual Metonymy

Metonymy is a cognitive process in which one conceptual entity, the vehicle, provides mental access to another conceptual entity, the target, within the same conceptual domain (Kövecses and Radden 1998: 39). Ruiz de Mendoza (2000) distinguishes two basic types of metonymy:

(a) Target-in-source (based on target-source inclusion): a whole domain, the *matrix domain*, stands for one of its subdomains (e.g. *She's taking the pill*, where 'pill' stands for 'contraceptive pill');

(b) Source-in-target (based on source-target inclusion): a subdomain stands for its corresponding matrix domain. For example, the expression *All hands on deck* is a call for all sailors aboard a ship to take up their duties. In this context, "hands" stands for the sailors who do hard physical work on the ship in virtue of the hands playing an experientially prominent role in the domain of labor.

Traditionally accounts of metonymy have taken for granted that there is additional part-for-part relationship, according to which one subdomain within a domain can stand for another subdomain within the same domain. One purported example of this metonymy is RULER FOR ARMY (e.g. *Nixon bombed Hanoi*; *Napoleon lost at Waterloo*; *Hitler*

invaded Poland). In this metonymy, the ruler and the army are subdomains of the domain of war. However, it may also be argued that the military forces under a ruler's command are a subdomain of our knowledge about the ruler. Another purported case of part-for-part metonymy is provided by the domain of production, in which we have workers and companies as subdomains. For example, in the sentence *The company has decided to re-brand itself*, it is not the company but some its workers (probably members of a directive board) that have made the decision to give a new name to the company itself. The problem here is that the workers (the metonymic target) are themselves part of the company (the metonymic source), so this metaphor actually qualifies as an example of a target-source inclusion.

A well-known example of apparent "part-for-part" metonymy is CUSTOMER FOR ORDER. According to Taylor (1995: 123), in the sentence *The pork chop left without paying*, the notions of 'pork chop' and 'customer' are related to each other as parts of the restaurant cognitive model; that is, the two notions are subdomains of the 'restaurant' domain. On the face of it, this explanation of the customer-order relation is convincing. However, setting up one kind of relationship within a broader frame does not mean that there cannot be others. Note that, once placed, an order can be considered part (i.e. a subdomain) of what we know about a customer. For this reason, "the pork chop" in the example above does not stand for any customer but for 'the customer that has ordered a pork chop'. A parallel example is supplied by the usual practice, in hospital contexts, of referring to patients by their medical conditions, the procedures performed on them or the bodily organ that is affected by disease (e.g. *the broken arm in the waiting room*, *the hysterectomy in room 2*, *the gallbladder in room 241*). There is no way in which we could argue that these are cases of "part-for-part" metonymies since a patient's medical condition and his or her treatment are a subdomain of what we know about the patient.

The validity of the source-in-target/target-in-source division has received support from the field of metonymic anaphora (Ruiz de Mendoza and Díez 2004) and zone activation (Geeraerts and Peirsman 2011). Ruiz de Mendoza and Díez (2004) have noticed the existence of a correlation between (i) target-in-source metonymies and cases of metonymic anaphora where there is gender and number (i.e. grammatical) agreement between the anaphoric pronoun and its antecedent, and (ii) source-in-target metonymies and conceptual anaphora (where there is no such gender and number agreement). For

example, compare *The broken arm in the waiting room says* he (*it) *needs another painkiller urgently* (which instantiates the source-in-target metonymy MEDICAL CONDITION FOR PATIENT WITH MEDICAL CONDITION) and *Hitler invaded Poland and* he (*it/they) *paid for it* (which instantiates the target-in-source metonymy RULER FOR ARMY). In view of these examples, the source-in-target mapping calls for conceptual anaphora, while the target-in-source one requires grammatical anaphora. However, as amply shown in Ruiz de Mendoza (2000) and Ruiz de Mendoza and Díez (2004), this correlation is merely epiphenomenal. Research has shown that there are a number of principles that interact to account for all cases of metonymic anaphora, among which the most prominent is the *Domain Availability Principle* (DAP). This principle states that only the matrix (i.e. most encompassing) domain of a metonymic mapping is available for anaphoric reference. In the patient example, the patient, which is the metonymic target, is the matrix domain, whereas in the ruler example, the matrix domain is the metonymic source. Both matrix domains, the patient and the ruler, are the antecedents for the anaphoric operation. Stated in more simple terms, this simply means that metonymic anaphora is always conceptual. Interestingly enough, Geeraerts and Peirsman (2011) have found that source-in-target metonymies do not allow for zeugma, while target-in-source metonymies do. Zeugma is the possibility to assign to the same lexical expression two or more predications that carry different senses. For example, as Geeraerts and Peirsman (2011) observe, "red shirts" in **The red shirts won the match* stands for the football players wearing such an outfit as a salient part of their uniform. This is a source-in-target metonymy that cannot be used zeugmatically: **The red shirts won the match and had to be cleaned thoroughly*. By contrast, the sentence *The book is thick as well as boring* allows for zeugma based on two different senses of "book": one, its central (non-metonymic) characterization as a physical object; the other, its non-central metonymic sense referring to the 'contents of the book'. To us, this analysis additionally suggests that metonymy-based zeugma is also a conceptual phenomenon that combines matrix domain availability and consistency with the metonymic target. In the "red shirts" example, only the "players" domain is available for predication since it is both the matrix domain and the metonymic target. But in the "book" example, where the matrix domain is not a metonymic target, it is possible to set up predications

involving not only the matrix domain (which supplies the central sense) but also any target subdomain.

The solvency of the source-in-target/ target-in-source distinction, which involves disregarding the existence of "part-for-part" metonymies, is relevant for the ensuing analysis of interaction patterns, where only either of these two metonymic types plays a role.

III. METAPHOR AND METONYMY IN INTERACTION

III.1. Metaphtonymy

As we advanced in the introduction section, Goossens (1990) was the first scholar to enquire into the interaction between metaphor and metonymy. Note that Fauconnier and Turner's (2002) blending theory, which is about conceptual integration, was originally postulated as a question of multiple mental space activation to account for metaphor, analogy and other cognitive phenomena. Metonymy was not explored in its interaction with metaphor but simply postulated as an optimality constraint (because of its associative nature) on the blending of mental spaces termed the *Metonymy projection constraint*: "When an element is projected from an input to the blend and a second element from that input is projected because of its metonymic link to the first, shorten the metonymic distance between them in the blend" (Turner and Fauconnier 2000: 139). For instance, it is generally accepted that the connection between death and a priest's cowl is large. However, in the representation of Death as a skeleton wearing a priestly cowl, the metonymic connection between the cowl and Death is direct and the two spaces can be straightforwardly integrated.

Let us now discuss the different types of metaphor-metonymy interaction or "metaphtonymy" initially put forward by Goossens (1990):

(i) *Metaphor from metonymy*, where an original metonymy develops into a metaphor (e.g. *to beat one's breast*).

(ii) *Metonymy within metaphor*, as in *to bite one's tongue*, where the tongue stands for a person's ability to speak;

(iii) *Demetonymization inside a metaphor*, as in *to pay lip service*, where 'lip service', which stands for 'speaking', loses its metonymic import so that the expression makes sense;

(iv) *Metaphor within metonymy*, which occurs when a metaphor is used in order to add expressiveness to a metonymy, as in *to be on one's hind legs*, where "hind" brings up the metaphor people are animals.

Even if we acknowledge the originality and elegance of Goossens' work, some remarks need to be made. In the first place, we argue that cases of metaphor from metonymy are in fact cases of metonymic development of a metaphoric source. For example, *beating one's breast* is a way of making an open show of sorrow; this scenario maps onto other situations where people show sorrow without actually beating their breasts. In the same way, *biting one's tongue*, rather than a metonymy within a metaphoric framework, is part of a scenario in which someone bites his or her tongue to refrain from revealing a secret or otherwise speaking his or her mind. The expression thus stands for the complete scenario that can then be used as a metaphoric source for other situations where people refrain from speaking without actually biting their tongues. The interaction pattern is the same as the one for *beat one's breast.* Evidently, both the breast and the tongue are chosen because of their saliency in the domains of emotions and speaking respectively. However, in the expressions under scrutiny neither of these body parts stands for such domains independently of the rest of the expression and their associated scenarios.

We also contend that in *pay lip service* the metaphor has the idea of 'giving money in return for service' in the source and of 'supporting someone' in the target (cf. *That old style bulb has paid service to me for 5 years*). Since "lip service" is 'service with the lips', where the lips stand for speaking through their salient instrumental role in such an action, "paying lip service" is resolved metaphorically as "supporting someone (just) by speaking" with the implication that service is not supported by facts. The metonymy is thus part of the metaphoric source (paying service with the lips maps onto promising support without the intention of actually giving it), so there is no loss of the metonymic quality of "lip".

Finally, we claim that *to be on one's hind legs* is not a metaphor within a metonymy, but again another case of metonymic development of a metaphoric source in preparation for it to be mapped onto its corresponding target. The source has a situation in which a horse rears up on its hind legs to attack another animal usually out of fear or in self-defense. The target has a person that defends his or her views emphatically, usually by standing up while gesturing aggressively with his or her hands and fists. The difference with other cases of metonymic development of a metaphoric source is in the linguistic cueing of the metaphorical scenario, which is based on the non-situational metonymic link between "hind legs" and "horse", which initially activates the ontological metaphor people are animals. The activation of this metaphor facilitates the metonymic creation of the situational metaphor described above.

In sum, all examples of Goossens's metaphtonymy are essentially metonymic developments of a situational metaphoric source. However, there are other ways in which metaphor and metonymy interact. Basically, metonymy is subsidiary to –and thus part of– metaphor. Since there two basic metonymic schemas: part-for-whole (source-in-target) and whole-for-part (target-in-source), this yields four basic interactional patterns:

(i) Metonymic expansion of a metaphoric source
(ii) Metonymic reduction of a metaphoric source
(iii) Metonymic expansion of a metaphoric target
(iv) Metonymic reduction of a metaphoric target

These patterns, which were originally proposed and discussed in Ruiz de Mendoza (1997) and then in Ruiz de Mendoza and Díez (2002), have been productively applied in several recent case studies in the context of multimodality (cf. Hidalgo Downing and Kraljevic Mujic 2011, Urios-Aparisi 2009). Other conceptual interaction patterns involve combinations of metonymies (cf. Ruiz de Mendoza 2000, Ruiz de Mendoza and Mairal 2007, Ruiz de Mendoza and Pérez 2001) and of metaphors (Ruiz de Mendoza and Galera-Masegosa, 2012Ruiz de Mendoza and Mairal 2011). In what follows, we address each of these interaction patterns in turn.

III.2. Metaphor-metonymy interaction patterns

This section provides an overview of the patterns of conceptual interaction between metaphor and metonymy originally identified in Ruiz de Mendoza and Díez (2002).

(i) Metonymic expansion of metaphoric source. The metonymy provides a cognitively economical point of access to a complex scenario. Therefore, the metonymy has the function of developing the point-of-access subdomain to the extent required for the metaphor to be possible. Consider the following sentence: *He beat his breast and said, 'God, have mercy on me, a sinner'*[9]. Here, the brest-beating action in the metaphoric source domain is metonymically expanded onto a situation in which a person beats his breast in order to show his regret about his actions. The target domain of this metonymy is metaphorically mapped onto a situation in which the speaker regretfully shows his sorrow in order to avoid punishment or any other undesired consequences of his behavior.

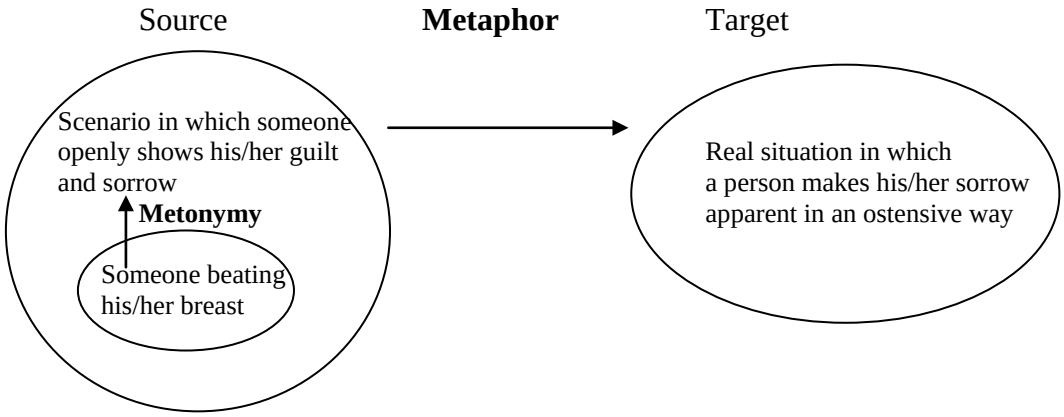

Figure 1. *To beat one's breast*.

(ii) Metonymic expansion of metaphoric target. The metaphoric source has the function of enhancing the meaning impact of a selected aspect of the target. The metonymy serves to obtain the full range of meaning implications to be derived from the metaphor. For example, the interpretation of the sentence *This would already make one knit his eyebrows in suspicion*[10] requires setting up a metaphorical correspondence between a person that is knitting articles of clothing (for the source domain) and a person that puts his eyebrows tightly together (for the target domain). The result of this metaphoric mapping needs to be metonymically developed into a situation in which a person frowns as a sign of

anger. The metonymy that operates within the metaphoric target domain is SIGN FOR STATE.

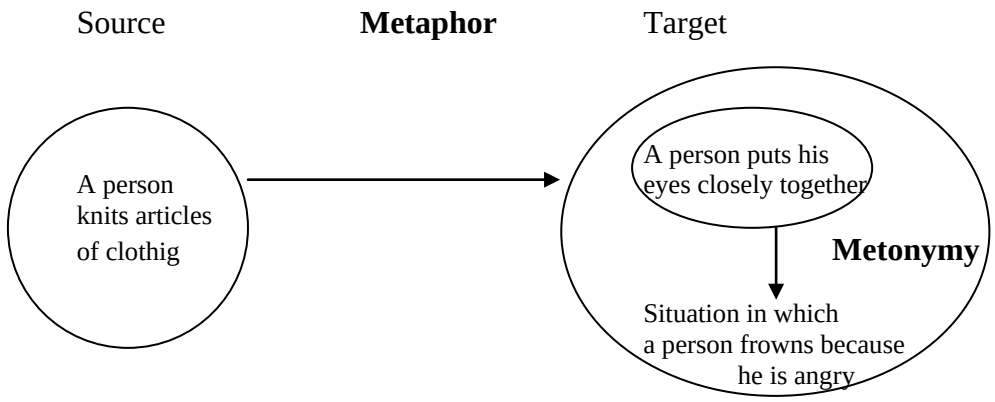

Figure 2. *To knit one's eyebrows*.

(iii) Metonymic reduction of metaphoric source. The metonymic reduction is a consequence of highlighting the most relevant elements of the metaphoric source, which, in virtue of the mapping, bring our attention to the most relevant aspects of the target, which are seen from the perspective of their corresponding source elements. The sentence *To be the life and soul of the party calls for the right attitude and the right actions*[11] calls for an analysis in which one of the aspects within the source domain ('the person') is straightforwardly mapped onto 'the party' in the target domain while 'the life and soul' needs to undergo two consecutive metonymic operations in ordered to be mapped onto 'the most entertaining character of a party' in the target domain.

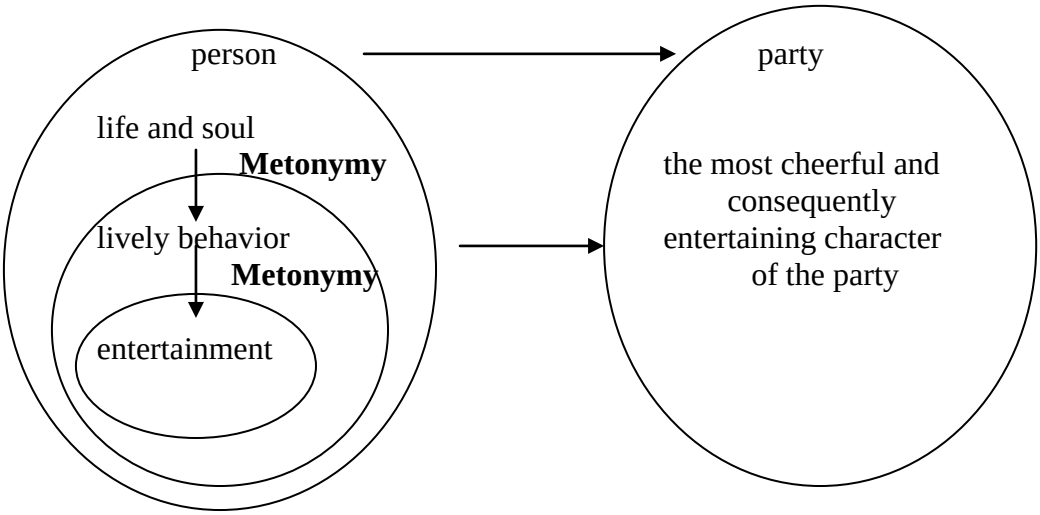

Figure 3. *The life and soul of the party*.

A special case of metonymic expansion of the metaphoric source is that of paragons. E.g. *Humboldt is the Shakespeare of travelers –as much superior in genius to other travelers as Shakespeare to other poets* (cf. Brdar 2007: 111).

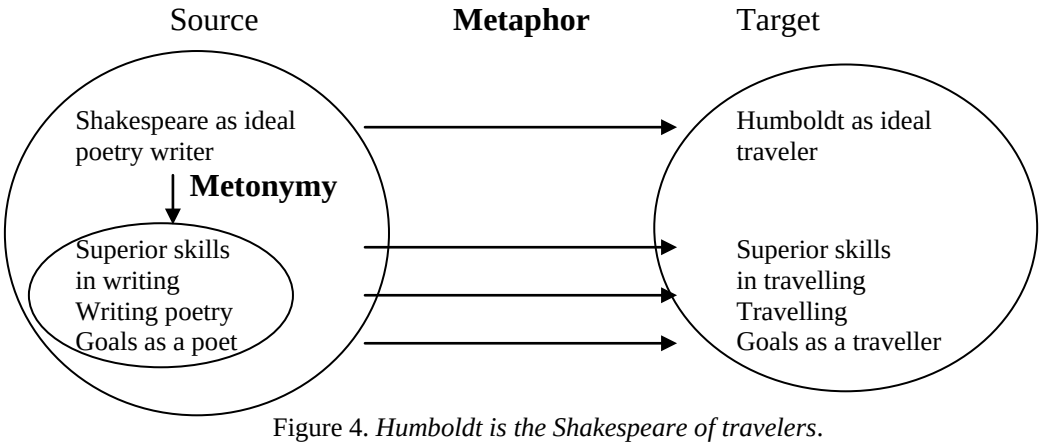

Figure 4. *Humboldt is the Shakespeare of travelers*.

(iv) Metonymic reduction of metaphoric target. The reduction process allows us to see a target element not only in terms of its corresponding source element but also in terms of the matrix domain against which it is put in perspective. Consider the sentence *Over the years, this girl won my heart*[12]. In this case, the 'love' scenario is conceptualized as the 'winning' scenario. Two straight-forward correspondences are set between 'winning' and 'the winner' in the source domain and 'obtaining' and 'the lover' in the target. However, once we mapped 'the prize' in the source domain onto 'someone's heart' in the target, a metonymic reduction makes 'someone's heart' to stand for 'someone's love'.

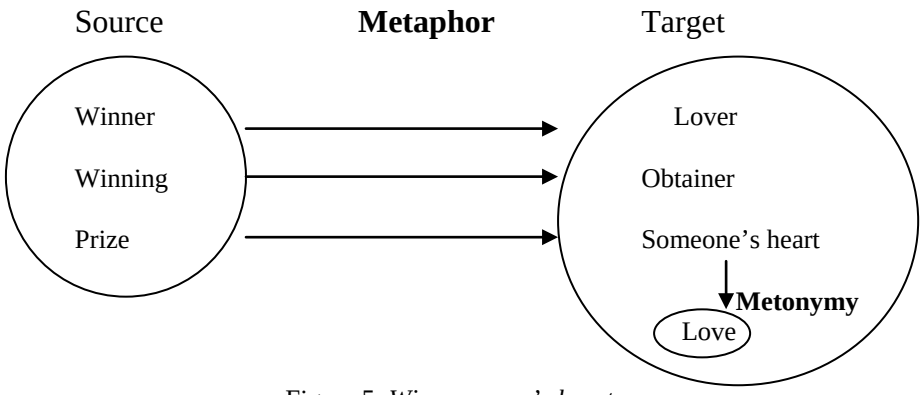

Figure 5. *Win someone's heart*.

The sentence *He gave me a kick* is also interpreted in terms of a metonymic expansion of the metaphoric target. Ruiz de Mendoza (2007) provides an elegant account for the meaning of this expression by postulating that the metonymy CAUSE FOR EFFECT operates within the target domain of the metaphor ACTIONS ARE TRANSFERS OF POSSESSION. In this metaphor, the receiver figuratively "possesses" (i.e. is affected by) the effects of being kicked. The effects are seen as if they were a possession (thus suggesting that the receiver's experience of the effects is not momentaneous). This interpretation overrides Lakoff's (1993) assumption that, since the receiver of the kick is not the possessor of the 'transferred' object, the possession element in the source domain is cancelled out.

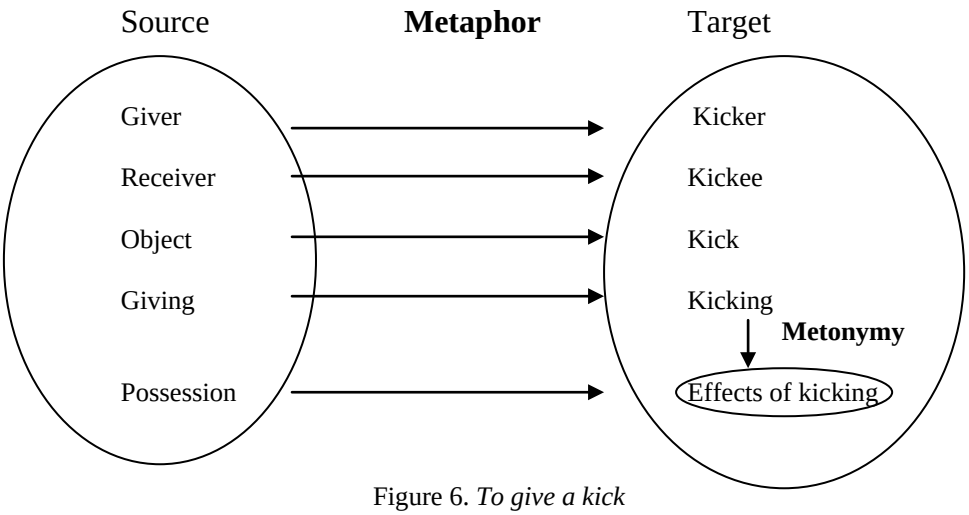

Figure 6. *To give a kick*

III.3. Metonymic complexes

This section is devoted to the study of the different ways in which two or more metonymies may interact. Following the analysis in Ruiz de Mendoza (2000, 2007), we distinguish four patterns of metonymic interaction:

(i) Double domain reduction: PLACE FOR INSTITUTION FOR PEOPLE, as in *Wall Street is in panic.*

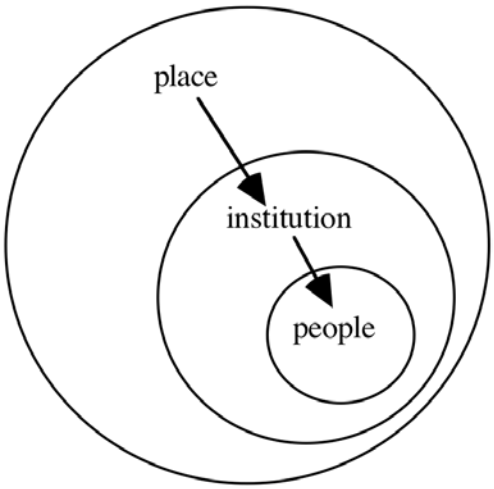

Figure 7. PLACE FOR INSTITUTION FOR PEOPLE.

This metonymy, which is an extension of PLACE FOR INSTITUTION (e.g. *Wall Street has always been part of our economy and always will be*[13]), is used for economy purposes to identify the people that are associated with an institution that is in turn identified by the place in which it is known to be located. As a consequence of domain reduction both the institution and the people are given prominence (Croft (1993) has referred to such a process by the term "highlighting", which involves giving primary status to a non-central subdomain of a cognitive model).

(ii) Double domain expansion: HEAD FOR LEADER FOR ACTION OF LEADING, as in *His sister heads the policy unit*.

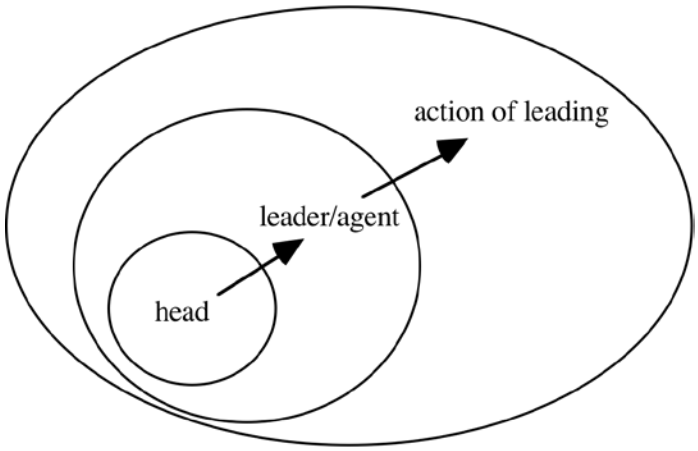

Figure 8. HEAD FOR LEADER FOR ACTION OF LEADING.

This metonymy underlies a category conversion process of the kind discussed in Ruiz de Mendoza and Pérez (2001). Note that "head" can ultimately stand for the action of leading because of its crucial instrumental role in such an action (the head is prominent in the domain of thinking, which is essential for leadership to be possible).

(iii) Domain reduction plus domain expansion: AUTHOR FOR WORK FOR MEDIUM, as in *Shakespeare is on the top shelf*.

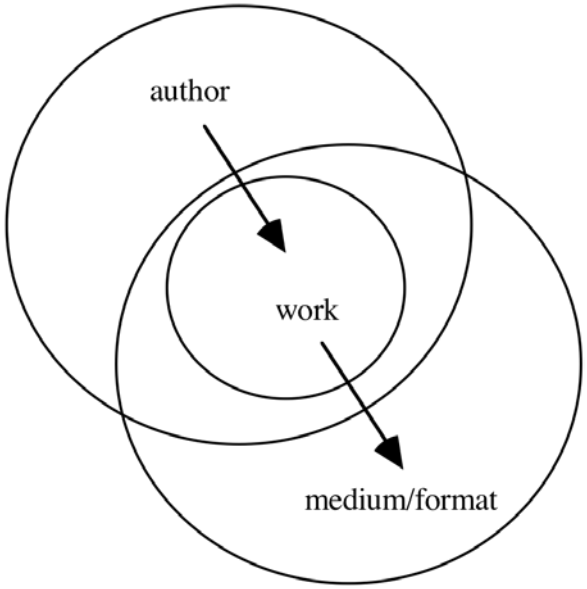

Figure 9. AUTHOR FOR WORK FOR MEDIUM.

This metonymy is but an extension of AUTHOR FOR WORK (e.g. *I love reading Shakespeare*) where the focus of attention is the literary work, which is understood against the double background of its author and its medium of presentation (e.g. a book).

(iv) Domain expansion plus domain reduction: INSTRUMENT FOR ACTION FOR ABILITY TO PERFORM THE ACTION, as in *He has too much lip*.

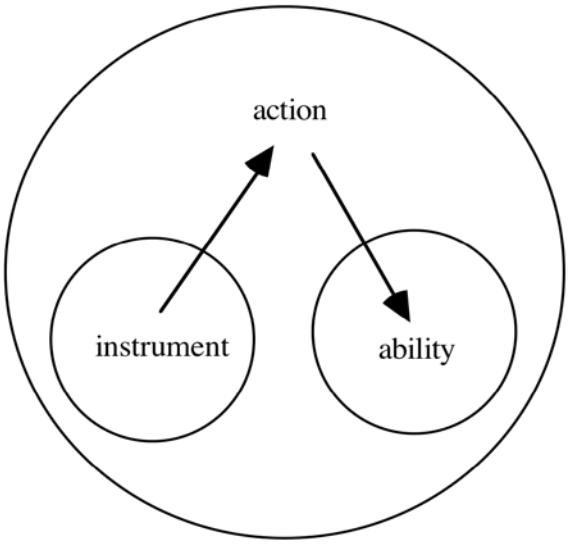

Figure 10. INSTRUMENT FOR ACTION FOR ABILITY TO PERFORM THE ACTION.

A person's lips are prominently instrumental in quickly (and thus deftly) speaking. This instrumental role is the starting point for the first metonymy in the complex. The second metonymy highlights the 'ability' element that is essential to understand the full meaning impact of the expression.

III.3. Metaphoric complexes: amalgams and chains

Metaphoric complexes may or may not involve the integration of conceptual structure: *metaphoric amalgams* require the integration of selected aspects from the metaphors that play a role in the process, while in *metaphoric chains* there are two subsequent metaphoric mappings such that the target of the first mapping becomes the source of the second (cf. Ruiz de Mendoza and Galera-Masegosa 2012, Ruiz de Mendoza and Pérez 2011). Let us see each of them in turn.

III.3.1. Metaphoric amalgams

The notion of metaphoric amalgam was initially discussed in Ruiz de Mendoza (2008) – who simply referred to them as metaphoric complexes – but it has been subsequently developed in Ruiz de Mendoza and Mairal (2011). This kind of metaphoric complex, unlike metaphoric chains, involves the integration of the conceptual material of the

metaphors that participate in the interaction process. Two types of metaphoric amalgam have been identified so far: *single-source metaphoric amalgams* and *double-source metaphoric amalgams* (cf. Ruiz de Mendoza 2007, Ruiz de Mendoza and Mairal 2011). Let us see each of them in turn:

(i) Single-source metaphoric amalgams. These are metaphoric complexes in which the internal structure of one of the metaphors involved merges into the structure of the other. As a result, one of the metaphors becomes part of the source-target structure of another metaphor. An instance of single-source metaphoric amalgam can be found in the sentence *She got the idea across to me*, which involves two metaphors, IDEAS ARE (MOVING) OBJECTS and UNDERSTANDING AN IDEA IS PERCEPTUALLY EXPLORING AN OBJECT, where the latter is used to enrich the former. This is necessary in order to account for all the meaning implications of the expression since on the basis of IDEAS ARE (MOVING) OBJECTS alone we can only derive the implication that there has been an act of communication whereby the addressee has had access to an idea, but not that he has understood idea. This additional implication is provided by the second metaphor, as captured in Figure 11 below.

SOURCE →	TARGET
Causer of motion	Communicator
Causing motion	Communicating
Object of caused-motion (moving object)	Idea
Destination of motion (receiver of the moving object)	Addressee
Receiving the moving object	Having access to the idea
Perceptually exploring the object	Understanding the idea

Figure 11. *She got the idea across to me.*

Consider another example of single-source metaphoric amalgam. In the sentence *He traced my symptoms back to the cause of my disease*, there are two metaphors that interact: A DISEASE IS A MOVING OBJECT and RETRACING A MOVING OBJECT IS EXPLAINING THE CAUSE OF A DISEASE. The metaphor A DISEASE IS A MOVING OBJECT allows the conceptualization of an illness as an object traveling along a path. The structure of this metaphor is developed through the integration of the second, which

specifies the conditions of motion, i.e. the moving object leaves a track that an external observer can retrace in order to identify the origin of motion.

SOURCE →	**TARGET**
Moving object	Disease
Motion of object	Progress of disease
Source of motion	Cause of disease
Destination of motion	Outcome of disease
Observer of motion of object (tracer)	Monitor of progress of disease (e.g. physician)
Traces left by moving object	Symptoms of disease
Retracing a moving object	Explaining the cause of disease

Figure 12. *He traced my symptoms back to the cause of my disease*.

The same metaphoric interaction operates in the interpretation of *He beat me into silence*. The metaphor A CHANGE OF STATE IS A CHANGE OF LOCATION is made part of the architecture of the main metaphor, AN EFFECTUAL ACTION IS CAUSED MOTION. The subsidiary metaphor is activated as a requirement of the target domain, which contains a change of state specification (being silent).

SOURCE (CAUSED MOTION) →	**TARGET (EFFECTUAL ACTION)**
Causer of motion	Effector
Object of motion	Effectee
Source (change of location)	**Target (change of state)**
Source of motion	Initial state
Destination of motion	Resultant state

Figure 13. *He beat me into silence*.

(ii) Double source metaphoric amalgams. In this case the participating metaphors are at the same level, that is, there is no main-subsidiary relation. The two metaphoric sources are mapped simultaneously onto the same target domain, as in the sentence *He beat silence into me*. The interpretation of this sentence calls for the interaction of the metaphors ACQUIRING A PROPERTY IS CAUSED-MOTION and ACQUIRING A PROPERTY IS POSSESSING AN OBJECT. These two metaphors intertwine in such a way that the effectee ('me') is conceptualized both as the destination of motion and the new possessor of a transferred object. In turn, the new property ('silence') is seen as a moving object that initially belonged to the causer of motion (the effector) and whose final destination is the effectee.

Source → (caused motion)	**Target**	**← Source (possession)**
Causer of motion	Effector (‘he’)	
Causing motion	Effecting (‘caused to acquire’)	
Destination of motion	Effectee (‘me’)	New possessor of an object
Object of caused-motion (moving object)	New property (‘silence’)	
	Resultant state (‘acquiring the new property of silence’)	Gaining possession of an object
Manner of causing motion	Manner of effecting (‘beating’)	

Figure 14. *He beat silence into me*.

There are certain cases in which a metonymy is built into the target domain of a double-source metaphoric amalgam, as in *He burst into tears*. The interpretation of this phrasal verb involves the integration of two metaphors, namely EMOTIONAL DAMAGE IS PHYSICAL DAMAGE and EMOTIONAL DAMAGE IS MOTION. Here, we conceptualize the process of experiencing emotional damage both in terms of suffering physical damage (‘bursting’) combined with motion (moving into a given place), which is used to indicate a change of state on the basis of the primary metaphor (cf. Grady 1997) A CHANGE OF STATE IS A CHANGE OF LOCATION. The outcome of the process of bursting is mapped onto the symptoms of emotional damage, namely tears. Then, through the EFFECT FOR CAUSE metonymy the tears (the effect) are made to stand for the final state of emotional damage (the cause). Additionally, the initial state (in which the person has not suffered emotional damage) and the final state (in which the person has suffered emotional damage) are identified with the source and destination of motion respectively.

Source → (bursting)	**Target (change of state)**	**← Source (change of location)**
Process of suffering physical damage (bursting)	Process of experiencing emotional damage	Motion
	Initial state (no emotional damage)	Source of motion
	Final state (emotional damage)	Destination of motion
Broken pieces	↑ Symptoms of emotional damage (tears)	

Figure 15. *He burst into tears*.

III.3.2. Metaphoric chains

As we advanced in the introduction section, a metaphoric chain is an interactional pattern between two metaphors in which the target domain of one metaphor becomes the source of a subsequent metaphor. Let us examine the interpretation of some phrasal verbs using this pattern of interaction. Consider the sentence [*When] they broke away from our church, I stuck to my own*[14]. The source domain of the first metaphoric mapping is provided by the semantics of the phrasal verb *break away*: an object is broken into two or more pieces, and these pieces become separated from one another. This first metaphoric domain is mapped onto a target domain in which two people (or a person/some people and a given institution) become physically separated. The target domain constitutes the source of a second metaphor, whose target domain is the non-physical separation. The last metaphoric mapping is grounded in experiential conflation: the fact that two people or a person and an institution are no longer together (either in a relationship or in institutional terms) generally correlates with physical separation.

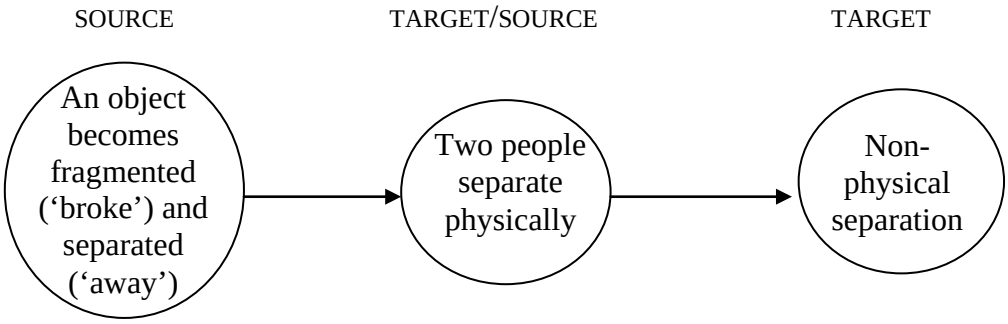

Figure 16. [*When] they broke away from our church, I stuck to my own.*

We also need the use of a metaphoric chain in the interpretation of the phrasal verb 'break down' as in the sentence *When she died Papa broke down and cried*[15]. The source domain of the first metaphorical process arises from the combined semantic structure of the verb and the particle, that is, physical fragmentation ('break') and loss of functionality ('down'). This conceptual material is mapped onto another domain in which there is no physical fragmentation, but there is an object that becomes dysfunctional (as in *My car broke down*). The implication of dysfunctionality in the first target domain maps onto a situation in which a person becomes emotionally distressed and therefore looses control over himself. This process is schematized as follows:

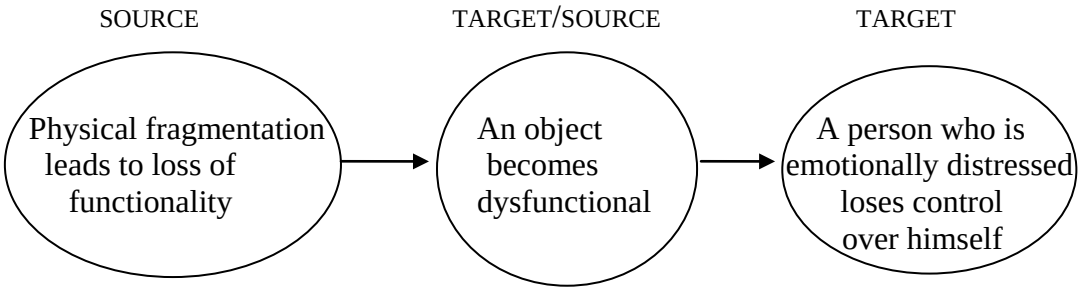

Figure 17. *When she died Papa broke down and cried*.

Our corpus of phrasal verbs has revealed that some of them may have different (although related) interpretations. This is the case of 'give away'. The default interpretation of this phrasal verb is to give an object that one possesses to someone else for free, and not caring much about the future of the donated object (as in *She gave everything away, including her home*[16]). The idea of getting rid of an object (or a number of them) is found in the source domain of the first metaphor, which is mapped onto the target domain in which someone gets rids of a person as if he/she were an object. This idea is then mapped onto a final target domain that contains the action of betraying a person. This last metaphoric mapping is conceptually reinforced by the negative feelings that a person would develop towards the person who would 'give him away' as if he/she actually were an object.

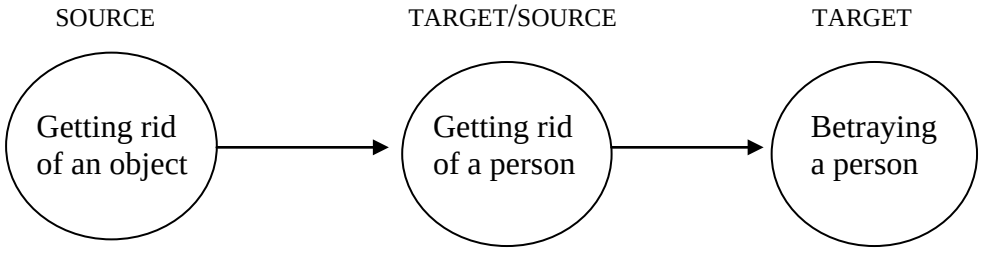

Figure 18. *Well, how soon we were betrayed, your sister gave us away*[17].

An alternative interpretation of this phrasal verb arises when the person given away is the bride in the context of a wedding. In this case, the bride is generally walked down the aisle (in order to be "given away") by her father. This particular interpretation does not convey the idea that the initial possessor of the object donates it to whoever may take it, not caring about it anymore (which is the base for the negative feeling that gives rise to the 'betraying' interpretation). In the case of the bride, his father transfers the responsibility of taking care of her to the husband-to-be (e.g. *The father of the bride was*

absent on duty with the Merchant Marine, so the bride was given away *by his friend Harry Gibson of San Francisco*[18]*).*

Our last example shows that metaphoric chains may also interact with metonymy. Consider the sentence *Eventually someone got fed up with her behavior and called the cops*[19]. A first step in the interpretation of the phrasal verb *to be fed up with* is the application of the basic metaphors FULL IS UP, which is combined with the image-schema THE HUMAN BODY IS A CONTAINER. These two underlying metaphors allow us to map 'to be fed up' onto 'to be filled to the top with food'. Then we need to metonymically expand this target domain onto a more complex situation in which a person cannot have more food or will get sick. This elaborated target domain constitutes the source of another metaphor whose target domain is a situation in which a person cannot stand someone else's behavior (see figure 19 below).

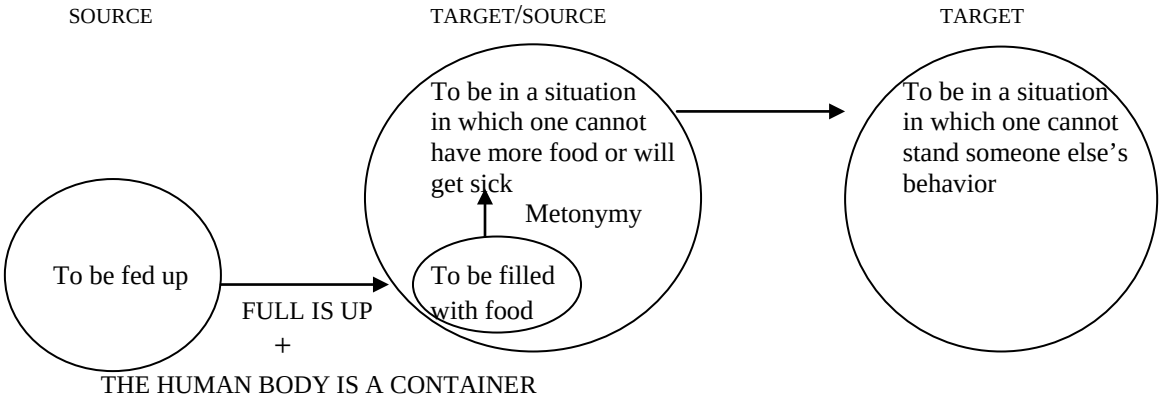

Figure 19. *Eventually someone got fed up with her behavior and called the cops.*

IV. CONCLUSIONS

Phrasal verbs are idiomatic constructions consisting of fixed and variable parts where the fixed part can take a degree of variation that stems from the general ability of verbal structure to be fused into various argument structure constructions (e.g. *X breaks away with Y*; *X and Y break away*) and to take tense, aspect and other grammatical markers.

The conceptual make-up of phrasal verbs goes beyond the combination of verbal meaning (whether propositional or image schematic) and the image schematic meaning associated with the adverbial particle or the preposition. It may require the combination

of two metaphors (which in turn may include cases of metonymic activation) either in the form of amalgams or chains.

Such combinations account for an essential part of the conventional implications derived from phrasal verbs. In turn, such implications are what renders the meaning of phrasal verbs, like the meaning of other idiomatic constructions, fundamentally non-compositional although largely predictable and calculable.

Notes

[1] *Center for Research in the Applications of Language* (www.cilap.es). Financial support for this research has been provided by the Spanish Ministry of Science and Innovation, grant no. FFI2010-17610/FILO.

[2] http://www.lifescript.com/life/relationships/hang-ups/6_reasons_you_cant_leave_a_loser.aspx. Accessed on November 19, 2011.

[3] http://www.survivalistboards.com/showthread.php?t=77704. Accessed on November 19, 2011.

[4] www.alplm.org/abraham-lincoln-greatest-paraphrases/ Accessed on November 19, 2011.

[5] http://scientopia.org/blogs/goodmath/2011/02/11/another-crank-comes-to-visit-the-cognitive-theoretic-model-of-the-universe/. Accessed on November 19, 2011.

[6] http://www.nicestories.com/unreg/s/story.php?id=6975. Accessed on November 19, 2011.

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[8] http://covenant-hopeliveshere.blogspot.com/2008/06/god-speaks-to-his-children.html. Accessed on December 3, 2011.

[9] http://bible.cc/luke/18-13.htm. Accessed on November 23, 2011.

[10] http://www.amazon.ca/product-reviews/1586632043. Accessed on November 23, 2011.

[11] http://www.hypnosisdownloads.com/enjoy-life/life-soul. Accessed on November 23, 2011.

[12] http://www.lomography.es/magazine/reviews/2011/03/22/for-the-ahem-love-of-lomography-black-and-white-120-film. Accessed on November 23, 2011.

[13] http://nycapitolnews.com/wordpress/2011/10/occupied-or-not-wall-street-is-sagging/. Accessed on December 3, 2011.

[14] http://books.google.es/books?id=l3C97GdNz9oCandpg=PA44andlpg=PA44anddq=%22when+they+broke+away%22andsource=blandots=1pajL7oE_Aandsig=JQT6hM8pbgKeue6oRLUv00Bn6wcandhl=eandei=W-LLTr3uKMrc8AP0sIkHandsa=Xandoi=book_resultandct=resultandresnum=2andved=0CCUQ6AEwATgK#v=onepageandq=%22when%20they%20broke%20away%22andf=false. Accessed on November 23, 2011.

[15] http://lyricsplayground.com/alpha/songs/p/papa.shtml. Accessed on November 23, 2011.

[16] http://www.comeandseeicons.com/w/drz05.htm. Accessed on November 23, 2011.

[17] http://www.metrolyrics.com/o-valencia-lyrics-decemberists.html. Accessed on November 23, 2011.

[18] http://news.google.com/newspapers?nid=1970anddat=19431007andid=ODUyAAAAIBAJandsjid=ZeMFAAAAIBAJandpg=2821,491682. Accessed on November 23, 2011.

[19] http://www.canada.com/story_print.html?id=e33c79ba-e5ef-479d-a59a-43bd5e9e6b52andsponsor=. Accessed on November 23, 2011.

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An integrated model of metaphorical linguistic expressions and its implications for the semantics of verb-particle constructions

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ABSTRACT

The aim of this article is threefold. Firstly, in line with the current tendencies in cognitive linguistics, which direct research toward convergence, integration and a uniform theoretical perspective, recent developments in research pertaining to metaphorical linguistic expressions (MLEs) are discussed against explorations into the semantics of verb-particle constructions (VPCs) in order to demonstrate that these methodologies converge on both the type of questions asked and the kind of solutions proposed. Thus, the second aim of the present exposition is to propose an exemplar-based model of analysis which could be applied to the meaning profiles of both MLEs and VPCs. Finally, in view of the fact that previous approaches to metaphorical language have rather consistently downplayed the role of grammatical categories in meaning disambiguation, the article seeks to establish the function of VPCs in the meaning profiles of MLEs.

Keywords: *MLEs, VPCs, cognitive linguistics, usage-based approach, isolating and integrating models, meaning profiles*

I. INTRODUCTION

In their assessment of the cognitive linguistics enterprise, Evans and Green (2006: 779) note that one of the challenges the paradigm has yet to face is the problem of competing explanations offered to account for the same, or closely related, phenomena. As the authors further argue, conceptual projection constitutes a par excellence instantiation of competition among theoretical perspectives embedded in the cognitive commitment. Indeed it seems that Conceptual Metaphor Theory (henceforth also CMT), proposed by Lakoff and Johnson (1980) and developed by Kövecses (2000, 2002), Deignan (2005) and Stefanowitsch (2006), among others, has engendered some of the most heated debates within the community. As a result of the criticism the approach has received, CMT, at least in its classic version, is now placed outside cognitive linguistics (see, for instance, Givón 2005, Haser 2005). To be more specific, the tendencies within the standard metaphor model which go against mainstream research in cognitive linguistics

can be formulated as its overgeneralization and de-contextualization commitments. Consequently, it can be further argued that Conceptual Metaphor Theory is an isolating methodology, whereby the number of contexts competing for salience in the process of meaning interpretation is limited (cf. Geeraerts 2003).

II. CMT AS AN ISOLATING MODEL

The specific concerns related to the cognitive validity of Lakoff and Johnson's proposal concentrate on two aspects of CMT, which, as argued above, constitute the isolating commitment of the methodology.

Firstly, the degree of detachment between conceptual schemas and their linguistic realizations is taken as evidence against the plausibility of the generalizations proposed. This entails that a predetermined route of conceptual integration posited in CMT, i.e., a cognitive path that leads via the main meaning focus of the source category, is considered unmotivated.

The second major criticism which Conceptual Metaphor Theory has stimulated pertains to the role of context in meaning interpretation. To be more specific, if we assume that cognitive linguistics is a usage-based model, it must be concluded that the linguistic evidence quoted in support of CMT does not, on the whole, conform to this requirement. Indeed, a systematic overview of metaphorical language shows that there is still an urgent need within metaphor research to develop a methodology which would be more compatible with the usage-based postulate of cognitive linguistics.

II.1. Metaphorical linguistic expressions

The construct of a metaphorical linguistic expression was coined by Kövecses (2002: 251), who defines it as "… words or other linguistic expressions (e.g. idioms) that come from the terminology of the conceptual domain that is used to understand another conceptual domain".

This definition of metaphorical language, derived from Lakoff and Johnson's (1980) proposal, entails numerous methodological ambiguities that are discussed, for instance,

in Stefanowitsch (2006). For the sake of the current exposition, two interconnected limitations inherent in metaphorical expressions will be analyzed: their linguistic scope, i.e., the amount of syntagmatic context considered as relevant in the process of meaning interpretation, and their conceptual scope, i.e., the number of domains a particular linguistic unit is considered to evoke, both of which are discernible in examples (1)–(7) below (cf. Kövecses 2002).

(1) He's <u>without direction</u> in life.
(2) I'm <u>where I want to be</u> in life.
(3) She'll <u>go places</u> in life.
(4) He's never <u>let</u> anyone <u>get in his way.</u>
(5) She's <u>gone through</u> a lot in life.
(6) I'm <u>starved for</u> affection.
(7) He <u>thrives</u> on love.

Clearly, on the basis of the above data, metaphorical linguistic expressions, i.e., the underlined fragments in examples (1)–(7), are either content words, e.g. *thrives*, or collocations, e.g. *go places*, often arbitrarily limited, e.g. *go through* rather than *go through a lot*. What is of particular interest here is the role of VPCs, particles, and prepositions in the scope of MLEs. On the one hand, in examples (1)–(7), prepositions are not consistently included within metaphorical language. On the other hand, though, the mappings proposed are supported primarily by particles. For instance, the HAPPY IS UP metaphor is instantiated by four linguistic expressions, three of which, i.e., the underlined fragments in examples (8)–(10), are isolated particles:

(8) We had to cheer him <u>up</u>.
(9) Lighten <u>up</u>!
(10) She lit <u>up</u>.
(11) They were in <u>high</u> spirits. (Kövecses 2002: 85)

All in all, then, it seems that MLEs are limited rather arbitrarily, which, in some cases, results in positing expressions whose frames do not include the metaphorical focus. For example, Kövecses (2000: 75), discussing *She was <u>consumed</u> by passion* or *I am <u>burning</u> with emotion*, as instances of the EMOTION IS FIRE/HEAT mapping, claims that "[i]t is the prepositions *with* and *by* that indicate that there is a *causal* link between

certain emotional responses and emotion as fire". However, the prepositions, as the underlined fragments indicate, are excluded from the scope.

In the same vein, Steen's procedure of metaphor identification does not incorporate prepositions and particles into the analysis because "… they are somewhat less easy to handle [since] [m]any prepositions are delexicalized, which presents special problems for analysis and hence identification" (Steen 2002: 25). Related to this, Stefanowitsch's (2006: 73) proposal to capture metaphorical language in the form of patterns which "… are presented in a form that is somewhat abstracted from the actual citations: verbs are shown in the infinitive, slots for participants are shown as X or Y, and similar patterns are collapsed into compact form using slashes for alternatives and parentheses for optional elements" eliminates grammatical elements from the syntagmatic context. Not unexpectedly, prepositions and particles are among the most frequently omitted categories, as illustrated by the following examples: *anger boil (up)/simmer (inside X/beneath surface), X vent anger (against Y), anger spark/flare (in X's eyes), X arouse anger (in Y)* (Stefanowitsch 2006: 74, 76).

To sum up, the examples of MLEs discussed above confirm the isolating character of CMT through the imposition of unmotivated constraints on the number of possible contexts influencing the construal of the target concept. As a result, not only are abstract categories, e.g. emotions, defined in a monolithic way but also sense relations among concepts are presented in a manner which induces identity. Importantly, categories whose status within MLEs is particularly problematic are function words and constructions, including VPCs. Consequently, the role of grammatical categories in meaning interpretation should be one of the central questions addressed in a usage-based, or integrated, approach to metaphorical language.

III. TOWARD AN INTEGRATED MODEL OF METAPHORICAL LINGUISTIC EXPRESSIONS

In the previous section, I have demonstrated that classifying CMT within a usage-based cognitive linguistics is debatable on account of the fact that the methodology is consistently detached from the influences of the linguistic context, which naturally

entails that its conceptual commitment is rather limited. In an attempt to re-attach CMT to mainstream research within the cognitive paradigm, two avenues of exploration have been followed. The first one is a theory-driven attempt to reformulate conceptual metaphors as detailed mappings, while the other one aims at re-contextualizing MLEs. The two tendencies can thus be discussed as integration through specification and integration through re-contextualization, respectively.

III.1. Integration as specification

The first line of research guided by the principles of a usage-based perspective has sought to remedy the problems of unmotivated generalizations by positing detailed conceptual mappings. The resulting proliferation of source and target domains, however, has immediately prompted the question of a motivated connection between a linguistic unit and its domain matrix. In other words, as Haser (2005: 245) rightly observes, if "… every metaphorical expression could be 'accounted for' by different conceptual metaphors, … not a single metaphorical concept is supported by the available data". A similar idea is noted by Givón (2005: 80), who argues that conceptual primitives are activated by the categories within the utterance itself rather than metaphorical schemas.

Apparently, then, attempts at overcoming the problem of metaphorical generalizations have provided evidence for the direct access view upon linguistic metaphors (cf. Gibbs 2002).

Consequently, the meaning potentials of words and constructions constituting an MLE have been considered with reference to their most salient parameters, which could act as profile determinants. In search for the relevant aspects of meaning potentials, Hanks (2006) argues that the most prominent features are those which are important from the human perspective, and thus, "… mountains are high, deserts are dry, jungles are impenetrable, seas and oceans are vast expanses, heaven is nice, hell is nasty; storms are violent, attacks are damaging, drowning is slow death, burning is quick destruction, orgies are unrestrained" (Hanks 2006: 20). Moreover, Hanks argues that these attributes are preserved in cross-domain mappings.

At this stage, one cannot fail to notice an interesting parallelism between research into VPCs and investigations into the semantics of MLEs, which is constituted by the notion of the functional attributes of complex primitives. Indeed Hanks' observations are consistent with Navarro's (2006: 171) proposal, whereby "… the functional patterns conceptualized on the basis of human interaction are also used for the conceptualization of spatial relationships between other entities". In other words, both lines of research seem to converge on the cognitive supremacy of human-calibrated representations.

All things considered, it seems that a direct access approach to metaphorical language has led to the extension of the conceptual commitment adopted by the methodology. Still, increasing the conceptual scope of one category, i.e., the source domain, does not seem to have solved the problem of a (postulated) usage-based orientation of the model. Obviously, the remaining conundrums pertain to the potential influences of other categories to be found within the scope of a metaphorical linguistic expression, and are thus closely related to the other avenue of research aimed at re-establishing the position of CMT within cognitive linguistics, i.e., studies highlighting the role of context in meaning interpretation.

III.2. Integration as re-contextualization

As announced above, attempts to re-formulate metaphorical mappings have been accompanied by research into the quantity and quality of the syntagmatic scope of MLEs. Importantly, a systematic study of natural contexts has revealed a number of mechanisms that are inaccessible through other perspectives, e.g. introspection. First of all, Deignan's (2005) analysis of linguistic metaphors provides evidence for the conceptual salience of the target category, which is consistently reflected in the morphosyntactic patterns typical of the non-literal uses alone. Likewise, Glynn's (2002) study shows that numerous details pertaining to the conceptual structure of an abstract category can be revealed if a lexical approach is complemented by grammatical evidence. Related to this, Stefanowitsch's (2006: 66) construct of a metaphorical pattern, defined as "… a multi-word expression from a given source domain… into which a specific lexical item from a given target domain… has been inserted" highlights

the importance of a coherent scope. Finally, Janda and Solovyev's (2009: 376) notion of a constructional profile of a lexeme which refers to "… the distribution of relative frequencies of constructions associated with a given word" places research into the structure of abstract concepts firmly within a family of usage-based methodologies including, for instance, Evans' (2006) lexical profiles or the co-occurrence patterns discussed by Svanlund (2007).

Basically, then, recent approaches toward metaphorical language highlight the role of the linguistic (and conceptual) scope in a comprehensive description of a particular unit since "[a] word's constructional profile is [taken as] unique and representative of its meaning" (Janda and Solovyev 2009: 376). Simultaneously, it is important to note that the developments in the study of MLEs presented above are again consonant with recent proposals within research on VPCs. For instance, Silvestre (2008: 396–397) observes that:

> [t]he specific senses that linguistic units in general, and relational particles in particular, take in discourse are influenced by the linguistic and extralinguistic context in which they are employed. Hence, the uncovering of the nature of contextual elements, like sets of Trs and Lms typically occurring with specific VPCs, helps to better understand the semantics of these constructions.

The profiles, or scopes, of MLEs or VPCs are thus aggregates of categories whose meaning potentials cannot be ignored in the process of conceptual integration. In the same vein, Dobrovol'skij and Piirainen (2005: 155) claim that "… idioms related to the FEAR IS COLD metaphor render ambivalent interpretations. Thus, it is vital to consider not just the actual figurative meanings but also the conceptual structures behind them." Consequently, Dobrovol'skij and Piirainen define FEAR through a number of (functional) aspects revealed through the study of syntagmatic settings, e.g. "for a long time", "suddenly", "immediately", or the "degree of acceptability of the subject's emotional state from the perspective of the speaker". To illustrate, examples (12)–(13) are considered to highlight "personal" as opposed to "non-personal" aspects of the emotion (cf. Dobrovol'skij and Piirainen 2005: 155).

(12) I had my heart in the mouth when I went to ask the bank for more money.
(13) All those watching the attempt to save the drowning child had their hearts in their mouths.

Evidently, Dobrovol'skij and Piirainen's proposal offers a much-needed extension of the metalanguage (of standard CMT) and makes it possible to highlight connections within and across target domains which cannot be explained in terms of relations in (apparently co-activated) source categories. Interestingly, this line of research has also been pursued with reference to VPCs.

In her study of the contextual realizations of the UP schema, Hampe (2005: 104) claims that it is instructive to consider the conceptual structures behind the actual linguistic expressions rather than "… introducing an axiological orientation of its own [since] the particle is indeed capable of emphasizing or enhancing the evaluative aspects already inherent in the respective scenarios expressed by the verbs and their complements". Moreover, Hampe draws attention to one problem within VPC studies which is also relevant in the case of MLEs, i.e., the issue of competition among categories within a specific syntagmatic context. To be more specific, in view of the fact that VPCs, and also MLEs, have been associated with particular aspects in isolating methodologies, it is important to check the validity and/or stability of these features from a usage-based perspective.

I believe that the above-mentioned concerns pertaining to the cognitive salience of aspects predicated of isolated categories need to be interpreted against a general discussion in cognitive linguistics on the plausibility of the notion of profile determinance. While details of the dispute can be found in Croft (2001), Langacker (2008), and Taylor (2002), what is of utmost importance for the current exposition is the relation between a unit's prominence and its likelihood of functioning as the head within a complex assembly.

To begin with, Ungerer and Schmid (1996) argue that the head/modifier asymmetry is related to the cognitive salience of categories. Salience, in turn, means that a given construct is "… particularly vital for human concerns" (1996: 92). For instance, in the case of *shoelace*, the category SHOE is seen as more important for human purposes than that of LACE, and consequently the former is the head. Not unrelated to this, Croft (2001: 259) claims that the head is "… the primary information-bearing unit, that is, the most contentful item". On the other hand, according to Taylor (2002: 349–350), in a nominal "… the profile of the composite expression is inherited from the determiner,

not from the bare noun. … The bare noun is therefore the complement of the determiner". Langacker's (2008: 192, 194) approach to profile determinance in fact sanctions both the structural and the semantic definition of the construct, while Tuggy (2007: 115) points to a possible irresolvability of the grammatical/lexical primacy.

Clearly, then, a unit's salience depends on its class membership and it seems that grammatical words and at least some content items are potential candidates for prominence within a syntagmatic context of a metaphorical linguistic expression.

To continue, Goldberg and Casenhisher (2006) argue that, depending on their respective degrees of entrenchment, it is either the construction or the main verb that determines the interpretation of the sentence. For instance, in *Mike gave her a pencil*, the understanding is assumed to come from the verb *give* rather than the ditransitive construction. Another tendency is noted by Fillmore (2003), who refers to *give* in *give her a kiss* as a "ditransitive support verb". The particular context in which *give* occurs renders it non-salient and hence, according to Fillmore, the semantic determinant is the direct object.

What transpires from the above overview is an inference that since a unit's salience is relative, profile determinance seems best defined as a dialogical notion. Consequently, it may well be the case that a number of salient categories are characteristic of a particular context, none of which can be felicitously proposed as a profile determinant. This idea is reinforced by the fact that isolated meaning potentials undergo transformations in the process of conceptual integration to such a degree that their purports become mere ingredients of the whole (cf. Croft and Cruse 2004: 101). Therefore, I postulate the context of (at least) an utterance to function as a complex primitive, i.e., a locus of functional attributes. This suggestion is based on Croft's model of exemplar-based grammar, which takes:

> [e]ach situation/scene as a whole [as] a primitive element in the representation, i.e., a point in conceptual space. To put it another way, each semantic frame is a semantic primitive. Likewise, each construct is a primitive element in the representation, a point in syntactic space. (Croft 2007: 27)

As a result of adopting an exemplar-based approach to MLEs, units within a context can be evaluated with reference to their relative salience and, consequently, meaning profiles of MLEs can be developed, which, in essence, consist of recurrent aspects

attracted by a particular collostruction. Further details of the proposal are presented below and these, in view of the systematic convergences highlighted throughout this article, could be pertinent to research concerning the semantics of VPCs.

IV. METAPHORICAL LINGUISTIC EXPRESSIONS IN THE INTEGRATED MODEL

As already argued above, the integrated methodology assumes the context of an utterance as the starting point and, hence, the global complex primitive is an exemplar. Within each exemplar, local loci of functional attributes can be distinguished, which are predominantly conveyed via grammatical words and constructions. A metaphorical linguistic expression is thus only one of the many complex primitives which can be found in an utterance. Consequently, its salience is relative and depends on the prominence of the other elements within an exemplar. Therefore, the aspects proposed as highlighted by a given MLE in the isolating approach are likely to be, at least qualitatively, different in the integrated model. Moreover, building on the assumption that conceptual integration involves establishing correspondences, even the most schematic ones, among the participating elements, it is assumed that the components underscored in the meaning profiles of MLEs are at least as relevant to their semantics as those posited in the isolating approach. The specific assumptions of the model are formulated below.

To begin with, as argued in Section II.1, the very definition of a metaphorical linguistic expression requires elaboration and, thus, I assume that an MLE is a collostruction composed of two units, one of which designates a concrete concept and the other an abstract one. Moreover, since the function of MLEs is to reveal the underlying semantic potential of abstract concepts e.g. emotions, which, in turn, are conveyed via nouns, I take MLEs realized by noun phrases, e.g. *cold fear*, *bitter anger* or *source of sadness* as prototypical members of the category. Next, MLEs are presumed to be ambiguous since, first of all, the very notion of metaphoricity implies multiple, and often competing, interpretations (cf. Haser 2005: 170). This assumption is reinforced by the fact that MLEs are isolated phrases whose meanings, as Boas (2003) rightly notes, are

unlikely to be determined due to a lack of contextual clues. In the same vein, Stern (2000: 179) claims that "… metaphors are never expression types per se but interpretations (or uses) of expression *tokens in contexts*". Consequently, I propose that both the salient aspects of meaning potentials and the degree of cognitive distance between the elements of an MLE can be reliably established on the basis of an integrated, i.e., exemplar-based, approach.

In order to illustrate the workings of the methodology, let us first of all look at Hanks' (2006) examples of MLEs, whose metaphoricity is motivated by the degree of resonance between the primary and secondary subjects, which Hanks defines as the number of semantic features shared by the two categories. Consequently, *sea of faces* is an unprototypical MLE, while *sea of trouble* is far more representative of the category. Moreover, Hanks posits that in the case of the *sea of N* construction, the salient functional attribute is vastness, which is consistently inherited by the complex assembly. If this speculation is confirmed by means of an integrated methodology, it will be concluded that a usage-based approach is redundant since it, on the whole, confirms the aspects already revealed in an isolating model. If, on the other hand, syntagmatic contexts were to show functional attributes other than those posited in CMT, the validity of the methodology would be increased.

As a result of verifying Hanks' examples, the aspect of vastness has been partly confirmed in the syntagmatic settings of *sea of faces*, since of the 19 corpus citations checked, seven co-occur with contexts related to unboundedness, which is illustrated by examples (14)–(20).

(14) She looked down upon a sea of faces, rows and rows of black-stockinged legs, and a long line of mistresses sitting on their chairs.
(15) For a second she blacked out, not from pain but from the shock of it all, and when she opened her eyes she was looking into a sea of faces all staring down at her.
(16) She'd deliberately looked into the sea of faces, looked unerringly to the rear of the crowded room.
(17) She glanced up with dread and peered into the sea of faces that was watching her with curiosity.
(18) She ignored his lecherous gaze and scanned the sea of faces for Stephen.

(19) Now she reached the main doors and walked in, eyes flicking over the sea of faces in search of Mahoney.
(20) Obediently the noise level dropped to a whispered exchange, and Larsen ran his eye over the sea of faces packing the long corridor on either side, trying to pick out his daughter Karen.

In the case of *sea of troubles*, however, the corpus examples point to a connection between the phrase and the CONTROL schema, as illustrated by examples (21)–(22).

(21) Whether 'tis nobler in the mind to suffer The slings and arrows of outrageous fortune, Or to take arms against a sea of troubles, And by opposing end them?
(22) Had it not been for that publication Sally might have avoided that almost overwhelming sea of troubles which resulted from harmlessly intended praise.

Finally, the contexts of *sea of life* present the following picture:

(23) Much better to get involved with someone who had plunged fully into the sea of life than with someone who had stood wimpishly on the edge, afraid to dip in so much as a toe.
(24) It is someone who is not afraid of responsibility or commitment, whose daily disciplines provide an anchor in the rough sea of life, who does not switch his allegiance, whatever the cost.
(25) Now you've been patched up, your hull's been scraped, a lick of paint and you're ready to get back into the great sea of life.

Thus, *sea of life* may well be associated with such concepts as EXCITEMENT, DANGER or even WAR. However, the link is not as obvious as in the case of, for instance, *sea of faces*. For one thing, more context, probably as extensive as the underlined fragments in examples (23)–(25), is needed in order to discover the salient aspects.

Two important implications emerge from our discussion so far. Firstly, MLEs are ambiguous collostructions whose meaning potentials only partly confirm the aspects proposed in isolating approaches. This is not to say that vastness/unboundedness is not a possible element of the meaning potential of, for instance, *sea of trouble*. However, it is to say that this aspect is not revealed in the meaning profile of the cluster. Consequently, *sea* is seen as a complex primitive which competes for salience with

other loci of functional attributes within an exemplar, e.g. VPCs. Simultaneously, let us recall that the complex primitives within a context can be realized by linguistic means of varying prominence. For instance, Goldberg (2006: 104–119) argues that although the cue validity of words and constructions is roughly the same, it is nevertheless the latter that have a more significant predictive potential. Related to this, grammaticalization theories postulate the role of high-frequency lexical words and expressions, e.g. body part terms, verbs expressing physical states or processes, e.g. *sit*, *lie* or *go*, or verbs expressing core human activities such as *make*, *do*, *have* or *say* in meaning interpretation (cf. Heine et al. 1991: 32–35).

In view of the above, I propose a grammar-based metalanguage for the description of the meaning profiles of MLEs, whose validity is further supported by research into simulation semantics. To be more specific, abstract categories, which constitute the core of MLEs, are highly attenuated simulations of engaged experience. Thus, in consonance with the mechanics of conceptual integration, the meaning profiles of MLEs are expected to display features which are consistent with those anticipated by the cluster. Consequently, the metalanguage applied for the representation of abstract concepts is supposed to include categories which transcend immediate experience, i.e., grammatical meanings (cf. Langacker 2008: 540). All in all, basic concepts derived from grammatical categories, e.g. conjunctions, prepositions, determiners, VPCs or syntactic patterns, are taken as par excellence complex primitives.

An inventory of basic concepts for the representation of the meaning profiles of MLEs includes both object-based schemas, e.g. EXPERIENCER, CO-OBJECT or EXPRESSION, and relations, e.g. AVAILABILITY TO OTHERS, CONTROL, PENETRATION, PERSISTENCE or CONTRIBUTION (for a comprehensive set, see Strugielska forthcoming). These complex primitives occur within the contexts of metaphorical linguistic expressions, as illustrated by examples (26)–(29), where MLEs are represented by X and the underlined fragments are the approximate linguistic realizations of the basic concepts proposed.

(26) (Nuadu did not move,) but the icy fear closed about him again. (PERSISTENCE, X, EXPERIENCE/CONTROL, PERSISTENCE)

(27) The icy fear which showed in the older man's eyes cut through Vologsky's mild concern like a knife, chilling him to the bone. (X, AVAILABILITY TO OTHERS, EXPERIENCER/EXPRESSION, PENETRATION, PENETRATION)
(28) (As he dressed for dinner in his room, Dorian remembered what he had seen) and cold fear ran through him like a knife. (RESULT, X, PENETRATION, PENETRATION)
(29) She struggled with the cold fear that had laid its hand on her. (RESISTANCE, X, CONTROL)

According to CMT, the aspect highlighted by *cold/icy fear* is a negative valuation. However, the integrated approach shows that there are a number of other attributes relevant to the meaning of the cluster. Importantly, these aspects, e.g. PENETRATION, RESULT, or CONTROL, are, in my view, prototypically functional since they facilitate the construal of the emotion from the human perspective, i.e., as regards its intensity.

Finally, let us consider *deep sadness* and *deep fear* in order to highlight further advantages of the integrated model.

The cluster *deep sadness* consistently features three aspects within its meaning profiles: EXPRESSION, EXPERIENCER and AVAILABILITY TO OTHERS, as demonstrated by examples (30)–(35).

(30) It was, however, obvious that there was some *deep sadness* within him.
(31) Little by little his shoulders bent forward, and his face showed *deep sadness*.
(32) On his face was a look of *deep sadness*, but also of evil.
(33) On his face was an expression of *deep sadness*.
(34) (Montgomery had expected an air of authority from this venerable man, who had spent most of his seventy-odd years lecturing students,) but Aubrey St John Goth seemed distant, distracted, his grey eyes veiled by a *deep sadness*.
(35) He felt a *deep sadness* in this thin, weak creature.

On the other hand, the meaning profiles of *deep fear* are not only quantitatively but also qualitatively different (see examples 36–42).

(36) The need for excessive control in conversation can come from a *deep fear* that other people's ideas are threatening. (CAUSE, X, CO-OBJECT/CAUSE)

(37) One more guilty secret that Maggie felt obliged to keep from everyone was the *deep fear* and disgust that she felt at the thought of sexuality. (SOCIAL ACCEPTABILITY, NON-AVAILABILITY TO OTHERS, X, CAUSE)

(38) In England the desire for an "English" tradition is said to hide a *deep fear* of our present multi-cultural society, a determination to maintain our present class structure, the hierarchies of power which give Oxbridge dons their privileged and cushioned existence. (SOCIAL ACCEPTABILITY, NON-AVAILABILITY TO OTHERS, X, EXPERIENCER)

(39) The colour left her skin, her pale face showing a *deep fear* at the way he was crushing her to his body. (EXPRESSION, AVAILABILITY TO OTHERS, X, CAUSE)

(40) In no way had he been consciously sadistic over the earlier years, but he had a *deep fear* of women who took over, as his mother had done. (AVAILABILITY TO SELF, EXPERIENCE, X, CO-OBJECT/CAUSE)

(41) The warm, soft-seeming lead beneath her feet and the sharp-knapped flint and stone under her hand only partially secured her against the *deep fear* of falling. (PROTECTION, X, CO-OBJECT/CAUSE)

(42) A general war weariness, grievances over high taxation, and a *deep fear* amongst the Anglican majority of the population that the Church was now in greater danger from Protestant Nonconformists than it was from popery, all worked to the Tories' advantage. (X, EXPERIENCER, CO-OBJECT/CAUSE, CONTRIBUTION)

The meaning profiles of MLEs presented above point to two important implications of the model proposed here. To begin with, an exemplar-based analysis highlights aspects of meaning potentials of collostructions which are unavailable through an isolated perspective. However, these features are important for the semantics of MLEs on a few counts. Firstly, a systematic analysis of meaning profiles facilitates ambiguity/conventionality distinctions, which can be accomplished on the basis of the number and productivity of aspects. Consequently, *deep sadness* seems a less ambiguous, i.e., metaphorical, cluster than *deep fear*. Related to this, sense relations among MLEs can be established on the basis of meaning profiles, which will inevitably result in delimiting the rampant synonymy position of CMT. Next, depending on the degree of attenuation of aspects within exemplars, MLEs could be placed along the concrete/abstract continuum in a motivated way, whereby highly schematic concepts,

e.g. CO-OBJECT, would indicate a greater degree of abstraction than categories such as RESISTANCE or PENETRATION.

The second implication of the model pertains to the role of grammatical categories, e.g. VPCs, in the profiles of MLEs. As amply illustrated above, the uncertain status of function words posited in CMT is not confirmed in the integrated model, where the functional attributes are predominantly derived from grammar. To be more precise, I posit that aspects inherent in the cognitive models behind particular MLEs are conveyed via grammatical categories, while less intrinsic ones, e.g. SOCIAL ACCEPTABILITY or VALUATION, are realized by content words. Consequently, VPCs, which refer to the central attributes of the MLEs discussed above, e.g. CONTROL, PENETRATION, AVAILABILITY TO OTHERS or CAUSE, can, on the whole, be seen as indispensable in the meaning profiles of metaphorical linguistic expressions.

V. CONCLUSIONS

Three main conclusions arise from the current exposition. Firstly, and perhaps most importantly, there are theoretical implications, which clearly show points of convergence between the VPC and MLE methodologies as well as their unquestionable position within a usage-based cognitive linguistics. Consequently, the article addresses one of the remaining challenges of the paradigm, which is to forge a uniform theoretical position that could be shared by the multifarious proposals classifying themselves as "cognitive". Secondly, and related to this, an integrated model of MLEs has been proposed, and its relevance for VPCs has been highlighted. Finally, it has been evidenced that the meaning profiles of MLEs are predominantly composed of grammar-based conceptual primitives and, thus, the role of VPCs for the interpretation of metaphorical linguistic expressions has been emphasized.

In view of the above, it can be firmly stated that explorations into the semantics of MLEs and VPCs have much to offer not only to each other but also to other usage-based methodologies within cognitive linguistics.

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Topological vs. lexical determination in English particle verbs (PVs)

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ABSTRACT

The central aim of this work is to describe semantic determination, i.e., topological vs. lexical determination, by investigating aspects of construal (Langacker 1987) in English PVs with *in* and *out*. The paper focuses on L2 processing related to what we might call strategic thinking about linguistic meaning. More specifically, it attempts to demonstrate the following: a) how the nature of verbs affects the overall semantic determination of particle verb constructions, and b) if/how the users of English make sense of particle verbs, and how much they rely on topological/grammatical components in the process of constructing meaning. The results suggest that the nature of verbs does affect the users' strategic meaning construal – it differs in terms of their tendency towards one of the following types of semantic determination: a) topological, b) lexical, and, c) compositional.

Keywords: *particle verbs, strategic construal, in, out, lexical, topological*

I. INTRODUCTION

For the purpose of this paper, particle verbs (PVs) will be defined as those verb-plus-particle combinations in which the particle is semantically more closely linked with the verb and not with the noun that follows (see e.g. Biber et al. 2002, Cappelle 2002, 2005, Dehé 2002, Fraser 1970, Lindner 1981, Lipka 1972, Talmy 2000). The key condition for a word to be called a particle is that it is not being used as a preposition. In discussing patterns in the representation of event structure, Talmy calls them satellites in order to "capture the commonality between such particles and comparable forms in other languages" (Talmy 2000: 103). Typologically, there are two basic language groups in terms of how the conceptual structure is mapped onto syntactic structure: a) verb-framed languages, and b) satellite-framed languages (*ibid* 221). Broadly speaking, the basic difference lies in whether the core schema is expressed by the main verb or by the satellite. The satellite can be either a bound affix or a free word. Thus, its category includes a variety of grammatical forms: English verb particles, German separable and

inseparable verb prefixes, Russian verb prefixes, Chinese verb complements, etc. Verb-framed languages map the core schema onto the verb and the verb is called a framing verb. Satellite-framed languages map the core schema onto the satellite (*ibid* 222). Let us consider Talmy's example contrasting English and Spanish:

(1) a. *The bottle floated out.*
b. *La botella salió flotando.*
'The bottle exited floating'

In (1a), the satellite *out* expresses the core schema (the path), whereas the verb *float* expresses the co-event. In the Spanish *La botella salió flotando*, the verb *salir* 'to exit' expresses the core schema and the gerundive form *flotando* 'floating' expresses the co-event of manner. Apart from the motion event exemplified above, an important framing event related to English particles is temporal contouring (or aspect). According to ample linguistic evidence, temporal contouring is conceptually, and thus syntactically and lexically, analogical with motion. As stressed by Talmy (*ibid* 233), even though probably all languages express aspectual notions both with lexical verbs and with constituents adjoined to the verb, one or the other tends to predominate. English, for example, has a number of aspectual verbs borrowed from Romance languages (e.g. *enter*, *continue*, *terminate*), but it still seems to lean towards the satellite side.

I.1. Prefixes as satellites

As proposed by Tabakowska in her analysis of Polish, the "intimidating complexity" of the phenomenon of verbal prefixation results in its categories being placed in "the border area between two morphological processes, derivation and flexion" (2003: 155). When prefixes are associated with a particular lexical content, their meaning is considered relatively transparent and regular. However, when they are categorized as flexion, i.e., when they code aspect, their meaning is viewed as abstract and much less transparent. Tabakowska's attempt to give a systematic account of Polish prefixation initiates an important question of verbal prefixes being semantically related to prepositions. In order to substantiate the above-mentioned semantic motivation, the author analyses and compares the usage of the preposition *za* and the prefix *–za*[1]. Having embraced the cognitive linguistic view of semantic structure, Tabakowska

assumes that prefixes are never semantically empty or redundant, and even though the process of grammaticalization renders them semantically bleached, they tend to reveal their old meanings. For example, *za* is most frequently followed by a nominal (nom) in the instrumental (INSTR) or in the accusative (ACC) case:

(2) a. *(siedzieć) za drzewem*
(to sit) behind tree: INST
'to sit behind the tree'
b. *(iść) za drzewo*
(to walk) beyond tree: ACC
'to walk beyond the tree'
(taken from Tabakowska *ibid.*: 159-160)

Sentence (2a) expresses a static relation and (2b) a dynamic one, which is lexicalized by the different case markers. Structures with the instrumental are used to locate a trajector (TR) behind or beyond a landmark (LM), whereas structures with the accusative are used to denote adlative motion. Both usage types have metaphorical extensions, such as:

(3) a. *(mieszkać) za granicą*
(live) over border: INSTR
'live abroad'
b. *(wyjechać) za granicę*
(go) over border: ACC
'go abroad'
c. *(schować coś) za murem*
(hide something) behind wall: INSTR
'(hide something) behind the wall'
d. *(schować się) za mur*
(hide oneself) behind wall: ACC
'(hide) behind the wall'
(taken from Tabakowska *ibid.*: 164)

The extension in (3a) and (3b) is defined as 'passability' – the LM is conceptualized as a boundary that separates the TR from the observer. The other extension, exemplified in (3c) and (3d), has been called 'the sense of curtain'. The LM "blocks the view of an

area so that it cannot be seen by the observer" (Weinsberg 1973: 57, as cited in Tabakowska 2003). The correlates of these two extensions are the two main extensions from the prototype of *–za*: the notion of passable borderline extends into an abstract boundary. This passage from non-being into being, or non-action into action, is related to the occurrence of *za-* with intransitive inchoative verbs:

(4) *za-plonąć* *za-kwitnąć* *za-śpiewać*
za-burn *za*-blossom *za*-sing
'to begin burning' 'to begin blossoming' 'to begin singing'
(taken from Tabakowska *ibid*.: 168)

The same kind of extensions may be claimed for Croatian. For example, it is reasonable to assume that the following two examples are similar to (3d) and (4) respectively:

(5) a. *(sakriti se)* *za* *brdo*
(hide oneself) behind hill: ACC
'(hide) behind the hill'
b. *za-paliti* *za-blistati* *za-pjevati*
za-burn *za*-shine *za*-sing
'to begin burning''to begin shining' 'to begin singing'

Even though traditional Croatian grammars do not describe prefixes in a semantically motivated manner, there have been some recent attempts (see for example Silić and Panjković 2005) to make an initial step towards recognizing that prefixes are not "semantically empty". Let us consider the following meanings of the prefix *u-*, which appears to be related to the corresponding *u* 'in':

a) 'to put something into something else' (as in for example *umetnuti* 'put in', *unijeti* 'bring in', *ugraditi* 'fit in', etc.;
b) 'go in' and 'go into something' (as in for example *ući* 'go in', *uroniti* 'dive in', *uskočiti* 'jump in', *uploviti* 'sail in', etc.;
c) 'join' (as in for example *uključiti se* 'join (in)', *učlaniti se* 'join', 'become a member') (based on Silić and Pranjković 2005: 149, my translation).

It is this particular tendency towards satellites in the form of prefixes that is going to be discussed later in relation to language-internal factors determining specific meaning construal exhibited by Croatian learners of English. We are going to speculate that the

fact that Slavic languages, unlike Romance ones, often tend to express the core schema by the satellite facilitates learners' recognition of compositionality and the role of the particle in English PV constructions[2]. On the other hand, we are going to suggest that this recognition is less frequent with Mexican learners of English, since Spanish expresses the core schema by the main verb.

I.2. The nature of verbs

There is a specific group of verbs whose basicness makes them particularly good material for idiomatic and grammaticalized usages. They have been called basic, light, delexical, high-frequency, easy, simple, semantically vague, schematic, etc., and they have been studied by a considerable number of authors, in various contexts, and with emphasis on different aspects of their nature and behaviour (see for example Altenberg and Granger 2001, Bybee et al. 1994, Heine et al. 1991, Heine et al. 1993, Lennon 1996, Newman 1996, 1997, 1998, 2004, Norvig and Lakoff 1987, Sinclair 1991, Svartvik and Ekedhal 1995, Svorou 1993, Sweetser 1990, Viberg 1996, Wierzbicka 1988)[3].

The most relevant aspect for this work is related to their role in the process of the construction of meaning in L2. Discussing high-frequency verbs, such as *put* and *take*, Lennon suggests that even though learners may have a "broad outline of word meaning", they still have a rather unclear and imprecise lexical knowledge of polysemous items and constructs such as phrasal verbs (1996: 35). Their specific nature results in two seemingly contradictory tendencies in L2 processing and meaning construction – overuse and underuse. Overuse has been attributed to their basicness and the fact they are learnt early and widely used (see for example Hasselgren 1994), and underuse has been discussed in relation to a delexicalization process which renders them vague and superfluous when used with nouns as their object (as in for example *take a step* or *make a fortune*) (see Altenberg and Granger 2001).

In the course of this work, we are going to offer evidence that supports the characterization of these basic and schematic verbs outlined above. More specifically, we are going to show that, in the process of strategic construal and processing of English particle verbs, a semantically light verb tends to provide grounds for grammatical/topological determination by yielding under the semantic "strength" of the

particle. On the other hand, a semantically heavier verb tends to override the contribution of the particle, which results in lexical determination.

II. PARTICLE VERBS AND L2 RESEARCH

The theoretical aspects of the syntactic and semantic properties of particle verbs have been discussed and described by a considerable number of authors (see for example Bolinger 1971, Brinton 1988, Cappelle 2002, Dehé 2002, Gries 1999, Lindner 1981, Lipka 1972, McIntyre 2002, Quirk et al. 1985, and many others). Their discussions clarified various facets of particle verb constructions and established a solid theoretical grounding for further investigation into applied particle verb matters, especially into the complexity of their use in L2. Even though (at least to the author's knowledge) there are no studies which are tightly related to the topic of this paper, there is a body of applied research concerned with the avoidance of particle verbs that is directly relevant for some of our hypotheses.

Dagut and Laufer (1985) were the first to tackle the issue of avoidance of particle verbs in a study in which they investigated Hebrew-speaking learners of English. The authors attributed the process of avoidance to the fact that Hebrew does not have particle verbs. It is also important to add that the use of particle verbs depended on their semantic nature, i.e., opaque, idiomatic verbs were used least often, literal particle verbs most frequently, and the use of aspectual (completive) verbs comes somewhere between the two. However, the semantic nature of the verbs was not considered as a factor affecting their avoidance.

Following Dagut and Laufer's conclusions, Hulstijn and Marchena (1989) hypothesized that learners with a Germanic L1 would not avoid particle verbs. Furthermore, they assumed that non-avoidance would correlate with learners' language proficiency. The results showed that: a) Dutch intermediate learners used fewer particle verbs than advanced students, and b) both intermediate and advanced learners used more particle verbs than the Hebrew learners from Hulstijn and Marchena's study[4]. Furthermore, the participants in the study used idiomatic particle verbs less frequently than those verbs whose meaning is less specialized and more literal. Finally, both intermediate and advanced learners avoided both idiomatic and aspectual verbs that were similar to their

Dutch equivalents, which indicated that similarities between L1 and L2 may function as constraints rather than facilitators.

Unlike previous researchers, Liao and Fukuya (2004) also concentrated on the semantics of the verbs, and their results showed the following: a) Chinese intermediate learners of English used fewer particle verbs than advanced learners, b) advanced learners used nearly as many phrasal verbs as native speakers, c) both groups of learners used literal phrasal verbs more frequently than idiomatic ones, and d) intermediate learners used even fewer idiomatic verbs than advanced learners.

The most recent study on particle verb avoidance is Waibel (2007). The empirical strength of this study lies in the fact that the author used learner corpora. The results showed that, contrary to expectations, particle verbs are not "universally underused" (*ibid* 77). The data showed that learners with a Germanic L1 performed like native students. Finnish learners and those with a Slavic L1 used around 300 phrasal-verb tokens less than native students, and learners with a Romance L1 used only about half as many phrasal verbs as native students.

While discussing reasons for differences in performance in the three groups, the author stresses typological similarities and differences between English and other Germanic languages, and between English and Romance and Slavic languages. The fact that the extent of underuse is more prominent in the writing of students with a Romance L1 is explained by the lack of particle verbs or any similar verb types in French, Italian and Spanish. However, even though the author stresses that the same is the case with Slavic languages, and adds that verb aspect and aktionsart are marked by pre- or suffixation, she seems to neglect the fact that Slavic and Germanic languages typologically belong to the same group of languages in terms of how they map the core schema (see section I.1.). More specifically, it is reasonable to assume that the existence of a satellite, be it a bound affix or a free word, plays a very important role in meaning construal and use of particle-verb constructions. As suggested in section I.1., aspectual meaning is just one of many semantic contributions made by prefixes as verb satellites. Thus, the fact that Slavic learners underuse particle verbs less than learners from a Romance background is not that surprising.

The results obtained using German and Italian sub-corpora support the above-mentioned results, i.e., when compared to native students, German learners used more and Italian learners fewer particle verbs in relation to the overall number of verbs (*ibid*.: 84). Furthermore, German students used more Germanic-based verbs, whereas Italian students used more Romance-based verbs[5].

In this section, we have selected and outlined several findings related to studies focusing on the avoidance of particle verbs. In the section that follows, we give a brief description of the scope of the present study in relation to the above-mentioned findings and the overall research procedure.

III. THE SCOPE OF THE PRESENT STUDY

What we sought to establish was if/how the users of English make sense of PVs and how much they rely on topological components in the process of constructing meaning.

Given the nature of verbs that form PVs (light vs. heavy) and the nature of our participants' L1 (Spanish being a prototypical verb-framed language vs. Croatian containing both verb-only and verb-plus-satellite structures), the following hypotheses were formulated:

1) Topological determination is expected with PVs containing light lexical parts.
2) Lexical determination is expected with PVs containing heavy lexical parts.
3) A more "balanced" determination (= compositionality) is expected with PVs containing heavy lexical parts.
4) Topological determination and higher frequency of compositional meanings are expected in Croatian users of English.
5) Lexical determination and lower frequency of compositional meanings are expected in Mexican users of English.

III.1. The instrument

The instrument used was a questionnaire that consisted of 20 particle verbs. The criteria used to choose these particular examples were as follows: a) particle verb constructions with both heavy and light lexical parts, b) similar number of meanings in the two

groups, and c) all meanings validated as metaphoric/obscure. Three light and seven heavy verbs were selected: *go, take, put* and *call, cut, break, draw, pull, shut, write.* All verbs had to be semantically productive with both *in* and *out*. After the particle verbs had been selected, we designed a questionnaire using all the meanings listed in three phrasal verb dictionaries. In order to obtain metaphoric meanings we used a simple triangulation test – the meanings were judged by two linguists, 5 native speakers and 40 English majors (final year of study). They were all asked to place each meaning on a scale from 1 to 5, 1 being "the most literal" and 5 being "the most abstract/metaphoric" meaning. The result was the 45 meanings used in the research.

III.2. The sample and the procedure

The sample consisted of 100 users of English – proficient English majors from Croatia and Mexico: 68 students from the Faculty of Philosophy, University of Zagreb (Filozofski fakultet, Sveučilište u Zagrebu), and 32 students from the Faculty of Philosophy at UNAM (Facultad de Filosofía y Letras, Universidad Nacional Autónoma de México, Mexico City). They were tested separately at their respective universities. Our primary aim was to have two groups of experienced learners of English with similar educational backgrounds and language proficiency but a different first language. What we had not expected was to find that there were almost three times fewer English majors at UNAM than at the University of Zagreb. Furthermore, the year of study in Mexico, as opposed to Croatia, does not guarantee a particular level of language proficiency. Thus, it was decided that in Croatia we would work with the 3rd and 4th year students, whereas in Mexico participants would be a group of students attending the last level of their academic language courses.

The first step in the final stage of the research was to test their language proficiency. After the proficiency test, the participants were scheduled to attend two separate sessions to complete the research questionnaire. In order to conduct both quantitative and qualitative analyses, all the answers were first copied, grouped and sequenced alphabetically.

III.3. The data

After the data (2207 answers for *out* and 1991 for *in*) had been copied, grouped and sequenced, each answer was coded[6] with one of the following codes:

1) **TOP** for topological determination (the answers in which the meaning of the particle overrides the meaning of the lexical part of the construction);
2) **LX** for lexical determination (the answers in which the meaning of the lexical part overrides the meaning of the particle);
3) **CMP** for compositional meaning;
4) **PPH** for paraphrase;
5) **OPP** for basic opposition (e.g. *go in* explained in terms of being opposite to *go out*, or *in* being explained in terms of being opposite to *out*);
6) **MIS** for misinterpretation (examples where the answer is in no way related to the PV construction);
7) **CTX** for examples where situational context is provided without the PV itself being used or explained;
8) **LXD** for examples with PV constructions being lexicalized, that is, a Latinate verb offered as an explanation.

Let us briefly illustrate the three categories that are crucial for this paper. The particle verb and its meaning are followed by a few examples of the participants' answers.

a) Topological determination:

- *break out* ('become covered in something, like in sweat or rash') – "something goes out of you and you cannot control it, it is out and you cannot put it back in by will";
- *put in* ('elect a political party as the government') – "the government is a place in which you put the elected political party to do something".

b) Lexical determination:

- *draw out* ('make something last longer') – "*draw* indicates that the action is prolonged, it means to stretch, to extend";
- *call in* ('make a short visit usually on the way to another place') – "when you want to visit somebody you usually call them to see if they are home').

c) Compositional meaning:

- *break out* (‘become covered in something like in sweat or rash’) – “*out* – something gets out in the open, it is visible to everybody, *break* – a sudden, unexpected act”;
- *call in* (‘make a short visit usually on the way to another place’) – “*call* – because it is a short visit just like a phone call, and *in* is the place that you visit”.

The final step towards obtaining an initial set of quantitative results was to feed all the information into a statistical program. The program used was SPSS and the information processed consisted of the following data: the participants’ research number, year of study, years of learning English, score on the proficiency test, all the answers, and all the accompanying codes.

IV. RESULTS

IV.1. Type of determination: light vs. heavy

There were three hypotheses related to the type of determination:

1) Topological determination[7] is expected with PVs containing light lexical parts.
2) Lexical determination is expected with PVs containing heavy lexical parts.
3) A more “balanced” determination (=compositionality)[8] is expected with PVs containing heavy lexical parts.

IV.1.1. Results for out

For particle verb constructions with ***out***, the analysis of the data revealed that there is a statistically significant difference between aspects of strategic construal with PVs containing light lexical parts and PVs containing heavy lexical parts. More specifically:

a) there is more topological determination with PVs with light lexical parts (M = 29.47) than with PVs with heavy lexical parts (M = 10.48) (see Tables 1 and 2). The numbers show that 29.47% of participants explained the meaning of particle verb constructions with light verbs in such a way as to refer to topology, whereas only 10.48% of participants did the same while describing particle verb

constructions with heavy verbs. The difference proved to be statistically significant (t = 7.073; p < .01) (see Table 3).

Table 1. Average occurrence of particular answers (codes) for light verbs in the whole sample.

		ALIG_ TOP	*ALIG_ LX*	*ALIG_ CMP*	*ALIG_ PPH*	*ALIG_ OPP*	*ALIG_ MIS*	*ALIG_ CTX*	*ALIG_ LXD*
N	Valid	62	62	62	62	62	62	62	62
	Missing	38	38	38	38	38	38	38	38
Mean		.2947	.0147	.2023	.2522	.0469	.1950	.0411	.0293
Mean %		29.47	1.47	20.23	25.22	4.69	19.50	4.11	2.93

Table 2. Average occurrence of particular answers (codes) for heavy verbs in the whole sample.

		AHEA_ TOP	*AHEA _LX*	*AHEA_ CMP*	*AHEA_ PPH*	*AHEA_ OPP*	*AHEA_ MIS*	*AHEA_ CTX*	*AHEA_ LXD*
N	Valid	70	70	69	70	70	69	70	70
	Missing	30	30	31	30	30	31	30	30
Mean		.1048	.1429	.2947	.2821	.0512	.1280	.0381	.0381
Mean %		10.48	14.29	29.47	28.21	5.12	12.80	3.81	3.81

Table 3. Paired samples comparison of average occurrence of particular answers (codes) for light and heavy verbs in the whole sample.

		Mean	*N*	*Std. Deviation*	*t-test*	*p*
Pair 1	ALIG_TOP	.2933	53	.22526	7.073	< .01
	AHEA_TOP	.1053	53	.11341		
Pair 2	ALIG_LX	.0086	53	.03221	-7.400	< .01
	AHEA_LX	.1557	53	.13967		
Pair 3	ALIG_CMP	.2230	53	.28613	-3.743	< .01
	AHEA_CMP	.3286	53	.29527		
Pair 4	ALIG_PPH	.2607	53	.19452	.440	> .01
	AHEA_PPH	.2516	53	.19982		
Pair 5	ALIG_OPP	.0497	53	.06567	.489	> .01
	AHEA_OPP	.0550	53	.07113		
Pair 6	ALIG_MIS	.1836	52	.12918	2.754	< .01
	AHEA_MIS	.1266	52	.14338		
Pair 7	ALIG_CTX	.0326	53	.09280	.258	> .01
	AHEA_CTX	.0299	53	.08662		
Pair 8	ALIG_LXD	.0292	53	.04640	.280	> .01
	AHEA_LXD	.0267	53	.05364		

b) Conversely, as many as 14.29% of the participants (see Table 2) implied lexical determination while describing PVs with heavy lexical parts, whereas only 1.47% of the participants did so while describing PVs with light lexical parts (see Table 1). The difference is statistically significant (t = -7.400; p < .01).

c) Furthermore, 29.47% of the participants described the PV constructions with heavy lexical parts by implying compositionality of meaning, whereas only

20.23% of the participants (see Tables 1 and 2) did so while explaining the meaning of PV constructions with light verbs. The difference in usage is significant ($t = -3.743$; $p < .01$) (see Table 3).

The results show that the semantic weight of both verbs and particles plays a significant role in the process of meaning construction in L2. On the one hand, semantically light verbs are delexicalized and schematic and, thus, they are likely to be construed as vague and superfluous. On the other hand, particles such as *in* and *out* are omnipresent and highly productive, they are the most immediate conceptual tool for mental structuring of space, they build paths and temporal contouring of events, they code change in state of existence, and so forth. Hence, learners' reliance on particles is not surprising. It is also important to mention that the results support previous findings associated with the underuse of high-frequency verbs in L2 processing.

Furthermore, the nature of the contribution of light and heavy verbs is also evident in the results related to compositionality. It seems easier for learners to find a semantic relation between a heavy verb and the meaning assigned to the whole construction than between a semantically vague verb and its construction. In more general terms, this is another piece of evidence showing that meanings are subjective and dynamic. Even though we may claim that the tendency described above is a predictable pattern, the overall semantic picture for L2 is the following: compositionality is partial and gradient. What this means is that: a) the relation between a PV composite structure and its components is not arbitrary, b) a composite structure is not constructed out of its components, nor is it fully predictable, and c) the continuum of compositionality is likely to have various stages, with each stage corresponding to a particular aspect of strategic construal.

In other words, the only cognitively realistic description of the construal of the meaning of PVs in L2 is the one that accounts for all the data obtained. What the data show is that the extent to which learners are cognizant of the semantic contribution of component elements, i.e., the analysability of PV constructions, varies considerably in the whole sample. Discrepancies between the expected compositional meaning and the actual meaning lessen the degree of analysability, which results in a variety of strategic construals with salience being shifted from one aspect to another. Thus, in the same

manner that is claimed for native speakers, learners use the components as some sort of "scaffolding" that helps one "reach" the composite structure (Langacker 2000: 152, original emphasis). Sometimes it seems easier to reach a particular PV via its verb, on some other occasions via its satellite, and sometimes both components seem to correspond to certain aspects of the composite structure. The only logical conclusion is that the semantic continuum of strategic construal of PVs runs from learners relying exclusively on semantically heavy verbs to finding primary motivation for meaning in highly grammaticalized particles. In between the two extremes relating to either lexical or topological/grammatical determination, there are a number of intermediate cases involving gradient and partial compositionality (see Figure 1).

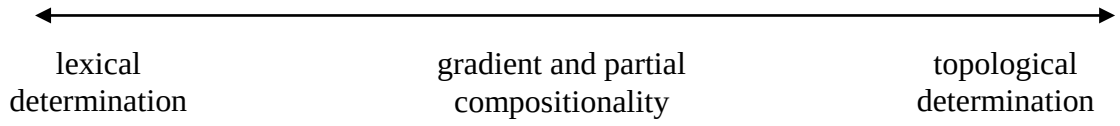

Figure 1. Semantic determination in the strategic construal of particle verbs.

IV.1.2. Results for **in**

For particle verb constructions with ***in***, the analysis of the data revealed the following:

a) There is more topological determination with PVs with light lexical parts (M = 29.78) than with PVs with heavy lexical parts (M = 7.06) (see Tables 4 and 5). Only 7.06% of the participants referred to topology while explaining the PV constructions with semantically heavy lexical parts, whereas as many as 29.78% of the participants referred to the topological part of the construction while explaining the meaning of PVs with light lexical parts. The difference is statistically significant ($t = 7.785$; $p < .01$) (see Table 6).

b) Conversely, there is more lexical determination with PVs with heavy lexical parts (M = 17.66) than with PVs with light lexical parts (M = 1.54) (see Tables 4 and 5). In the process of constructing the meaning of PVs with heavy lexical parts, as many as 17.66% of the participants relied on the meaning of the lexical part of the construction, and only 1.54% of the participants did so while constructing the meaning of PVs with light lexical parts. The difference is statistically significant ($t = 7.266$; $p < .01$) (see Table 6).

c) Finally, there is a higher frequency of compositional meanings with PVs containing heavy lexical parts (M = 36.86) than with PVs containing light lexical parts (M = 22.69). The numbers show that 36.86% of the participants attended equally to both parts of the construction while constructing the meaning of the particle verbs containing heavy verbs, whereas they attended significantly less to both parts of the construction in the process of constructing and explaining the meaning of the particle verbs with light verbs (t = -4.507; p < .01) (see Table 6).

Table 4. Average occurrence of particular answers (codes) for light verbs in the whole sample.

		ALIG_ TOP	*ALIG_ LX*	*ALIG_ CMP*	*ALIG_ PPH*	*ALIG_ OPP*	*ALIG_ MIS*	*ALIG_ CTX*	*ALIG_ LXD*
N	Valid	72	72	72	72	72	72	72	72
	Missing	28	28	28	28	28	28	28	28
Mean		.2978	.0154	.2269	.2469	.0077	.1543	.0448	.0139
Mean %		29.78	1.54	22.69	24.69	.77	15.43	4.48	1.39

Table 5. Average occurrence of particular answers (codes) for heavy verbs in the whole sample.

		AHEA_ TOP	*AHEA_ LX*	*AHEA_ CMP*	*AHEA_ PPH*	*AHEA_ OPP*	*AHEA_ MIS*	*AHEA_ CTX*	*AHEA_ LXD*
N	Valid	59	59	59	58	58	59	59	59
	Missing	41	41	41	42	42	41	41	41
Mean		.0706	.1766	.3686	.1983	.0101	.1441	.0410	.0042
Mean %		7.06	17.66	36.86	19.83	1.01	14.41	4.01	.42

Table 6. Paired samples comparison of the average occurrence of particular answers (codes) for light and heavy verbs in the whole sample.

		Mean	*N*	*Std. Deviation*	*t-test*	*p*
Pair 1	ALIG_TOP	.3072	51	.21953	7.785	< .01
	AHEA_TOP	.0784	51	.09634		
Pair 2	ALIG_LX	.0153	51	.04979	-7.266	< .01
	AHEA_LX	.1797	51	.16863		
Pair 3	ALIG_CMP	.2462	51	.25074	-4.507	< .01
	AHEA_CMP	.3840	51	.24893		
Pair 4	ALIG_PPH	.2533	50	.22564	2.477	> .01
	AHEA_PPH	.1817	50	.19099		
Pair 5	ALIG_OPP	.0065	51	.02640	-.852	> .01
	HEA_OPP	.0114	51	.02896		
Pair 6	ALIG_MIS	.1481	51	.16875	.046	> .01
	AHEA_MIS	.1471	51	14962		
Pair 7	ALIG_CTX	.0305	51	.07723	.124	> .01
	AHEA_CTX	.0294	51	.08948		
Pair 8	ALIG_LXD	.0022	51	.01556	-.340	> .01
	AHEA_LXD	.0033	51	.01634		

The results show that the semantic determination for PVs with *in* is consistent with the one found for *out.* Furthermore, the participants used the same avoidance strategies. The only difference found is that there is no significant difference in the frequency of misinterpretations in relation to PVs with light or heavy verbs, i.e., all strategies are equally frequent with both kinds of constructions (see Table 6). This may be attributed to the fact that *in* was generally found to be much less informative for learners than *out* (see the second part of the chapter dealing with the strategic construal of particles), and in combination with heavy verbs it often produces very specialized meanings that are difficult to predict.

IV.2. Type of determination and L1

IV.2.1. PVs with out*: semantic determination and L1*

Given the typological differences between Spanish and Croatian, as well as the above-discussed differences in the nature of the verbs forming the PVs selected for this research, our hypotheses were:

a) topological determination and higher frequency of compositional meanings are expected in the Croatian learners of English;
b) lexical determination and lower frequency of compositional meanings are expected in the Mexican learners of English.

Several observable differences between Mexicans and Croats were found:

a) with light verbs with ***out,*** compositionality is significantly more frequent in the group of Croats. Tables 7 (Croats) and 8 (Mexicans) show average frequencies of the three types of determination and other strategies in the process of meaning construal. Table 9 shows statistically significant differences between the two groups:

Table 7. Average occurrence of particular answers (codes) for light verbs in the group of Croats.

		ALIG_ TOP	*ALIG_ LX*	*ALIG_ CMP*	*ALIG_ PPH*	*ALIG_ OPP*	*ALIG_ MIS*	*ALIG_ CTX*	*ALIG_ LXD*
N	Valid	36	36	36	36	36	36	36	36
	Missing	32	32	32	32	32	32	32	32
Mean		.3384	.0051	.2702	.2273	.0505	.1692	.0076	.0328
Mean %		33.84	0.51	27.02	22.73	5.05	16.92	.76	3.28

Table 8. Average occurrence of particular answers (codes) for light verbs in the group of Mexicans.

		ALIG_ TOP	*ALIG_ LX*	*ALIG_ CMP*	*ALIG_ PPH*	*ALIG_ OPP*	*ALIG_ MIS*	*ALIG_ CTX*	*ALIG_ LXD*
N	Valid	26	26	26	26	26	26	26	26
	Missing	6	6	6	6	6	6	6	6
Mean		.2343	.0280	.1084	.2867	.0420	.2308	.0874	.0245
Mean %		23.43	2.80	10.84	28.67	4.20	23.08	8.74	2.45

Table 9. Descriptive statistics and mean differences for average occurrence of particular answers (codes) for light verbs (Mexicans vs. Croats).

		N	*Mean*	*Std. Deviation*	*t-test*	*p*
ALIG_TOP	Croats	36	.3384	.22013	1.876	> .01
	Mexicans	26	.2343	.20917		
ALIG_LX	Croats	36	.0051	.02112	-2.203	> .01
	Mexicans	26	.0280	.04992		
ALIG_CMP	Croats	36	.2702	.32560	2.714	< .01
	Mexicans	26	.1084	.12602		
ALIG_PPH	Croats	36	.2273	.19007	-1.259	> .01
	Mexicans	26	.2867	.17381		
ALIG_OPP	Croats	36	.0505	.06678	.522	> .01
	Mexicans	26	.0420	.05881		
ALIG_MIS	Croats	36	.1692	.12129	-1.825	> .01
	Mexicans	26	.2308	.14370		
ALIG_CTX	Croats	36	.0076	.02548	-2.562	> .01
	Mexicans	26	.0874	.15742		
ALIG_LXD	Croats	36	.0328	.04933	.704	> .01
	Mexicans	26	.0245	.04112		

b) with heavy verbs with ***out***, compositionality is significantly more frequent in the group of Croats and lexical determination is significantly less frequent in the group of Croats than in the group of Mexicans. Tables 10 and 11 show average frequency of determination and Table 12 shows statistically significant differences.

Table 10. Average occurrence of particular answers (codes) for heavy verbs in the group of Croats.

		AHEA_ TOP	*AHEA_ LX*	*AHEA_ CMP*	*AHEA_ PPH*	*AHEA_ OPP*	*AHEA_ MIS*	*AHEA_ CTX*	*AHEA_ LXD*
N	Valid	46	46	46	46	46	45	46	46
	Missing	22	22	22	22	22	23	22	22
Mean		.1105	.1069	.3605	.2663	.0507	.0981	.0326	.0562
Mean %		11.05	10.69	36.05	26.63	5.07	9.81	3.26	5.62

Table 11. Average occurrence of particular answers (codes) for heavy verbs in the group of Mexicans.

		AHEA_ TOP	*AHEA_ LX*	*AHEA_ CMP*	*AHEA_ PPH*	*AHEA_ OPP*	*AHEA_ MIS*	*AHEA_ CTX*	*AHEA_ LXD*
N	Valid	24	24	23	24	24	24	24	24
	Missing	8	8	9	8	8	8	8	8
Mean		0.0938	.2118	.1630	.3125	.0521	.1840	.0486	.0035
Mean %		9.38	21.18	16.30	31.25	5.21	18.40	4.86	.35

Table 12. Descriptive statistics and mean differences for average occurrence of particular answers (codes) for heavy verbs (Mexicans vs. Croats)

	HR_MEX	*N*	*Mean*	*Std. Deviation*	*t-test*	*p*
AHEA_TOP	Croats	46	.1105	.12675	.563	> .01
	Mexicans	24	.0937	.09925		
AHEA_LX	Croats	46	.1069	.12989	-3.267	< .01
	Mexicans	24	.2118	.12282		
AHEA_CMP	Croats	46	.3605	.30381	2.805	< .01
	Mexicans	23	.1630	.20640		
AHEA_PPH	Croats	46	.2663	.22813	-.864	> .01
	Mexicans	24	.3125	.17763		
AHEA_OPP	Croats	46	.0507	.07345	-.075	> .01
	Mexicans	24	.0521	.06869		
AHEA_MIS	Croats	45	.0981	.13211	-2.512	> .01
	Mexicans	24	.1840	.14112		
AHEA_CTX	Croats	46	.0326	.10165	-.597	> .01
	Mexicans	24	.0486	.11504		
AHEA_LXD	Croats	46	.0562	.07039	4.814	< .01
	Mexicans	24	.0035	.01701		

IV.2.2. PVs with **in***: semantic determination and L1*

a) With light verbs with ***in***, no significant differences were found between the two groups of learners (see Tables 13 and 14 for average frequency of types of determination and Table 15 for significant differences).

Table 13. Average occurrence of particular answers (codes) for light verbs in the group of Croats.

		ALIG_ TOP	*ALIG_ LX*	*ALIG_ CMP*	*ALIG_ PPH*	*ALIG_ OPP*	*ALIG_ MIS*	*ALIG_ CTX*	*ALIG_ LXD*
N	Valid	47	47	47	47	47	47	47	47
	Missing	21	21	21	21	21	21	21	21
Mean		.3002	.0142	.2175	.2648	.0095	.1631	.0378	.0024
Mean %		30.02	1.42	21.75	26.48	.95	16.31	3.78	.24

Table 14. Average occurrence of particular answers (codes) for light verbs in the group of Mexicans.

		ALIG_ TOP	*ALIG_ LX*	*ALIG_ CMP*	*ALIG_ PPH*	*ALIG_ OPP*	*ALIG_ MIS*	*ALIG_ CTX*	*ALIG_ LXD*
N	Valid	25	25	25	25	25	25	25	25
	Missing	7	7	7	7	7	7	7	7
Mean		.2933	.0178	.2444	.2133	.0044	.1378	.0578	.0356
Mean %		29.33	1.78	24.44	21.33	.44	13.78	5.78	3.56

Table 15. Descriptive statistics and mean differences for average occurrence of particular answers (codes) for light verbs (Mexicans vs. Croats).

		N	*Mean*	*Std. Deviation*	*t-test*	*p*
ALIG_TOP	Croats	47	.3002	.22572	.128	> .01
	Mexicans	25	.2933	.20000		
ALIG_LX	Croats	47	.0142	.04406	-.308	> .01
	Mexicans	25	.0178	.05251		
ALIG_CMP	Croats	47	.2175	.25690	-.440	> .01
	Mexicans	25	.2444	.22906		
ALIG_PPH	Croats	47	.2648	.21178	.988	> .01
	Mexicans	25	.2133	.20767		
ALIG_OPP	Croats	47	.0095	.03134	.709	> .01
	Mexicans	25	.0044	.02222		
ALIG_MIS	Croats	47	.1631	.16521	.633	> .01
	Mexicans	25	.1378	.15476		
ALIG_CTX	Croats	47	.0378	.09347	-.766	> .01
	Mexicans	25	.0578	.12472		
ALIG_LXD	Croats	47	.0024	.01621	-1.503	> .01
	Mexicans	25	.0356	.10981		

b) With heavy verbs with ***in***, compositionality is significantly more frequent in the group of Croats, and lexical determination is significantly less frequent in the group of Croats than in the group of Mexicans (see Tables 16, 17 and 18).

Table 16. Average occurrence of particular answers (codes) for heavy verbs in the group of Croats.

		AHEA_ TOP	*AHEA_ LX*	*AHEA_ CMP*	*AHEA_ PPH*	*AHEA_ OPP*	*AHEA_ MIS*	*AHEA_ CTX*	*AHEA_ LXD*
N	Valid	39	39	39	38	38	39	39	39
	Missing	29	29	29	30	30	29	29	29
Mean		.073	.107	.440	.213	.013	.137	.030	.006
Mean %		7.265	10.684	44.017	21.272	1.316	13.675	2.991	.641

Table 17. Average occurrence of particular answers (codes) for heavy verbs in the group of Mexicans.

		AHEA_ TOP	*AHEA_ LX*	*AHEA_ CMP*	*AHEA_ PPH*	*AHEA_ OPP*	*AHEA_ MIS*	*AHEA_ CTX*	*AHEA_ LXD*
N	Valid	20	20	20	20	20	20	20	20
	Missing	12	12	12	12	12	12	12	12
Mean		.0667	.3125	.2292	.1708	.0042	.1583	.0625	.0000
Mean %		6.67	31.25	22.92	17.08	.42	15.83	6.25	.00

Table 18. Descriptive statistics and mean differences for average occurrence of particular answers (codes) for heavy verbs (Mexicans vs. Croats).

	HR_MEX	*N*	*Mean*	*Std. Deviation*	*t-test*	*p*
AHEA_TOP	Croats	39	.0726	.09782	.233	> .01
	Mexicans	20	.0667	.08377		
AHEA_LX	Croats	39	.1068	.13238	-5.232	< .01
	Mexicans	20	.3125	.16194		
AHEA_CMP	Croats	39	.4402	.25503	3.346	< .01
	Mexicans	20	.2292	.16639		
AHEA_PPH	Croats	38	.2127	.20930	.770	> .01
	Mexicans	20	.1708	.16987		
AHEA_OPP	Croats	38	.0132	.03079	1.193	> .01
	Mexicans	20	.0042	.01863		
AHEA_MIS	Croats	39	.1368	.14369	-.541	> .01
	Mexicans	20	.1583	.14784		
AHEA_CTX	Croats	39	.0299	.08862	-1.127	> .01
	Mexicans	20	.0625	.13211		
AHEA_LXD	Croats	39	.0064	.02250	1.780	> .01
	Mexicans	20	.0000	.00000		

IV.2.3. Discussion and conclusions for semantic determination and L1

If we compare the data for ***out***, discriminating light and heavy verbs in the whole sample (see section IV.2.) with the data relating to the participants' L1, we can see that compositionality is again an important aspect of meaning construal. In the whole sample, compositionality was a significantly more predictable pattern in PVs with heavy verbs, whereas in the Croatian sample it is more frequent in the strategic construal of both light and heavy PVs (in comparison to the Mexican sample).

Furthermore, in the whole sample, lexical determination was found to be significantly more frequent with heavy PVs. However, the data comparing Croatian and Mexican samples show that lexical determination is significantly less frequent in the group of Croats than in the group of Mexicans.

As for the data for ***in***, no significant differences between the two groups were found in the construal of light PVs, whereas the construal of heavy PVs shows the same tendencies that were found for the heavy PVs with ***out***, i.e., compositionality is significantly more frequent and lexical determination significantly less frequent in the Croatian sample.

The reason why no significant differences were found between the Croats and Mexicans in their strategic construal of light PVs with ***in*** could be attributed to the following two factors:

a) the particle ***in*** has proved to be generally less informative than ***out***[9];
b) the schematicity of light verbs is less likely to lead to a more compositional meaning construal.

Thus, irrespective of potentially compositionality-biased L1 elements, such as the existence of meaningful verbal prefixes in Croatian, the vagueness of the verb and the non-informativeness of the particle make the composite whole equally "complex" for both groups. However, with heavy verbs with both ***in*** and ***out***, and with light verbs with ***out***, the Croatian participants seem to construct meaning differently. They tend to attend to both parts of the composite whole much more frequently than their Mexican counterparts and they rely less on the lexical part of the PV construction. What we wish to suggest is that one of the key factors affecting and shaping this kind of tendency in their strategic construal is the fact that the Croatian language exhibits duality in terms of how it expresses the core schema, i.e., it uses satellites in the form of prefixes, even though it often behaves like a verb-framed language such as Spanish. In the case of the strategic construal of PV constructions, Croatian prefixes functioning as satellites are likely to facilitate meaningful recognition of the role of particles in English. Even though various avoidance issues have been discussed in SLA research, typological similarities pertaining to the event structure between Slavic and Germanic languages seem to have been ignored.

V. CONCLUSION

As already proposed by Geld and Letica Krevelj (2011), it would be scientifically irresponsible to tackle the question of English PVs and their meaning construction in L2 without acknowledging at least two major groups of factors shaping the nature of their construal:

a) language-internal factors pertaining to L2 (light vs. heavy verbs, and the degree of informativeness of particles), and language-internal factors pertaining to both L1 and L2 (verb-framed vs. satellite-framed languages);

b) language-external factors (general language proficiency, years of learning L2, and various aspects of the learning environment conducive to developing learning strategies, e.g. an early start and continuity in learning, etc.).

Even though this paper has dealt only with the first group of factors, we wish to conclude with the model offered by Geld and Letica Krevelj (2011: 164) (see Figure 2).

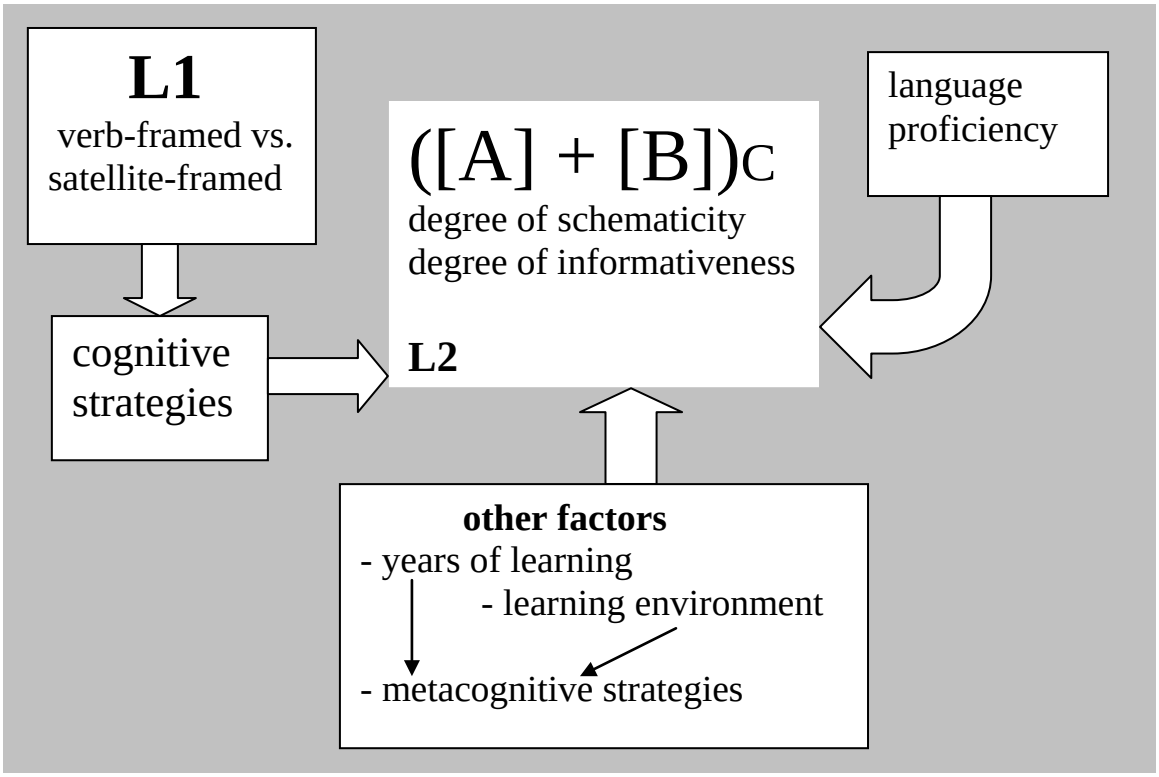

Figure 2. Factors affecting the strategic construal of particles in PV constructions (taken from Geld and Letica Krevelj 2011: 164).

In the middle of the model shown in Figure 2 there is a formula representing two component structures forming a composite whole (cf. Langacker 2000: 94). As stressed by Langacker, the composite structure (C) should not be taken as merely the union of [A] and [B], nor [A] and [B] as unmodified in (C). In our case, the formula represents PV constructions, and two aspects of component structures are singled out as important for this research: a) their degree of schematicity, and b) their degree of informativeness. But, in addition to the nature of the component structures, the construal of the composite whole in L2 is affected by the learners' L1, that is to say, their cognitive strategies in dealing with PV constructions are related to structures they encounter and use in their L1. Metaphorically speaking, the semantic battle between the particle and the verb will depend on what kind of structures are favoured in L1. Thus, for example, the users of

Spanish as L1 are more likely to rely on verbs than on particles. However, the relationship between the two component structures and the overall meaning construal will also depend on language-external factors such as learners' language proficiency, their educational background, their age when they started learning English, the number of years of learning, the type of schools they attended, etc. In sum, meaning construal in L2 is tremendously complex and dynamic. Its exploration demands an approach encompassing multiple factors, especially when investigating highly idiomatic structures such as PVs.

Notes

[1] See also Janda's (1986) analysis of *-za* in Russian.

[2] Croatian is certainly not a (proto)typical satellite-framed language. It actually exhibits both lexical and satellital strategies in expressing the core schema.

[3] In this paper, all schematic verbs will be called *light* verbs even though some are lighter than others and not all of them would be traditionally classified as *light*. Thus, the term *light* is used in a broader sense, and it is contrasted with *heavy* verbs, i.e., the verbs whose meaning is more specific and more transparent.

[4] Hulstijn and Marchena replicated Dagut and Laufer's study. Thus, their results were entirely comparable.

[5] The etymology of the verbs was checked in both learner corpora using the online version of the *Oxford English Dictionary* (*OED*) (*ibid*.: 84).

[6] The data were independently validated by a linguist and a non-linguist validator. Their judgements were processed and compared to the author's, and the results did not show any significant differences.

[7] The terms topology and topological determination are used (metaphorically and metonymically) to denote all the cases where the meaning of the particle seems to override the meaning of the verb.

[8] The term "balanced determination" is identified here with the concept of compositionality inasmuch as it implies how closely an expression approximates the result predicted on the basis of particular component structures. By default, it is assumed that both components contribute to the semantic value of the composite whole.

[9] See Geld and Maldonado this volume.

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Strategic construal of *in* and *out* in English particle verbs (PVs)

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ABSTRACT[1]

The central aim of this work is to describe the strategic construal of *in* and *out* in English particle verbs. The term strategic construal assumes the following: 1) exploration of strategic thinking in L2 learning and processing, and 2) exploration of dynamic and subjective construction of meaning pertaining to the human ability to understand and portray the same situation in alternate ways (Langacker 1987). In other words, the paper relies on two theoretical paradigms with self-evident commonalities – a strong link between language and cognition, and the insistence on the individual and subjective nature of meaning construction. The aim was to investigate whether L2 users of English are aware of the symbolic nature of language when dealing with highly schematic linguistic categories. Our hypotheses were that construal of *in* and *out* is comparable to their cognitive linguistic description in English as L1 and that it shows a cognitively motivated path from the topological to the aspectual. Both hypotheses have been confirmed.

Key words*: strategic construal, particle verbs, in, out*

I. INTRODUCTION

The acquisition of particle verbs (PVs) constitutes one of the greatest difficulties when it comes to learning English as a second language. PVs vary considerably in the degree of opacity/transparency[2] they exhibit, which raises the question as to the possible strategies the second-language user needs to develop in order to learn them. Two obvious examples of this are *put out* in (1) and *take in* in (2):

Put out

1. a. ‘turn off the light’
   b. ‘to injure your back, shoulder or hip’
   c. ‘make somebody go to sleep or unconscious
   d. ‘broadcast, publish or issue’
   e. ‘make a figure, result, etc. wrong’
   f. ‘make trouble, problems or extra work’

Take in

2. a. ‘introduce something in a pocket’
   b. ‘make a piece of clothing narrower or tighter’
   c. ‘make somebody believe something that is not true’
   d. ‘understand or absorb something’

Given such array of meanings one may simply assume that the second-language user has no other choice than learn the idiom by rote. A less passive interpretation may wonder about possible strategies the L2 user could employ and whether they resemble the processes claimed to be activated in the first language learning and meaning construction, that is those used by native speakers. One obvious strategy is to use full compositionality by adding the meaning of the verb to that of the particle as expected in examples like (1a) and (2a). Yet, other possibilities are also at hand, particularly when abstract and metaphorical readings are at play, as in cases (b) to (f). Given the fact that not everything is transparent, learners may attend mainly to the meaning of the verb and pay little attention to *in* or *out*. Alternatively, they may also focus on the value of the particle as a schematic representation determining the behaviour of the verb. In this paper we focus on the way the particle is interpreted by L2 users of English. The particle may be interpreted in more or less schematic terms. Of course, metaphorical and metonymic connections could allow further interpretations such that *out* and *in* could be seen as representing enclosed or non-enclosed locations, abstract areas, different abstract situations and events, and even aspectual meanings related to the terminal or the initial part of an event.

As we show in the next section, a considerable amount of research has been conducted on the construal of PVs, particles, and prepositions in L1. What has not been identified with enough precision are the specific strategies employed by L2 users in the process of constructing meaning of English PVs, and even more specifically, whether these strategies resemble processes assumed to be activated by native speakers of English. Another issue of strategic meaning construal that has not been properly addressed is whether the strategies employed by L2 users are applied randomly to tackle individual problems or they follow general cognitive principles to construct language. In this study we attempt to identify the strategies employed to make sense of the meaning of PVs with *in* and *out* through experimental data from Croatian and Mexican users of English.

Having two groups of speakers of unrelated languages will enable us to identify both the language-specific strategic features developing from each language as well as the strategic coincidences suggesting the presence of general cognitive patterns operating in the acquisition of English PVs.

II. THEORETICAL BACKGROUND

According to cognitive grammar (Langacker 1987, 1991, 2000a), "complex expressions exhibit only *partial compositionality*" (Langacker 2000a: 16, original emphasis). The meaning of a complex expression constitutes either an elaboration or an extension in relation to what is expected as compositional value. When a novel expression is used for the first time, its meaning is constructed in a given context. The conventionally determined import of the expression at best approximates its actual contextual understanding. Over time, and through frequency of usage, it achieves the status of a lexical item. In the process of fixation, recurrent aspects of its meaning, including some of a non-compositional origin "become entrenched and establish themselves as a part of what eventually emerges as its conventional linguistic value" (Langacker *ibid*.: 15). Thus, complex expressions are partially compositional because, on the one hand, the relationship between a composite structure and its components is not arbitrary and, on the other hand, a composite structure is not constructed out of its components, nor it is fully predictable. Langacker concludes (*ibid*.: 16, original emphasis):

> Rather than *constituting* a composite structure, the component structures *correspond* to certain facets of it, offering some degree of *motivation* for expressing the composite conception in the manner chosen. And because the composite structure represents a distinct entity that is not in general reducible to its components, a construction is described as an assembly of symbolic structures.

For the analyses offered in this work, the most important dimension of lexical semantics is analysability, that is, "the extent to which speakers are cognizant of the presence and the semantic contribution of component symbolic elements" (Langacker *ibid*.: 127). A novel expression is easily analysable because a speaker manipulates the components in the process of constructing it. If we transfer this phenomenon from the first language domain, i.e. the native speaker's perspective, into the domain of second language, we shall notice considerable parallelism: when they come across a new construction, second-language users may attempt to analyse it in terms of its components, especially

when individual components are already well entrenched in their L2, as is frequently the case with PVs. However, L2 users soon realize that the expected compositional meaning is far from a simple sum of meanings. They appreciate that components are not predetermined or fixed, and that complex structures are not put together in a strictly compositional manner. Over time, most learners abandon the idea of the building-block metaphor[3], which implies that smaller constituents are building blocks out of which larger constituents are constructed, and their expectations change. What follows runs roughly in two directions: a) L2 users either start believing that whatever happens in the process of constructing and making sense of meaning is too elusive to be captured and understood, so they stop thinking about meaning and attempt to store whatever they encounter "intact" and in larger chunks, or b) despite having rejected the idea of the building-block metaphor, they tacitly nurture the idea of linguistic motivation, and they attend to various aspects of meaning and form. Naturally, their attention depends on various language-internal and language-external factors, and their strategic meaning construal is deeply immersed in prior linguistic and world experience (see Figure 1).

The theoretical framework assumed in this paper, and shown schematically in Figure 1, suggests the following: first, language is an experiential phenomenon and it is intimately related to other cognitive processes, such as attention, comparison, perspective and gestalt. In broader terms, the emergence of complex language representations results from "simple learning mechanisms operating in and across human systems of perception, motor action and cognition while exposed to language data in communicatively rich human social environments" (Ellis 2003)[4]. Furthermore, meaning construal is dynamic and subjective, and construal operations (e.g. metonymy, metaphor, fictive motion, categorization, deixis, etc.) are viewed as instances of the abovementioned general cognitive processes as aspects of a conceptual structure. Finally, strategic meaning construal and L2 learning inevitably depend on whatever precedes. Being entangled with L1 and experiential knowledge of the world, L2 both relies on and mirrors various cognitive processes that constitute conceptual structure in L1. However, this specific cognitive state of L2 users, burdened with prior linguistic knowledge and experience (MacWhinney 2001, 2006), also functions as a constraint in the process of language acquisition and strategic meaning construal[5].

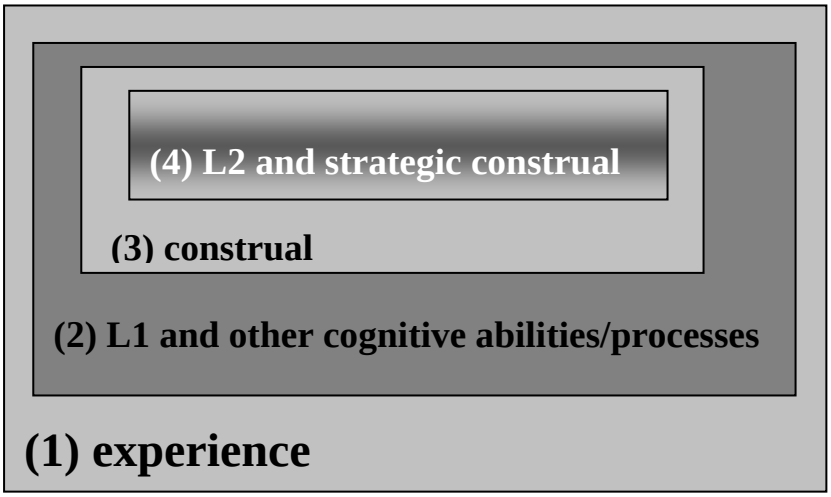

Figure 1. Integrated model of second-language acquisition (Geld 2006: 108).

For example, Mexican users of English, coming from a linguistic environment that maps the core schema exclusively onto the verb, are likely to encounter considerable problems while processing English particle verbs where the core schema[6] is mapped onto the particle (see Geld this volume). However, if their attention shifts to form, it might activate aspects of conceptual structure, such as underlying image schemas or metaphorical mappings in cases of non-literal meanings, which, in turn, might facilitate input being processed and transformed into intake. Thus, specific language realizations inherited from L1 might constrain and filter L2 input, but, on the other hand, the activation of underlying cognitive processes, which have been proved to be common cross-linguistically, is likely to facilitate the recognition of how form encodes meaning.

Returning to the issue of how L2 users perceive language, we wish to suggest that all of them, irrespective of their inclination to view language either as an arbitrary or as a cognitively motivated system, process language and construct meaning by attending to both meaning and form. In other words, their attention is constant but it varies quantitatively and qualitatively. This line of thought is in accordance with theoretical linguistic constructs such as Langacker's analysability (1987, 2000a), as well as with L2 research results on implicit vs. explicit knowledge, and their relation to consciousness (see for example Doughty 2001, Hulstijn 1989, and Schmidt 1990, 1993a, 1993b, 1994a, 1994b, 1998, 2001). Describing native speaker's understanding of semantic structure and the concept of analysability, Langacker discusses terms like "aware", "cognizant" and "recognize", and asks whether the claim that a speaker is "aware" or

"cognizant" of the components within a composite structure implies that "these components are consciously recognized and attended to", and he proceeds by suggesting the following (1987: 459-460):

> There is nothing in the definition of analysability (characterized at the level of cognitive events) that inherently restricts it to the domain of consciousness. Recognition is accomplished through acts of comparison, which are assumed to be ubiquitous to all domains and levels of cognitive processing.

If we relate this to the issue of the relationship between explicit and implicit knowledge in the process of learning a second language, we cannot but agree with Schmidt (1990), who suggests that the explicit/implicit contrast represents a continuum and that there is no learning without 'noticing'. However, we wish to challenge his doubt that learning that occurs without learners' being aware of learning plays a minor role in the field of second language (Schmidt 1998, 2001). Having embraced the insights from cognitive psychology, and hence assuming that various cognitive processes such as attention or comparison are present in all domains and levels of cognitive processing and construction of meaning, we may conclude that the abovementioned continuum is by itself sufficient to describe the nature of knowledge. In other words, in the process of learning, learners both consciously and subconsciously attend to various aspects of language and pass judgments that result in constant restructuring of their knowledge. Thus, if we wish to investigate the process of strategic construal, i.e. meaning construal in L2, it is legitimate to do so by shifting our learners' attention to form and asking specific questions about meaning. We will ask questions about the meaning of a PV attending to the meaning of its components and the way they interact to form the PV's complex meaning. The learner's conscious reasoning about composite wholes, such as particle verbs, might tell us a great deal about how components motivate and highlight selected facets of the composite meaning. Naturally, analysability of composite wholes very much depends on the life they live as conventional units. They have an elaborate semantic value which lies in their extra-compositional specifications that correspond to facets of contextual meaning and, in addition to that, they diverge from their specifications by extension or elaboration (Langacker 1987).

In the case of particle verbs, dramatically extended meanings often prevent the activation of component meanings along with the meaning of the whole. However, we wish to suggest that comprehension failures that are likely to occur while processing

input containing these constructions tend to trigger focus on form, which is characterized by specific (re)-allocations of attention that are determined by the semantic "weight" of their components[7]. Thus, as shown by Geld (this volume), we might expect focus on particles when they collocate with semantically light lexical parts[8] and, conversely, more focus on lexical parts when they are heavy verbs that are bound to make a more substantial semantic contribution. The aim of this paper is to offer a more detailed description of the contribution of particles, and to investigate the semantic nature of *in* and *out* in L2 in terms of its resemblance to the nature of these particles in English as L1.

II.1. How *in* and *out* structure space

Space and spatial relations have been of central importance for linguists for decades (see for example Bennett 1975, Bowerman 1996a, 1996b, Bowerman and Choi 2003, Brugman 1981, Casad and Langacker 1985, Choi and Bowerman 1991, Fillmore 1968, Herskovits 1982, Jackendoff 1983, Johnson 1987, Lakoff 1987, Langacker 1982, 1987, Lindner 1981, Talmy 1982, 1983, 2000a, 2000b, Tenbrink 2007, Vandeloise 1984, 1991, 1994, Zubin and Svorou 1984). Likewise, the properties of *in* and *out* in coding fundamental spatial relations have attracted a number of authors, such as Herskovits (1982, 1988), who gives detailed and much-quoted accounts of *in*; Lindner (1981), whose account of *out* is an exhaustive analysis of its roles in PV constructions; Rudzka-Ostyn (2003), with her insightful applied work on the role of particles in PV constructions; Dewell (2005), who contributes with a fresh account of the old issue of the dynamicity of CONTAINMENT (Johnson 1987, Lakoff 1987); and Evans and Tyler (2004), who, on the other hand, argue against the assumption that there are "dynamic" prepositions that denote motion. Instead, they propose that there are clear principles when a particular sense is conventionalized, i.e. instantiated in memory, and when it is a contextualized usage.

There are several distinct meanings of *in* and *out* that are directly relevant to our central discussion. First, the meanings of *out* described by Lindner (1982: 81-140): a) *out* that codes "the removal or departure of one concrete object from within another object or space"; b) *out* whose meaning codes foregrounding a single (static) configuration; c)

meaning extensions pertaining to abstract displacement (landmarks are: some abstract, coherent complex of information; abstract neighbourhood of possession; privacy; change from hiddenness to accessibility; change from accessibility to inaccessibility, including non-function/non-existence; d) extensions and expansions in time and space, including full temporal extension of an event; and e) the meaning of "moving away", including the spatial dimension and the sense of initiation, i.e. the start of a particular activity.

Second, the following meanings of *in*: a) the prototypical meaning of containment with both its static topology and dynamic characterization (Dewell 2005, Herskovits 1982, 1988, Johnson 1987, Lakoff 1987), and b) the vantage point as an interior/exterior cluster (Evans and Tyler 2004).

III. RESEARCH

III.1. The hypotheses, instrument, sample and procedure

As already suggested, the aim of the research was to establish what cognitive (learning) strategies (see Geld 2006, Geld and Letica Krevelj 2011, O'Malley and Chamot 1990), as aspects of meaning construal, reveal about the nature and role of particles in PV constructions.

Our hypotheses were the following:

1) L2 users are aware of the symbolic nature of language even while dealing with highly schematic linguistic categories;

2) strategic construal of *in* and *out* is comparable to their cognitive linguistic description in English as L1;

3) strategic construal of *in* and *out* shows a cognitively motivated path from the topological to the aspectual;

Our overall aim was twofold: first, to investigate semantic determination in terms of the lexical (verb dominant), topological (schematic particle dominant), and compositional (verb particle sum) nature of construal of the composite wholes[9] in question (see Geld,

this volume), and second, to investigate the construal of particles in greater detail, as evident from the hypotheses stated above.

The sample consisted of 100 users of English – 68 English majors from Croatia and 32 from Mexico. The instrument used was a questionnaire that contained 20 particle verbs combining light (*go*, *take* and *put*) and heavy (*call, cut, break, draw, pull, shut* and *write*) lexical parts with *in* and *out*. The 46 meanings selected for the research material were those qualified as obscure (metaphorical) by a triangulation study[10] conducted prior to the main stage of the research.

The first step in the main stage[11] of the research was to test our research participants' language proficiency. After the proficiency test, the participants were scheduled to attend two separate sessions to complete the research questionnaire. In order to conduct both quantitative and qualitative analyses, all the answers were first copied, grouped and sequenced alphabetically.

A methodological assumption should be put forward. Given the fact that there is considerable literature on the construal of *in* and *out* in native speakers, we will contrast our results with well establish findings on the topic. Thus there will not be a control group.

III.2. The data and results

We obtained 4198 answers (2207 for *out* and 1991 for *in*). Since we were interested in the construal of particles, we focused on the following two categories: 1) topological determination, and 2) compositional meaning[12].

The answers were further categorized according to the construal of the particles. Ten categories were established for ***out*** and 9 categories for ***in***. The categories correspond to schematic representations of our participants' construals.

III.2.1 Classification of verb groups

In order to discuss specific construals of particles, we first grouped the meanings of the PVs used in the research questionnaire[13]:

1) Processual topology (concrete) involves motion, entering or leaving some space (G2): *put out* (‘to injure your back, shoulder or hip’); *go in* (‘become hidden’); *take in* (‘make a piece of clothing narrower or tighter’); *call out* (‘ask somebody to come and help you when there is an emergency’); *cut out* (‘prevent something from reaching somewhere’); *break out* (‘become covered in something); *break out* (‘escape’); *shut out* (‘stop something from entering’); *call in* (‘send for somebody professional and official’); *call in* (‘make a short visit, usually on the way to another place’); *break in* (‘to wear something until it is comfortable’); *draw in* (‘become dark as the sun hides earlier when winter approaches’); *pull in* (‘move to the side of the road to stop’); *shut in* (‘trap or injure something by closing something tightly around it’); *write in* (‘write and send a message to ask or complain’).

2) Processual topology (abstract) (G4) involves a participant who becomes or stops being a part of some state or abstract dominion: *take out* (‘kill somebody’); *take out* (‘obtain an official document or a service’); *put out* (‘make somebody go to sleep or unconscious’); *put out* (‘broadcast, publish or issue’); *put out* (‘make a figure, result, etc. wrong); *put out* (‘make trouble, problems or extra work’); *go in* (‘be understood’); *take in* (‘make somebody believe something that is not true’); *take in* (‘understand or absorb something’); *put in* (‘officially make a claim’); *put in* (‘to spend time or effort doing something’); *put in* (‘interrupt’); *put in* (‘elect political party as the government’); *draw out* (‘make somebody feel less nervous or shy’); *draw out* (‘make something last longer’); *pull out* (‘stop being involved in something’); *shut out* (‘refuse to allow a person to share your thoughts or feelings’); *call in* (‘make a public request for a product to be returned’); *cut in* (‘interrupt somebody's conversation’); *break in* (‘interrupt a conversation’); *break in* (‘get somebody accustomed to something new’); *pull in* (‘attract people in large numbers’).

3) Aspect (termination) (G5): *go out* (‘stop burning’); *go out* (‘stop being fashionable’); *put out* (‘switch something off’); *put out* (‘extinguish, stop from burning’); *cut out* (‘stop working’); *cut out* (‘stop doing something’); *write out* (‘write something and include all the necessary information’).

4) Aspect (inception) (G6): *break out* ('begin suddenly').

In the first part of the research each answer was first labelled with a general code referring to the type of determination[14] (or another general code if determination could not be defined). In the cases of topological determination and compositionality, the answer was also given a numerical code denoting the meaning of the topological part of the construction.

III.2.2. Results for out

In this section we list the types of strategic construal of *out* for each group of meanings outlined in the previous section. Having the meanings organized in the abovementioned four groups, what we needed to find out were the type of strategies our participants stated that they used to figure out the meaning of the PV. In what follows "PC+Number" stands for the coding of the particle. The percentage in brackets shows the number of answers containing explanations of the particle stated after the colon.

1) For the first group of meanings (G2 = processual topology – concrete) the meaning of *out* was construed as follows:

a) PC1 (11.50%) – processual topology (concrete/physical)**.** *Out* is**:** going out or leaving an enclosed space; going out of anything that surrounds you or confines you; going out or leaving a container (human bodies, houses, buildings, drawers, etc) – very literal, physical, and concrete images.

The meaning could be shown schematically in the following way:

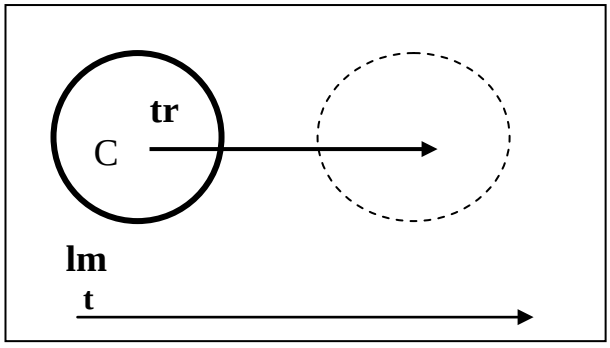

Figure 2. Strategic construal of *out* – processual topology (1).

b) PC3 (12.10%) – static topology (concrete/physical) – out of our dominion or out of the 'usual' place. *Out* is: out of where we are; out of our world; out of our reach; out of the normal position; out of its place; displaced; out of its physical boundaries; out of its physical limits (see Figure 3).

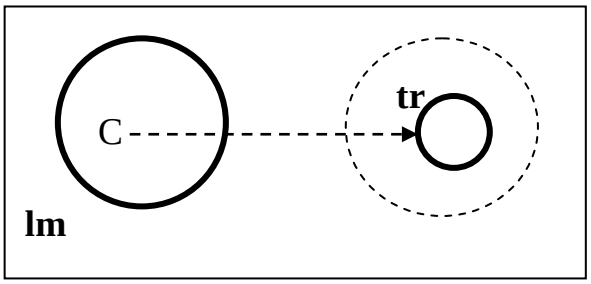

Figure 3. Strategic construal of *out* – static topology (1).

c) PC2 (3.25%) – abstract topology (static displacement/change of state)**.** *Out* is: out of the previous state; out of the previous activity; out of the original state; out of the normal state; out of routine; out of the usual; out of order; out of the circuit; out of what is expected or correct. The change of state implied in the construal described above could be graphically approximated in the following way:

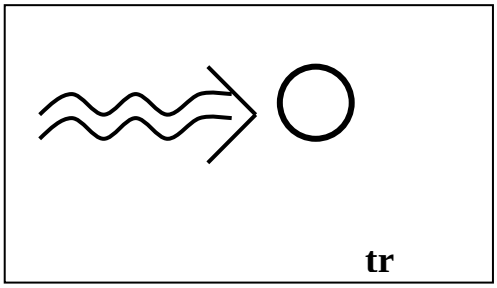

Figure 4. Strategic construal of *out* – change of state.

d) PC4 (0.2%) – *out* is: absence; absent; isolation; not present; not here; not seen; not visible (see Figure 5).

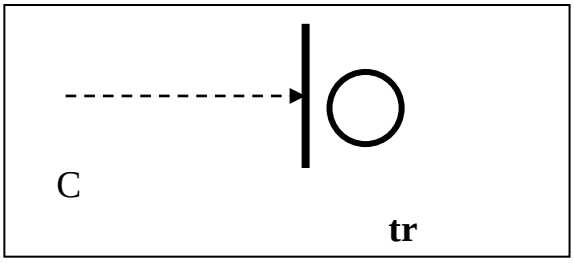

Figure 5. Strategic construal of out – invisibility & inaccessibility.

e) PC5 (1.0%) – processual topology without direct reference to the container. *Out* is: disappear; disappearing; leaving (see Figure 6).

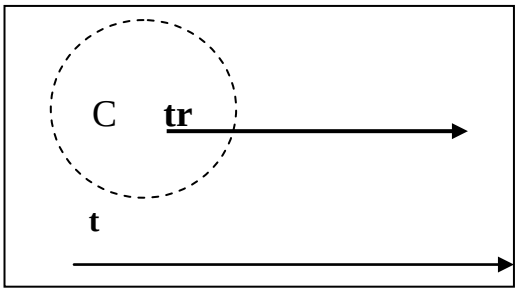

Figure 6. Strategic construal of *out* – processual topology (2).

f) PC7 (1.20%) – aspectual (termination) – *out* is: something finished; something ended; end; completely; completely stopping; termination; all of something (see Figure 7).

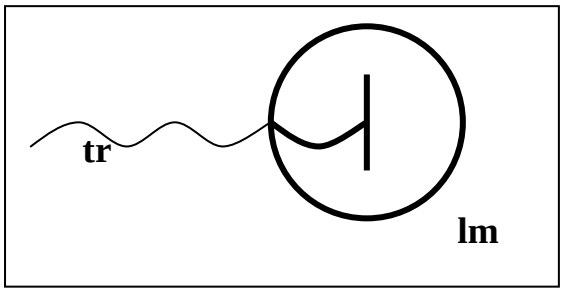

Figure 7. Strategic construal of *out* – aspect (termination).

g) PC9 (7.55%) – static topology (both concrete and abstract) – focus on the space outside our immediate dominion. *Out* is: outside, "out" where other people are; visible; not hidden; out in the open; out in the larger area; out in all directions or surrounding space. The construal is shown in Figure 8.

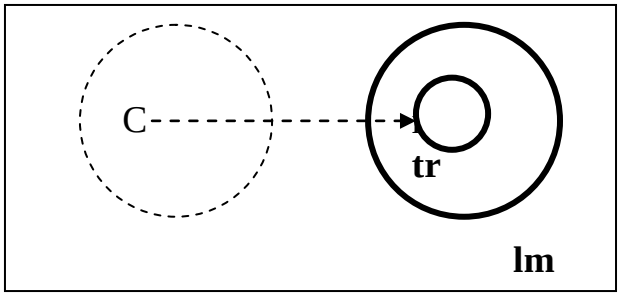

Figure 8. Strategic construal of *out* – static topology (2).

h) PC12 (0.6%) – established metaphor. *Out* is: out of the group; not belonging; free; freedom; something discarded; something unacceptable; something negative (see Figure 9).

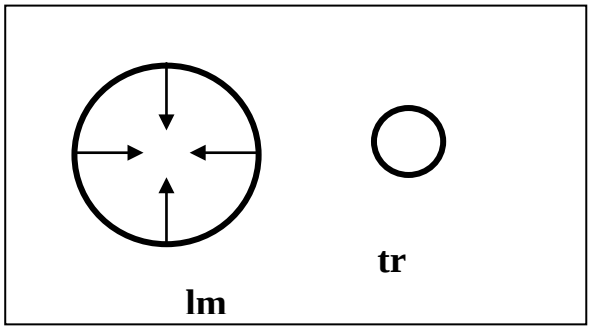

Figure 9. Strategic construal of *out* – 'out of the group'.

i) PC14 – (2.7%): there is some kind of reverse viewing; change of focus. The meaning of *out* in, for example, *take out* meaning 'kill' is interpreted in two ways*:* a) 'a person is taken out of life', or b) 'life is taken out of a person's body; or, for example, in *draw out* meaning 'make less nervous or shy', *out* is: a) 'out of the state of nervousness, or b) 'nervousness taken out of the body'.

2) The second group of meanings is G4 (processual topology – abstract). The meaning of *out* was construed as follows:

a) PC1 (6.51%) – processual topology (concrete/physical) (see Figure 2).

b) PC3 (5.61%) – static topology (concrete/physical) (see Figure 3).

c) PC2 (17.64%) – abstract topology (static displacement) (see Figure 4).

d) PC4 (0.87%) – *out* is**:** absence; absent; not present; not here; isolation; not seen; not visible (see Figure 5).

e) PC5 (0.55%) – processual without direct reference to the container (see Figure 6).

f) PC7 (0.73%) – aspectual (termination) (see Figure 7).

g) PC9 (8.28%) – static topology (both concrete and abstract) focus on the space outside our immediate dominion (see Figure 8).

h) PC12 (1.13%) – established metaphor. *Out* is: out of the group; not belonging; free; freedom; something discarded; something unacceptable; something negative (see Figure 9).

i) PC14 (5.41%) – reverse viewing (change of focus).

3) For the third group of PV meanings (G5: aspectual – termination), the construals are the following:

a) PC1 (3.97%) – processual topology (concrete/physical) (see Figure 2).

b) PC3 (6.51%) – static topology (concrete/physical) (see Figure 3).

c) PC2 (8.10%) – abstract topology (static displacement) (see Figure 4).

d) PC4 (3.94%) – *out* is: absence; absent; not present; not here; isolation; not seen; not visible (see Figure 5).

e) PC5 (2.06%) – processual without direct reference to the container (see Figure 6).

f) PC7 (11.61%) – aspectual (termination) (see Figure 7).

g) PC8 (0.43%) – *out* emphasizes the action.

h) PC9 (1.14%) – static topology (both concrete and abstract) (see Figure 8).

i) PC12 (1.0%) – established metaphor. *Out* is: out of the group; not belonging; free; freedom; something discarded; something unacceptable; something negative (see Figure 9).

j) PC14 (2.43%) – there is some kind of reverse viewing (change of focus).

4) For the fourth group of PV constructions (G6: aspectual – inception), the following construals of *out* were established:

a) PC1 (7.61%) – processual topology (concrete/physical) (see Figure 2).

b) PC2 (3.26%) – abstract topology (static displacement) (see Figure 3).

c) PC9 (11.96%) – static topology (both concrete and abstract) (see Figure 8).

d) PC13 (7.61%) – aspectual (inception). *Out* is: the action starts; the activity is in effect; things are in effect; things are in existence; things begin, see Figure 10 below.

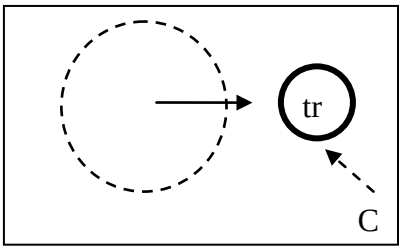

Figure 10. Strategic construal of *out* – aspect (inception).

Table 1. Strategic construal of *out* – summary.

	G2 processual topology concrete	**G4 processual topology abstract**	**G5 aspectual termination**	**G6 aspectual inception**
PC1 – processual topology (concrete/physical)	11.50%	6.51%	3.97%	7.61%
PC2 – abstract topology (static displacement/change of state)	3:25%	17.64%	8.10%	3.26%
PC3 – static topology (concrete/physical)	12.10%	5.61%	6.51%	0.00%
PC4 – absence	0.20%	0.87%	3.94%	0.00%
PC5 – processual topology (without direct reference to the container)	1.00%	0.55%	2.06%	0.00%
PC7 – aspectual (termination)	1.20%	0.73%	11.61%	0.00%
PC8 – emphasis on the action	0.00%	0.00%	0.43%	0.00%
PC9 – static topology (both concrete and abstract)	7.55%	8.28%	1.14%	11.96%
PC12 – established metaphor	0.60%	1.13%	1.00%	0.00%
PC13 – aspectual inception	0.00%	0.00%	0.00%	7.61%
PC14 – reverse viewing	2.70%	5.41%	2.43%	0.00%

III.2.3. Discussion for out

For the group of PV meanings labelled G2, 11.50% of the answers implied concrete processual topology (PC1), which means that their strategic construal of the particle corresponds to our (i.e. researchers'/linguists') construal of the whole PV construction.

This strategic construal overlaps with the prototypical meaning of *out*, as described by Lindner (1982). It should be repeated here that our selection of PVs was based on the triangulation study conducted with the aim of discriminating literal from metaphorical meanings. All the PVs used in the research were those whose rating had shown tendencies towards the metaphorical interpretation. However, even within that sample of PVs certain meanings were conducive to particles being construed as implying concrete, physical processes and topology. This is more than evident in the group of meanings discussed in this section.

The second type of strategic construal, PC3 (static topology), which is almost as frequent as the previous one (12.10%), points to a more static construal of the particle. If we consider the fact that we are dealing with the construal of particles in the cases of both topological determination and compositional meanings, this particular construal of the particle might be interpreted in two ways. First, if this static topology refers to the previously established topological determination, it suggests that, in the process of constructing meaning, a certain number of L2 users of English more readily attend to the resultant stage of the event described ('out of our world', 'out of our reach', 'out of the normal position', etc.). Second, if the static topology refers to the construal of the particle in the cases of established compositionality, it suggests that the verb denotes the process and the particle denotes the final stage. In either case the final state is what is most relevant.

The same dual interpretation can be given for the construal involving abstract topology (PC2). Even though only 3.25%[15] of the participants construed this rather concrete group of meanings in a more abstract way, it still might be taken as a piece of evidence signalling that L2 users have different starting points within a lexical category[16]. Where and how they start is likely to depend on various aspects of their experience and knowledge. For example, the meaning of *out* in the verb *put out* meaning 'to injure your back, shoulder or hip' is more likely to be construed as concrete and topological by someone who knows exactly what happens when such an injury occurs – a particular bone gets 'out of its place'. However, it can be easily identified with a more abstract meaning such as 'out of the original or normal state'. This also relates to what was suggested by Lindner, who stresses that we should not attempt to categorize particular meanings as an exclusive member of only one category[17]. Speakers (of L1) extract

regularities from particular constructions and construct meanings accordingly, but they are free to extract multiple patterns from a given set of forms. We believe that the same process may be claimed for L2 speakers/learners. This is particularly the case since the concrete and the abstract interpretation have enough commonalities to construe the event in alternate ways.

The third most frequent construal, PC9 (concrete and abstract static topology – 7.55%), also implies static topology. However, this construal involves an important new element – focus on the space outside our immediate dominion. Furthermore, it includes the concept of visibility and accessibility described in Lindner in English as L1. These meanings are often related to the non-transparency of LMs. They hide their contents and make them invisible, but they are often only vaguely specified and they refer to various states denoting obscurity. Thus, *out* often denotes 'change of state from non-visible to visible'. This resultant change approximates the strategic construal of *out* labelled PC9.

The second group of meanings (G4) had been classified as denoting abstract processual topology. The most frequent construal of the particle in this group was PC2 (17.64%) – abstract topology (static displacement). This static aspect of the construal is actually the central element found for this group of meanings. This is confirmed by the frequencies established for PC3 (5.61%) and PC9 (8.28%), which both imply static topology, and the only difference between them is the viewing arrangement. More specifically, the construal labelled PC3 is deictic and partly egocentric. The location of the speaker operates as a reference point to calculate the location of others. This is evidenced by answers describing *out* as 'out of our world', 'out of our reach' or 'out of where we are', as opposed to answers belonging to PC9, which describe *out* as 'outside where other people are', 'out in the open', 'out in the larger area', and so forth, which do not have a deictic organization. In terms of what has been said about the nature of *out* in English as L1, these two meanings are consistent with what Lindner explained by using the model of an evolutionary cycle. There are two basic viewer-defined regions (the potential private and the actual public) that serve as LMs for *out*. Both Mexican and Croatian users of English have recognized these two regions as an important aspect in the process of meaning construction of this particle. However, 6.51% of the answers referred to concrete processual topology, which suggests that degrees of concreteness and literalness are indeed very subjective. In this particular case, our participants' strategic

construal showed a tendency towards the concrete whereas ours leaned towards the more abstract. This may be a consequence of the pervasiveness of the concrete construal to operate as the base for the construction of abstract meanings. Thus L2 users may take advantage of the concrete representation in order to interpret abstract configurations. In contrast, the linguist's view may be used to assume such a concrete basis and allow for the abstract representations to be profiled. In other words, common speakers tend to be more conservative than linguists, particularly cognitive linguists, who see metaphorical extensions as the natural shape of human language.

Finally, 5.41% of the answers implied a kind of reverse viewing pertaining to our bodies being perceived as containers. Thus, for example, the meaning of *take out* 'kill' is explained by saying that 'life is taken out of a person's body' or 'one's soul is taken out of someone's body' instead of 'body being taken out of life'. It would be rather callous to attribute this kind of construal to a single factor, but it is reasonable to speculate that the following factors may have contributed to this interesting reversal: a) the centrality of body in human conceptualization; b) the importance of body as a source of containment; c) cultural significance of, for example, the body being the seat of the soul; d) a lack of linguistic context; e) level of language proficiency. The prominence of the body as a container metaphor is well established, at least in western civilization, and happens to be a quite productive schematic representation - ideas escape our minds, we can get people out of our hearts, viruses enter our bodies, and so on. The reverse construal is thus to be expected. Rather than being naïve, second language learners may be using basic metaphorical construals in acquiring new concepts.

The third group of meanings (G5) had been classified as aspectual (termination). As expected, 11.61% of the participants' answers suggest that the meaning of the particle denotes some sort of termination. However, a very large number of answers relate to less grammaticalized meanings of *out*, which again is likely to indicate that linguistic categories may be entered at various points in the process of language acquisition and development. Thus, the second most frequent construal (8.10%) implies that the particle stands for static displacement. Then, 6.51% of the answers point to the static topology focused on the space where the conceptualizer is situated, 3.97% of the answers say that the particle denotes concrete processual topology (together with 2.06% of the cases with no container specified), and 3.94% of the answers indicate that *out* stands for some sort

of inaccessibility and absence (PC4). If we reorder these answers into a sort of gradient line denoting the process of grammaticalization, we might obtain the order as shown in Figure 11.

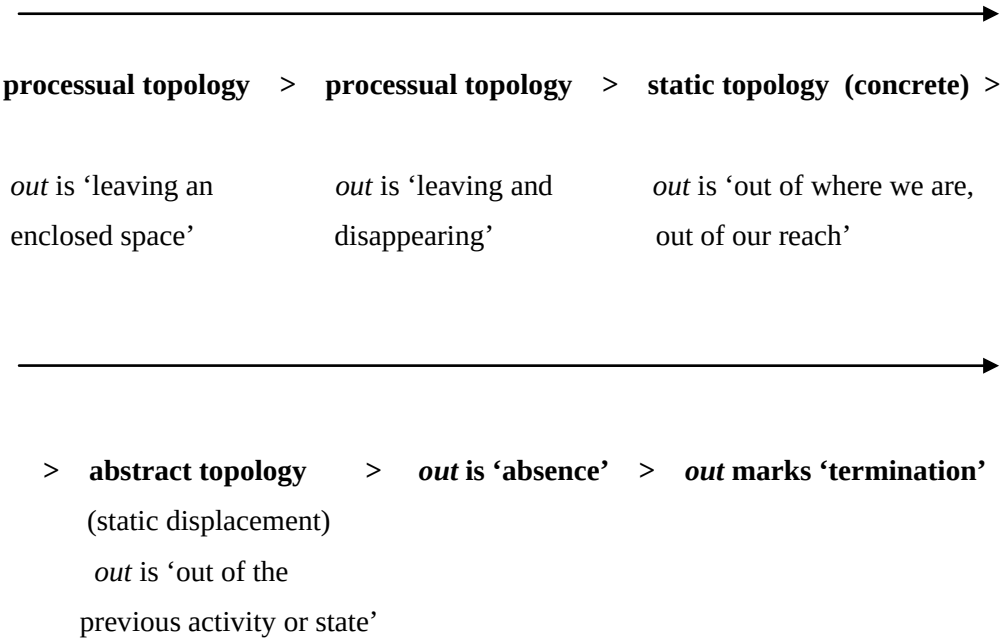

Figure 11. A potential path of grammaticalization in the strategic construal of *out* (1).

Finally, it is interesting to note the difference in frequencies between the two construals implying static topology (PC3 and PC9). Whereas the frequency of PC3 (concrete static topology with the focus on the conceptualizer's space) is 6.51%, the frequency of PC9 (concrete and abstract topology with the focus outside the conceptualizer's space) is only 1.14%. This may indicate that in terms of the stages in the process of developing or acquiring a network of meanings, the construal of *out* involving the conceptualizer's space and the construal of *out* involving the space outside the conceptualizer's dominion are not equally distant from the aspectual meaning of *out*. In other words, the construal of *out* involving the conceptualizer's space is closer to the aspectual meaning of *out* than the construal involving the space outside the conceptualizer's dominion. This again shows the pervasiveness of the concrete and deictic representation of *out* operating as the base for alternative readings.

The last group of meanings of PVs (G6) is also aspectual, but the meanings seem to be inceptive. Contrary to the results for *out* denoting termination, the most frequent answers for this group of meanings are not those that refer explicitly to the aspectual

nature of the particle. The most frequent answers are those labelled PC9 (11.96%), which imply static topology with the focus on an outer space. We hypothesize that for L2 users of English, the beginning of an activity is identified with the space entering their immediate dominion. Things do not seem to be leaving the space of the conceptualizer, but they become accessible from a hidden region. Things start as they become visible. The accessibility construal is generally quite pervasive. The sun and the moon come out, as well as actors on stage, water from fountains, and so on. It is reasonable to assume that L2 users exploit that kind of construal from their basic experience. Concrete processual topology and explicit reference to aspect are the second most frequent kinds of construal (7.61%). In the case of processual topology, the users seem to construe the inceptive nature of PVs by assigning it to the particle denoting the process of a TR leaving an enclosed space (and the space is often described as something that confines the TR). Finally, 3.26% of the answers refer to abstract topology (PC2). In sum, in a similar manner to *out* signalling termination, strategic construal of *out* that marks inception shows stages that resemble the process of grammaticalization that is implied in L1 descriptions of this particle (see Figure 12).

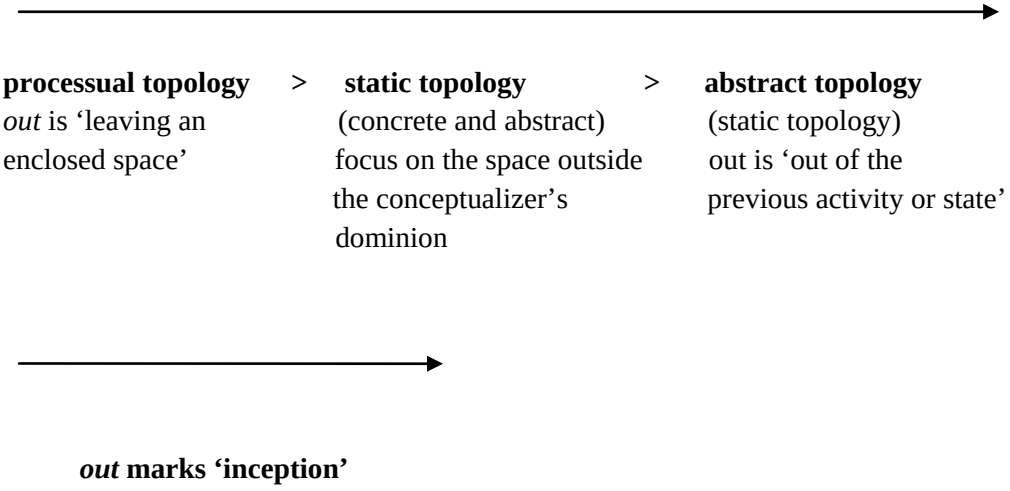

Figure 12. A potential path of grammaticalization in the strategic construal of *out* (2).

III.2.4. Results for in

1) For the group of meanings classified as G2 (processual topology – concrete), the meaning of *in* was construed as follows:

a) PC1 (15.37%) – processual topology (concrete/physical). *In* is: entering a new space; getting (in)to a new space (there is some kind of movement involved); getting into a container and the container is specified; going into a certain space; going into a designated area; into a certain piece of space; into a place (see Figure 13).

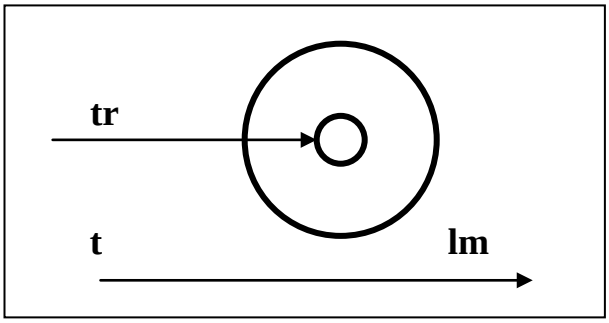

Figure 13. Strategic construal of *in* – processual topology.

b) PC3 (12.80%) – static topology (concrete/physical) – there is no motion, just physical space and location. *In* is: a place; a location; space; limited space; confined space; something like a hiding place (see Figure 14).

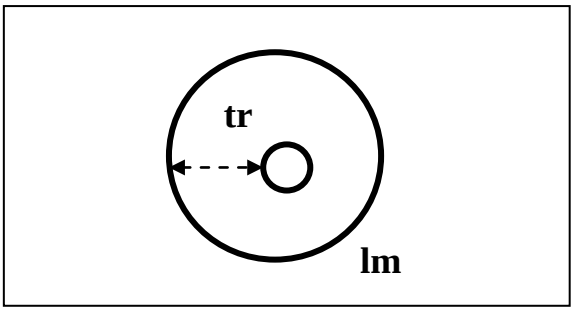

Figure 14. Strategic construal of *in* – static topology.

c) PC2 (2.48%) – abstract topology leaning towards the inceptive aspect. *In* is: be/get (in)to a new activity; be/get (in)to a new situation; (in)to a (new/another) group of people; entering a new situation; beginning of something; starting to get involved. See Figure 15, which represents the inceptive nature of the process constituting this construal[18].

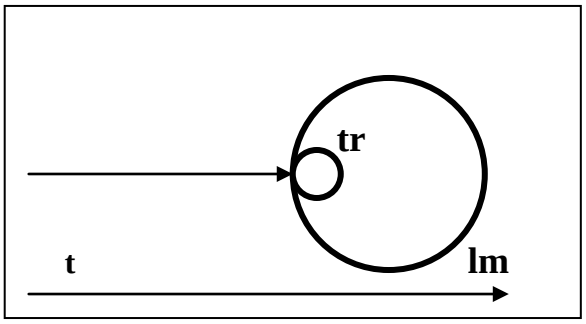

Figure 15. Strategic construal of *in* – inceptive process.

d) PC4 (3.47%) – static topology – focus on the subject's dominion. *In* is: where the subject is, i.e. his/her world; control; dominion; power.

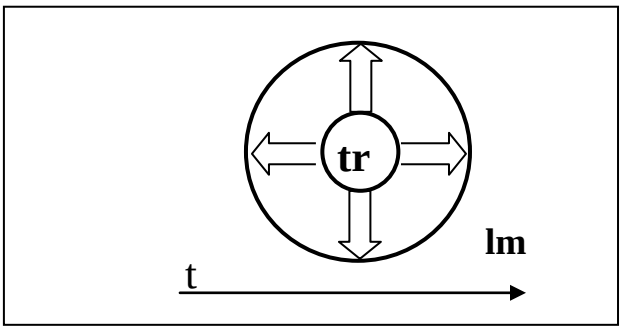

Figure 16. Strategic construal of *in* – control within dominion.

e) PC5 (2.01%) – process (concrete and physical, but no container specified). *In* is: going into; jumping into; moving towards inside; moving inwards; entering; returning (see Figure 17).

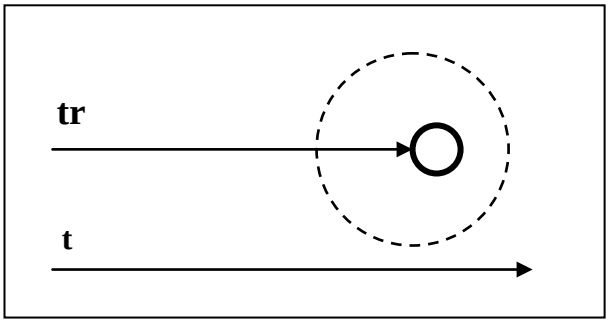

Figure 17. Strategic construal of *in* – entrance – no container specified.

f) PC6 (2.01%) – *in* is: inside, inside of something (not very informative).

g) PC8 (0.11%) – *in* intensifies the action.

h) PC11 (2.48%) – reverse topology.

i) PC12 (0.11%) – established metaphor. *In* is: acceptable and accepting.

2) For G4 – processual topology (abstract), the meaning of *in* was construed in the following ways:

a) PC1 (17.85%) – processual topology (concrete/physical). See Figure 13.

b) PC2 (16.91%) – abstract topology leaning towards the inceptive aspect. See Figure 15.

c) PC3 (3.55%) – static topology (concrete/physical). See Figure 14.

d) PC4 (2.75%) – static topology – focus on the subject's dominion.

e) PC5 (1.2%) – process (concrete and physical, but no container specified). See Figure 16.

f) PC6 (2.29%) – *in* is: inside, inside of something (not very informative).

g) PC8 (0.34%) – *in* intensifies the action.

h) PC11 (3.08%) – reverse topology.

i) PC12 (0.17%) – established metaphor. *In* is: acceptable and accepting.

Table 2. Strategic construal of *in* – summary.

	G2 (processual topology – concrete)	**For G4 (processual topology – abstract)**
PC1 – processual topology (concrete/physical)	15.37%	17.85%
PC2 – abstract topology leaning towards the inceptive aspect	2.48%	16.91%
PC3 – static topology (concrete/physical)	12.80%	3.55%
PC4 – static topology – focus on the subject's dominion	3.47%	2.75%
PC5 – process (concrete and physical, but no container specified)	2.01%	1.20%
PC6 – *in* is: inside, inside of something (not very informative)	2.01%	2.29%

PC8 – *in* intensifies the action	0.11%	0.34%
PC 11 – reverse topology	2.48%	3.08%
PC12 – established metaphor 'acceptable'	0.11%	0.17%

III.2.5. Discussion for in

The first and the most obvious observation is that *in* is less informative than *out*, which is relevant to various aspects of the results in both parts of the research (see Geld, this volume). Secondly, there are fewer types of the construal with *in* than with *out*, and the learners' answers are shorter and/or less specified in the case of *in*. Finally, with both groups of meanings (G2 and G4) there are a certain number of answers that explicitly say that *in* is 'not very informative' (PC6). This is probably due to the much-discussed pervasiveness of the experience of boundedness and containment (Dewell 2005, Johnson 1987, Lakoff 1987), which results in containment being perceived as some kind of 'regular', 'natural' or 'neutral' state of being that is taken for granted. Moreover the marked character of *in* corresponds to other conceptual phenomena well attested in language. We naturally see and conceptualize what is in front of us, what is on stage (Langacker 2000). Looking at the space we actually occupy implies special effort. This correlates with abundant asymmetry facts in language such as the unmarked status of 3rd person over 1st in pronominal marking, the marked character of reflexive, as opposed to transitive constructions, and the special treatment of inalienable possession. To the extent that in normally designates the location where the conceptualizer is located, the marked character of *in* is to be expected.

Let us now take a look at the two groups separately. For the group of meanings classified as G2 (processual topology – concrete), the most frequent construal was PC1 (concrete processual topology with reference to the container). Together with PC5 (concrete processual topology with no reference to the container), 17.38% of the participants identified the meaning of the particle with the meaning we had assigned to the whole PV. The second most frequent construal, PC3 (static topology – 12.80%), suggests that the participants attended only to the resulting state of the whole image, and they formed a completely stationary image, independent from a preceding path. Considering the fact that our participants were all adults, in whose L1 semantic system

static locations are considered to be more basic than motion events, it is not surprising that so many of them ignored the dynamic aspect of the underlying schema while constructing this particular meaning in L2.

The last two types of construal that deserve our attention for this group of meanings are PC4 (static topology with the focus on the subject's dominion) and PC11 (reverse or non-egocentric viewing). As stressed by Evans and Tyler in their description of *in*, there are two clusters of meaning related to the conceptualizer's vantage point: a) the cluster related to the spatial scenes in which the vantage point is located within the location being conceptualized, and b) the cluster related to the spatial scenes in which the vantage point is located outside the spatial region being conceptualized. What the data for G2 show is that, for some users, the most important aspect of meaning construal is the one pertaining to the viewing arrangement in which the vantage point is located within the spatial scene being conceptualized. Thus, 3.47%[19] of the participants stressed that the most salient aspect of the construal was the focus on the participant's/conceptualizer's dominion. Moreover, a smaller number of them (2.48%) did the same even when the particle does not actually code this particular viewing arrangement (e.g. *in* in the PV construction *write in* meaning 'write to ask or complain' does not code the subject's dominion). If we treat the latter not simply as an error, we may conclude that L2 users recognize certain, more general, facets of the meaning of the particle even when they are not coded in a particular sense that is being processed. This might lead us to believe and conclude that their strategic thinking involves various cognitive processes, such as for example those pertaining to viewing arrangement, which tend to be activated whenever they constitute aspects of construal in L1. In other words, having encountered various facets of meaning and having abstracted a variety of regularities in the process of their L2 learning and processing, users are likely to employ them and construct meaning strategically whenever they face something they do not know or understand completely. Consequently, their strategic thinking does involve errors in a narrow sense of the meaning, but, in broader terms, they should be treated as a meaningful and constructive stage in their progress.

Finally, for the group of meanings G4 (processual topology – abstract), the situation is somewhat different. Even though there is a high percentage of answers implying concrete processual topology (PC1 – 17.85%), there is also a high percentage of

answers (16.91%) pointing to the inceptive aspect of the construal (PC2). The recognition of the abstract nature of the particle in this particular group of meanings is not that surprising. What is more surprising is the users' tendency to go a step further and describe the role of the particle in terms of its aspectual nature. The inceptive aspect of the particle is defined either overtly by using descriptions such as 'beginning of something' or 'starting to get involved', or in a more covert manner by describing its meaning as, for example, 'getting (in)to a new activity' or 'entering a new situation'. Thus, we must conclude that our L2 users of English recognized the aspectual nature of the particle where we, i.e. linguists and researchers, had neither expected nor done so ourselves. A closer look at the two sources for inceptive meanings suggests that this construal is the mirror image of the inceptive meaning provided for *out*. In the case of *out* events are initiated as they become accessible from a hidden location. In the case of *in* accessibility is the default, no hidden location is required. As soon as mental contact is established the event gets started. The high frequency for inceptive *in* is thus to be expected.

IV. CONCLUSIONS

Users of English as L2 find both lexicon and grammar meaningful, and they are aware of the symbolic nature of language. The cognitive linguistic premise that language is intimately related to other cognitive processes finds its evidence in the nature of learning strategies employed by L2 users. More specifically, meaning construal in L2 is comparable to meaning construal in L1. This is especially apparent in users' construal of particles. They recognize the complexity of their semantic networks proposed and described in English as L1. Their answers clearly imply the problem of dynamic aspects of the construal of particles as well as the importance of cognitive processes such as attention and perspective (e.g. their answers imply gradience from the literal to the metaphorical, aspects of viewing arrangement, and mental scanning). In other words, their cognitive strategies employed in the process of meaning construction in L2 reflect general cognitive processes described as aspects of construal in L1. Even though the realizations of these processes are language-specific and languages have different inventories for building their conceptual structures, the fact that cognitive processes are

intimately related to language enables L2 users to activate them in the process of meaning construal. What the data show is that their ability to go from the literal and concrete to the abstract and metaphorical results in a variety of strategically constructed meanings amounting to a gradient scale resembling a grammaticalization path of English particles. For example, their answers for *out* in the group of PV meanings implying aspect (termination) indicate that they make sense of meanings in a linguistically motivated way, that they are tacitly aware of the fact that lexicon and grammar form a continuum, and that their meaning construal involves general cognitive processes such as attention, comparison and perspective, i.e. linguistic construal operations such as selection, scalar adjustment, metaphor, vantage point, and so forth, as instances of these general processes. This is made clear in the following grammaticalization path: *out* is 'leaving an enclosed space' (processual topology) > *out* is 'leaving and disappearing' (processual topology, no container specified) > *out* is 'out of where we are, out of our reach' (static topology – concrete) > out is 'out of the previous activity or state (abstract topology - static displacement) > out is 'absence' > *out* marks 'termination'. The path also shows an obvious subjectification path where the core meaning undergoes attenuation (Langacker 2000b). Some properties of the basic meaning of *out* lose prominence in favour of a less central feature to actually construe more schematic representations. First the notion of boundary is lost, and then the presence of the source locations is blurred. Moreover, the space is no longer a concrete one and finally abandonment of a previous stage triggers the aspectual notion of termination. We may claim that the basic notion of containing space remains at the base to support the emergence of abstract meanings.

Another example of our users' varying attention relates to the mental scanning underlying dynamic and static aspects of their meaning construal. For example, even though conceptual scanning processes are an essential element for both path schemas and stative relations, our learners' attention was often rather selective and they attended only to the resulting states and described completely stationary images rather than processes.

Finally, aspects of viewing arrangement pertaining to the general cognitive process of perspective are more than evident in the types of strategic construal implying the

importance of the conceptualizer's dominion or the space outside of her/his dominion (see construals PC3 and PC9 for *out*, and PC4 for *in*).

The way our participants constructed particular meanings supports the idea that speakers of English have different starting points within a lexical category. It is true that the topological representation is dominant, but alternative ways of construing meaning are at hand. Where and how they start is likely to depend on various factors pertaining to their experience and knowledge (e.g. the work they do, hobbies they have, places they live in), and to individual strategies employed to conform to events. For example, there are users who construct concrete meanings in a more abstract way. The meaning of *out* in the verb *put out* meaning 'to injure your back, shoulder or hip' is more likely to be construed as concrete and topological by someone who knows exactly what happens when such an injury occurs – a particular bone gets 'out of its place'. On the other hand, it can be easily identified with a more abstract meaning such as 'out of the original or normal state' by those who have never seen or experienced such an injury or have never thought about it. However, predicting our learners' starting points within a lexical category, if possible at all, would require the introduction of a number of relevant variables and a thorough investigation of various aspects of language learning. However, we can still conclude that our participants' meaning construction supports the idea that the best way to deal with complex lexical categories is to avoid strict categorization which assumes fixed and predictable places of particular meanings within a particular category. Our participants' construals exhibit partial compositionality which is evident in their selection of one or two outstanding properties from the whole set of possible features of each PV. Furthermore, they seem to extract regularities from particular constructions and construct meaning accordingly, but they are free to pull out multiple patterns from a given set of forms. Crucially, these patterns do not vary in all possible directions. They exploit the possibilities of the base form in patterns of attenuation and subjectification that profile different facets of the base form as pertaining to the dominion they apply. The flexibility to construe *in* or *out*, in a concrete or an abstract manner, simply obeys the most fundamental topological schematic representation of these forms in such a way that the freedom in the conceptualizer's vantage point is framed by the basic cognitive patterns we have sketched in this paper.

Given these cognitive patterns, the abundant similarities in event construal between second- and first-language users' strategic construal should be anything but surprising.

Notes

[1] See also Geld this volume as a complement to this article.
[2] Discussions on degrees of idiomaticity of English particle verbs as composite wholes are numerous (see for example Bolinger 1971, Celce-Murcia and Larsen-Freeman 1999, Cornell 1985, Dagut and Laufer 1985, Dirven 2001, Gries 2003, Laufer and Eliasson 1993, Liao and Fukuya 2004, Lindner 1981, Makkai 1972, McPortland 1989, O' Dowd 1998, Quirk et al. 1985). Even the content of phrasal-verb dictionaries varies according to the type of meanings included: for example, Sinclair and Moon (1989) and Cullen and Sargeant (1996) include both literal and idiomatic phrasal verbs, whereas Cowie and Mackin (1993) exclude the former. See also Cappelle (2005: 120) for a two-way grid classifying particle verbs in terms of literal and idiomatic meanings assigned to their component parts.
Relevant parallelism related to gradient idiomaticity is also found in the field of idioms. For example, Gibbs claims that *chew the fat* and *kick the bucket* are much less analyzable than e.g. *pop the question* or *blow your stack* (1995: 100).
[3] The building-block metaphor was used by Langacker (1987, 2000) to portray the way linguists tend to think about morphological and syntactic composition.
[4] This view of language acquisition is shared by various constructivists, for example, the connectionists (Christiansen and Chater 2001, Christiansen et al. 1999, Plunkett 1998), functional linguists (Bates and MacWhinney 1981, MacWhinney and Bates 1989), emergentists (Elman et al. 1996), cognitive linguists (Croft and Cruse 2004, Lakoff 1987, Langacker 1987, 1991), constructivist child-language researchers (Slobin 1997, Tomasello 1992, 1995, 2000) and many others.
[5] These constraints are especially evident in adult L2 learning (see for example Doughty 2003).
[6] See the introduction of Geld (this volume) to have the typology explained.
[7] For issues related to negotiation of form prompted by negotiation of meaning see e.g. Brock et al. (1986), Day et al. (1983), Foster and Ohta (2005), Skehan and Foster (2001).
[8] See also the results in Section IV of Geld's article (this volume).
[9] See Geld's abstract (this volume).
[10] See Section III.1, The instrument, in Geld's article (this volume).
[11] The main stage was preceded by a pilot study to test the reliability of the questionnaire.
[12] The third category was lexical determination. The three categories (topological, lexical and compositional) were the results of the first part of the research (see Geld this volume).
[13] The following learners' dictionaries were consulted while designing the questionnaire used in this research: *Oxford Phrasal Verbs: Dictionary for Learners of English* (Parkinson 2001) and *Cambridge Phrasal Verbs Dictionary* (Walter 2006).
[14] See Section III-3 in Geld's article (this volume) for complementary data.
[15] It should be stressed that this percentage (3.25%) is viewed in relation to the frequency of other contributions. In other words, if we know that there were 10 types of construal identified for *out*, and that the highest percentage for this group of meanings was 12.10%, followed by 11.50% and 7.55%, and that most other frequencies were below 2.0%, it seemed reasonable to consider PC2 (3.25%) in our discussion and attempt to interpret its contribution.
[16] Rice analysed longitudinal data obtained from the CHILDES corpus for two English-speaking children and the results showed that there are significant differences in usage patterns for the prepositions she studied, and that each child has a "different point of entry" into one of the nine lexical categories (2003: 272). Rice concludes that the findings suggest that semantic extension within a lexical category proceeds outwardly only partially from some basic, concrete sense, and that the child language evidence presented in the analysis is "inconclusive about any parallelisms which might obtain between developmental and diachronic extension" (*ibid.*: 273).
[17] Here, Lindner uses the term *category* in a narrower sense of its meaning. It actually refers to a cluster of meanings that make similar semantic contributions in particular groups of PV constructions.

[18] This particular construal combines two important aspects of the construal of *in* in L2. First, it implies abstract topology and, second, it points to a more grammaticalized meaning that codes the inceptive aspect that has not been discussed for *in* in L1.
[19] We believe that a qualitative analysis such as ours needs to include and interpret even seemingly less significant contributions, especially in the light of our insistence on illuminating subjective and idiosyncratic aspects of (strategic) construal.

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Lexical decomposition of English spatial particles and their subsumption in motion constructions[1]

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ABSTRACT

In this paper, we firstly present a tentative formalization of a Lexical Template (LT) and a meta-language for spatial particle semantics within the framework of the Lexical Constructional Model (LCM). The semantic module consists of a set of Lexical Functions, which operate on a semantic primitive in order to produce a hyponym by elaborating topological, dynamic and functional information. The syntactic module expresses situations (positions or states) plus the argument structure. Secondly, we illustrate and discuss several LTs with the purpose of exploring spatial particle subsumption constraints with constructions such as caused motion and intransitive motion, as well as the types of verbal Aktionsart that might fuse with them. The COCA is used as a data source. We conclude that spatial particles contribute meaning to the extent that they partially determine the type of Aktionsart of the verb licensed by the motion construction.

Keywords: *spatial particle, lexical template, motion construction, subsumption, Aktionsart*

I. INTRODUCTION

The first aim of this paper is to explore the lexical decomposition of spatial particles so as to introduce their lexical templates within the framework of the Lexical Constructional Model (henceforth LCM). Secondly, we discuss the semantic contribution of spatial particles to motion constructions, more precisely, to the Intransitive Motion Construction and the Caused Motion Construction. The current approach in Construction Grammar (Goldberg 1995: 164ff) avoids going into details about spatial particle meanings and holds that finite verbs fuse into constructions, so that whenever their semantic specifications do not match, the construction overrides the semantic value of the verb, thereby subsumed on the basis of the coercion principle. Nothing is said about other lexical units participating in the construction, like spatial particles. Particle semantics is ignored, since the path is considered part of the constructional meaning: "the location encoded by the locative phrase is interpreted to be the endpoint of a path to that location" (Goldberg 1995: 159). Conversely, we claim that

at least part of the semantic value attributed to the construction is contributed by spatial particles.

To provide evidence of our claim, that is, to show the meaning contributed by the particle and how that meaning matches the construction, we have carried out lexical decomposition in the form of lexical and constructional templates within the framework of the LCM.

The LCM (Butler 2009, Mairal and Ruiz de Mendoza 2008, 2009, Ruiz de Mendoza and Mairal 2007a, 2007b, 2008) proposes a semantic-syntactic system of representation of both lexical units and constructions.

The use of a predicate, i.e., a lexical unit, in a particular construction is defined by a cognitive operation called subsumption (Peña 2009), which assumes both internal (semantic-syntactic) and external (pragmatic and discursive) constraints. The descriptive tools used for the formalization of subsumption processes are called Lexical Templates (henceforth LTs) and Constructional Templates (henceforth CTs), which share a common meta-language. LTs are semantic representations of the syntactically relevant content in the meaning of a lexical unit plus pragmatic and semantic information relevant to that meaning. CTs are similar formalizations of constructional meaning. Therefore, semantic decomposition of lexical predicates becomes necessary so as to determine the elements required in their semantic representation. In its attempt to provide a more adequate explanation for the syntactic-semantic interface, the LCM has a twofold goal:

1) Firstly, to identify the aspects of meaning which determine alternate usage of lexical units belonging to the same class, as well as to investigate why certain classes of lexical units participate in a given set of constructions while others do not.

2) Secondly, to provide a set of rules that regulates the fusion process (subsumption) considering semantic motivation at its basis. Contrary to most theories of lexical representation, the LCM claims that "a lexical rule should not only capture those idiosyncratic regularities that hold in the lexicon, but it should also explain the linguistic motivation that exists behind the generation of a given syntactic construction" (Mairal 2004: 11).

Within this framework, our goal is to unravel the semantic role of particles both in the Intransitive Motion Construction and, especially, in the Caused Motion Construction. We provide evidence that shows the kind of meaning contributed by the particle and how that meaning matches the construction.

II. THE STRUCTURE OF LEXICAL AND CONSTRUCTIONAL TEMPLATES

LTs are low-level semantically-enriched representations of the syntactically relevant content of a predicate meaning, plus pragmatic and semantic information relevant to that meaning. The structure of these formulaic representations emerges from the formalism developed in *Role and Reference Grammar* (RRG) for Logical Structures (Van Valin 2005). In LCM, however, these representations are enhanced by means of lexical functions and lexical domain decomposition (Mairal and Faber 2005, 2007). In other words, what the templates provide is a semantic specification of a Logical Structure. The goal of that construct in the LCM framework is to stretch the chain of semantic decomposition as much as possible, as well as to develop a universal meta-language that supplies typologically valid representations. With that purpose, semantic decomposition in LCM observes the following components:

a) Lexical Inheritance Hierarchy: LTs are interrelated through domain-subdomain hierarchies (Faber and Mairal 1999).

b) A set of semantic primitives of the BE, HAPPEN, BECOME, HAVE, etc. type (Wierzbička 1996).

c) A set of Lexical Functions of the $f(x) = y$ type (Mel'čuk et al. 1995). Lexical Functions (e.g. MAGN, CULM, MANNER, CONT, CAUSE, INSTR, etc.) can account for lexical domain-specific relationships and elements of world knowledge that relate in a specific way to the predicate defined by the LT.

d) Aktionsart distinctions that result in a classification of event types which distinguishes among states, activities, achievements, semelfactives, accomplishments, active accomplishments, and causative accomplishments (Vendler 1967, Van Valin 2005). These distinctions are based on event parameters such as +/- static, +/- dynamic, +/- telic, and +/- punctual). States (e.g. *know*) and activities (e.g. *run*) are considered

primitive kinds of durative, non-telic events, static or dynamic, respectively. Semelfactives (e.g. *sneeze*) are punctual, non-telic events, i.e., events without a change of state. Achievements (e.g. *shatter*) and accomplishments (e.g. *melt, get*) imply a change of state (BECOME).

e) Argument Structure: predicate arguments (x, y, etc.).

In accordance with the parameters set out above, enhanced formalism, as outlined by Mairal and Faber (2005, 2007), includes a semantic module (Lexical Inheritance and Lexical Functions) plus a syntactic module (Aktionsart and Argument Structure).

Semantic primitives and Lexical Functions characterize the semantic component of the language lexicon. The inventory of primitives is systematic, finite and internally consistent. That inventory defines a set of lexical domains that determine the architecture of the lexical system. Thus, each lexical domain is defined by a superordinate term called a nuclear term (e.g. the domain of verbs of existence is defined by the superordinate *be* or *happen*, the domain of change verbs is defined by *become*, the domain of possession verbs is defined by *have*, and so on:

DOMAIN	NUCLEAR TERM
Existence	be, happen
Change	become
Possession	have
Speech	say
Emotion	feel
Action	do, make
Cognition	know, think
Movement	move, (go/come)
Physical perception	see, hear, taste, smell, touch
Manipulation	use

Each superordinate term can be used for the formulation of more specific lexical items or hyponyms, which in turn inherit information from the superordinate unit. Thus, *see* may be used as a prime in the lexical templates of verbs like *look*, *watch*, *observe*, *glimpse*, etc. This proposal of a set of primitive terms coincides to a great extent with Wierzbička's

Natural Semantic Metalanguage (NSM), which has been shown to be valid for over a hundred languages (Wierzbička 1996).

The semantic component of the LCM lexicon also includes a set of operators based on the notion of Lexical Function as propounded by *Explanatory and Combinatorial Lexicology* (Mel'čuk et al. 1995). A large set of such semantic operators have also been shown to have universal status. In Mel'čuk's theory, Lexical Functions operate syntagmatically, so that a lexical unit may combine with certain collocates when a function is applied to it. For example, the function "intensification", expressed as <MAGN>, can be applied to different lexical units, for instance to the unit *smoker*. As a result, the expression 'heavy smoker' emerges in the language, with the consequence that the unit "heavy", as collocate of "smoker", expresses that particular lexical function.

In LCM, the notion of Lexical Function is applied paradigmatically in the lexicon, with the purpose of describing the semantic relationship between different lexical units in a lexical hierarchy. Thus, a hyponym is described as a hyperonym incorporating one or more Lexical Functions into the semantic module of its LT. Thus, in $f(x) = y$, f represents the function, x represents the hyperonym, and y stands for the hyponym. The meaning associated with a Lexical Function is abstract and general, and can produce a relatively high number of values. In LCM, therefore, Lexical Functions are essentially paradigmatic – instead of syntagmatic – operators, and capture those pragmatic and semantic parameters that are idiosyncratic to the meaning of a word, which allows for distinctions of different words within the same lexical hierarchy. The following formula shows the schematic form of an LT:

predicate:
[semantic module <lexical functions>] [aktionsart module <semantic primes> (thematic frame)]

To illustrate the notion of LT, let us look, by way of example, at the following hierarchy of visual perception verbs:

Superordinate term: *see* (x, y)
Hyponymy hierarchy:
distinguish > [ID $_{12}$ and EFF] [*see'* (x, y)]
look> [INTENT, CONT] *see'* (x, y)

watch > [MAGN and INTENT, CONT ^{lng}] *see'* (x, y)

observe > PURP and [MAGN and INTENT, CONT ^{lng}] *see'* (x, y)

In these LTs, *see*, *distinguish*, *look*, *watch* and *observe* stand for the predicates under description; ID, EFF, INTENT, CONT, MAGN, and PURP stand for the Lexical Functions identification, effort, intentionality, continuity, intensification and purpose; the subscript figures $_{12}$ stand for the transitive character of the identification function, which affects the two arguments; *see'* stands for a visual perception stative primitive; and, finally, (x, y) stands for an argument structure including two arguments.

We have illustrated the structure of LTs and the meta-language employed in their semantic decomposition. The same kind of configuration and meta-language is used in the semantic description of constructions. CTs are present in different forms (e.g. argumental and idiomatic) at all levels of linguistic description (propositional, inferential, pragmatic and discursive). Thus, a CT is viewed as a high-level or abstract semantic representation of syntactically relevant meaning elements that are abstracted away from multiple lower-level representations, as in:

Intransitive motion: [do' (x) [BECOME be-LOC' (x, z)]

(1) *Paul walked into the room*

Caused motion: [do' (x, y)] CAUSE [BECOME be-LOC' (y, z)] (from Pérez-Hernández and Peña-Cervel 2009)

(2) *Paul put the napkin in the drawer*

The CTs above encode motion constructions, so that, firstly, an entity (x) does an action (do). Moreover, in the intransitive motion construction, that entity (x) ends at location (z) by the effect of the action (do). The expression BECOME be-LOC' encodes the meaning 'change of location'. In the case of the caused motion construction, the action performed by (x) on another entity (y) causes that entity (y) to change its location.

III. LTS OF SPATIAL PARTICLES

In the following subsections, we introduce a characterization of the components in an LT of a spatial particle.

III.1. Argument structure

In Cognitive Grammar (Langacker 1987), spatial particles are considered lexical units of a relational nature, as are verbs:

> … a relationship is conceptually dependent on its participants. For example, we cannot conceptualize a spatial relation (like *on*, *under*, or *near*) without to some extent (if only schematically) invoking the entities that participate in it. As the term suggests, apprehending a relationship resides in conceiving entities in relation to one another. Thus it does not exist independently of those entities. (Langacker 2008: 200)

English spatial particles are relational expressions, so that the speaker's conceptualization profiles interconnections among conceived entities. Interconnections are cognitive operations that assess the relative positions of entities within the scope of predication. As relational predicates, spatial particles profile a spatial relation on the basis of two other entities in the spatial domain. In the speaker's conceptualization, these two entities – trajector and landmark – display an asymmetrical relationship in the same construal event as the relational concept as such.

Spatial particles express the construal of a situation where two entities are conceived as related to each other, and consequently can be regarded as the arguments of that predication. In that construal, the trajector is more salient once perceived and more dynamic than the landmark, which is secondary and more static. The former is the localized or foregrounded entity, and is construed as the movable element in the relationship. On the other hand, the landmark functions as a localizer, background or referential entity, construed as the static element or reference point in the relationship.

In terms of thematic frame, we say that the Logical Structure of spatial particles consists of two roles that are instantiated by the trajector and the landmark of the construal event. The term *Logical Structure* has been used in formal models of language to refer to verbal argument structure. The arguments of spatial predicates (x, y) designate the roles played by the trajector and the landmark. It is important to notice here that the terms trajector and landmark designate two participants in a construal event configuration, whereas arguments (x, y) are constructional functions of those participants.

Thus, in the context of the LCM it is realistic to represent the argument structure of spatial relational predicates as a combination of two arguments. In the LCM, therefore,

LTs of spatial relational predicates include the argument structure (x, y). Let us consider the preposition *at* as an example:

at (x, y): The train at the station→ at (train, station)

Spatial relations are, therefore, instantiated in language usage in the form of predications where the spatial predicate takes two arguments instantiated by the construed trajector and landmark, both being necessary for the conceptualization of the relationship expressed.

III.2. Semantic primitive

The NSM (Wierzbička 1996) provides a set of primitives that we adopt as a departure set in order to define the top of the conceptual hierarchy in the lexical domain of spatial relations. The NSM holds the following distinctions for spatial meaning:

Space	→	WHERE/PLACE, HERE ABOVE, BELOW, FAR, NEAR, SIDE, INSIDE, TOUCHING
Movement	→	MOVE
Intensifiers	→	VERY, MORE

Some of these terms express typologically-proven primes that can be represented by generic denominations. Thus, WHERE/PLACE can be designated by the term "place", HERE can be designated by "speaker's location", ABOVE and BELOW by "higher level than" and "lower level than", and TOUCHING by "contact".[2]

In the context of LCM formalization, the primitive MOVE can be identified with the expression [BECOME be-LOC' (y, z)], which expresses the fact that an entity y changes its location with respect to a place z. The intensifier VERY can be identified with the Lexical Function MAGN, which expresses intensification. The form "MORE" can be identified with the PLUS Lexical Function, which expresses a higher degree in relation to a reference point. In sum, each prime defines a subdomain of the lexical domain of spatial particles, which is represented in the syntactic module of an LT.

III.3. Lexical hierarchy

It is not assumed as an initial hypothesis that English has a particular word for each one of the primitives described above. We use the NSM list as our initial set of semantic primitives, i.e., as nuclear terms from which other terms can be defined by means of Lexical Functions.

III.4. Aktionsart distinctions

Aktionsart distinctions provide a characterization of the trajector/landmark asymmetric construal in terms of situation types (Dik 1997). With regard to this issue, extensive corpora analysis (Navarro 2003, Silvestre 2009) shows that, for some particles, the trajector is conceived as the controller of the spatial relationship (*at*, *on*), whereas in other cases it is the Landmark that prototypically controls or constrains the trajector's potential motion (*in*, *under*). That evidence leads to the postulation of two possible Aktionsart role configurations, or situation types, of the TR-LM relationship:

a. Position: Positioner (TR) and location (LM)

b. State: Experiencer (TR) and location (LM)

One of these Aktionsart configurations is assigned to a spatial particle LT, depending on which argument of the predication exerts control, according the construal configuration of the situation. Some spatial predicates express a first argument position, in the sense that the entity holds control of the relationship, like *at* or *on*, as in examples (3) and (4).

(3) *The fly at the piece of melon*

(4) *The fly on my hand*

Other spatial relation predicates express a situation where the first argument undergoes a state of affairs, in the sense that it is the second argument (LM) that controls the spatial relationship and the potential motion of the first argument (TR), as in examples (5) and (6).

(5) *The fly in my hand*

(6) *The fly under the piece of melon*

III.5. Lexical Functions

Lexical Functions represent world knowledge and specify differences between lexical items in the same domain. World knowledge about space (Clark 1973, Piaget and Inhelder 1956, Talmy 2000, Vygotsky 1986) seems to conform to Merleau Ponty's (1945) phenomenology of perception, where perception, self-motion and interaction co-occur as a single phenomenon. Figure 1 elaborates on this conception of human experience, by incorporating two subtypes of interaction, as humans accommodate to the environment or modify it so as to assimilate it to their needs.

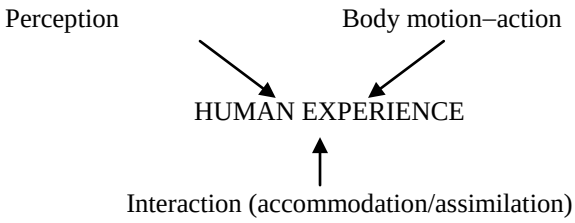

Figure 1. Components of human experience (from Navarro 2006).

In this line, Deane (1993, 2005) proposed the multidimensional character of the semantic structure of spatial relations. According to that view, Navarro (2006) points out that a preposition expresses not only the mere location of the trajector with respect to the landmark, but rather a locative configuration, with a particular orientation for movement, for some kind of purpose. That author's multimodal semantic networks distinguish three aspects of meaning for the construal of spatial relations:

a) *Topology*: The perception of topological arrangements, determined by human perceptual capacities, which in the case of spatial semantics are mainly visual capacities.

b) *Kinetics*: Sensory-motor experience about the *kinetic* action of objects determined by human motor capacities.

c) *Function*: In order to facilitate survival, assimilation of the environment, as well as accommodation of the body to it, determine our interaction with other people and locations – social and physical interaction.

We assume that every Lexical Function within an LT will correlate with one of these three experiential dimensions, as illustrated in Figure 2.

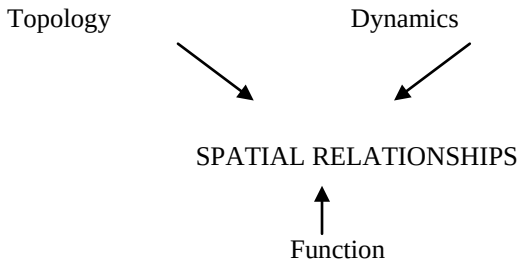

Figure 2. Components of human experience of spatial relationships.

IV. SOME EXAMPLES OF SPATIAL PARTICLE LTS

In this section we introduce and discuss some LTs of spatial particles. Let us begin with the LT of the preposition *at*:

At:

[T-MAGN, D-INTENT$_1$, F-PURP$_1$, F-INSTR$_2$] [position <(*[BECOME be-LOC (x)]) NEAR>] (x, y)

Semantic decomposition of this lexical unit (Navarro 2002) encompasses the following specifications:

- Argument structure including two arguments x and y. The former refers to the antecedent of the preposition and the latter to its complement (semantically construed as trajector and landmark, respectively).

- The semantic prime NEAR, expressing the fact that this preposition belongs to a lexical subdomain of relational predicates where the relationship designates proximity between the arguments.

- The expression (*[BECOME be-LOC (x)]) indicates that this preposition may participate in constructions where motion of argument x is expressed. The asterisk outside the square brackets and encircled between round brackets indicates that the predicate is compatible with constructions and other lexical items that express change of location, or movement, of the argument x, but this motion is not expressed by this particular predicate on its own.

- The term 'position' shows the situation type or interaction type expressed by this preposition. Particularly, it indicates that the first argument (x) is construed as a positioner in relation to the landmark (y), i.e., that the semantics of this particle implies certain control on the part of the trajector.

- Lexical Functions in the semantic module specify the semantics of the particle more precisely. Contiguity of trajector and Landmark is indicated by MAGN, which is an intensifier function of the topological aspect (T-) expressed by NEAR (proximity). The function D-INTENT$_1$ indicates dynamic intentionality of the first argument (x). The function F-PURP$_1$ indicates that the first argument is functionally oriented for some purpose. Finally, the function F-INSTR$_2$ indicates that the second argument is functionally conceived as an instrument or some manipulated entity.

(7) *Laura (sat down)* at *the piano stretching her hands.*

In (7) we can observe the prototypical meaning of this preposition as depicted in the LT above. The trajector (x = Laura) takes (D-INTENT$_1$) position NEAR and contiguous (MAGN) to the landmark (y = the piano), with the purpose (F-PURP$_1$) of playing it (F-INSTR$_2$). The verb *sat down* may express movement or a stative situation. The same expression without any verb expresses a vague stative situation. On the other hand, the same context allows for verbs of movement such as *run*, *rush*, etc.

Secondly, we propose the LT of the preposition *on* in the following terms:

On:

[D-CONT, F-CONTROL$_1$, F-INSTR$_2$] [position <(*[BECOME be-LOC (x)]) CONTACT> (x, y)

In the case of *on*, the CONTACT semantic primitive defines the lexical subdomain, which corresponds to TOUCHING in NSM terminology. The situation type is a position, indicating that the trajector (x) controls the spatial relationship with the landmark (y). Again, as in the previous LT, the asterisk indicates that the predicate *on* is compatible with constructions and lexical items where motion of the argument (x) is expressed, but *on* does not express this meaning on its own. The lexical function D-CONT expresses a dynamic aspect of continuity. The lexical function F-CONTROL$_1$ expresses the idea that the trajector (x) exerts functional control of the situation. Finally, the function F-INSTR$_2$ expresses the fact that the landmark is instrumentalized. The three functions together constitute the meaning of support, which implies that the trajector uses the landmark to maintain its position, contrarily to previous accounts of the concept "support" that confer a controlling character upon the trajector (Vandeloise 2003).

(8) *The cat is* on *the mat*

In (8) there is CONTACT between the cat (x) and the mat (y). The cat is in a controlled (F-CONTROL$_1$), continuative (D-CONT) position, where it uses the mat (F-INSTR$_2$). The context allows for verbs of motion such as *land*, *fall*, etc.

The LT of the preposition *in* differs from the previous ones in several respects. In the meaning of this preposition the central role of a control parameter has been pointed out in previous research (Navarro 2000, Vandeloise 1994, 2005).

In:

[F-*Control*$_2$] [state <(*[BECOME be-LOC (x)]) INSIDE> (x, y)]

The semantic prime INSIDE defines the lexical subdomain, expressing that the trajector (x) bears a spatial relationship with the inner side of the landmark. Motion is not expressed by the predicate itself, though it is compatible with dynamic contexts, as indicated by the asterisk. The situation type is a state where the trajector has no control, or position, but suffers instead, as an experiencer, the consequences of its location. The lexical function F-*Control*$_2$ expresses the idea that the second argument is viewed as a control factor over the trajector. Semantic shifts could result in pragmatically inferred senses such as protection, seclusion or others, which define the extensions of the semantic category.

(9) *The present is* in *the box*

In (9) the conceived construal establishes a relationship between the trajector (present) and the inner side of the landmark (box). The relationship implies the limited or controlled mobility of the affected trajector (state), as effected by the landmark (F-*Control*$_2$).

The particle *under* presents a compound element in the slot for the nuclear term or primitive: near + below.

Under:

[F-constraint$_2$] [state <(*[BECOME be-LOC (x)]) NEAR BELOW> (x, y)]

The LT of the particle “under” incorporates two primitive concepts. On the one hand, NEAR implies a proximity relationship whereas, on the other hand, BELOW indicates that the trajector is located at a lower level than the landmark. The asterisk preceding the expression [BECOME be-LOC (x)] expresses the compatibility of the particle with motion predicates. The situation type “state” signals the trajector’s role as the experiencer. The

Lexical Function [F-constraint$_2$] shows that the relationship is functionally construed in such a way that the trajector is constrained by the landmark, either physically or otherwise.

(10) *The man was caught* under *the log*

In (10) the entity "man" bears a relationship with the entity "log" so that the former is topologically near and below the latter. Functionally, "man" is seen as being in a state of constraint or restricted motion. It could be argued that the primitive "CONTACT" is also an attribute of the concept. However, not all contexts where this particle is used show contact between the participants. The Lexical Function of constraint accounts for a wider range of uses, including all those where CONTACT is also part of the conceptualization.

Next, we briefly discuss the contrast between *onto* and *into* versus *on* and *in*, respectively.

Onto:

[F-*Control*$_1$, F-Instr$_2$] [position <[BECOME be-LOC (x)] CONTACT> (x, y)

Into:

[F- *Control*$_2$] [state <[BECOME be-LOC (x)] INSIDE> (x, y)]

As we can observe, the LT for these two particles have no asterisk accompanying the expression "[BECOME be-LOC (x)]". Therefore, the motion meaning is intrinsic to these particles, which must lead to the conclusion that no other motion predicates in the same construction are needed in order to express motion. In most other respects, the LTs coincide with *on* and *in*, respectively. The only difference between *onto* and *on* resides in a lexical function D-CONT that indicates the continuity of contact.

(11a) *The dogs ran* onto *the street*

(11b) *Let the dogs* onto *the street*

(12a) *The dogs ran* into *the house*

(12b) *Let the dogs* into *the house*

As we see in (11b) and (12b), the sense of motion is contributed by the particle, and the role of the verb in (11a) and (12a) is reduced to express the manner of motion.

Following CG postulates, semantic properties specified for each parameter in these LTs are prototypical rather than requirements for each lexical unit or predicate. This fact implies that once we have determined the information in each of the components of the LT for a particular lexical unit or predicate, the result would represent the prototypical

semantics of that predicate, without taking into consideration partial sanction, semantic elaborations, shifts, or metaphorical extensions of that predicate category.

V. LEXICAL SUBSUMPTION

The LTs described above show the compatibility of particles with motion constructions. In some cases, the motion meaning is required from other linguistic units (either lexical units or constructions), and in some other cases it is contributed by the particle itself (*into, onto*). According to the principle of semantic coherence (Goldberg 2006: 40), verb and argument must be semantically compatible. Furthermore, profiled participant roles of the relational lexical items (verbs and particles) must be encoded by profiled argument roles of the construction, with the exception that, if a verb has three profiled roles, one can be represented by an unprofiled argument role, according to the principle of correspondence (Goldberg 2006: 40). The participants that are highly relevant to a verb meaning are likely to be the ones that are relevant or important to a particular linguistic use, since this particular verb was chosen among other alternatives.

In view of these remarks, we expect constructions to match the lexical specifications expressed by the LTs, either of verbs or particles, or both; otherwise the construction must override some of the predicate semantic specifications (Override Principle).

In addition to the general principles stated above, some cases of subsumption may require further constraint principles, as described by Mairal and Ruiz de Mendoza (2009: 188-192) and Peña (2009: 746):

- Full matching: there must be full identification of variables, subevents, and operators between LTs and CTs.
- Event identification condition: correspondence is required between the various subevents (i.e., bundles of operators and variables) into which a lexical and constructional configuration can be segmented.
- Lexical class constraint, i.e., restrictions due to class ascription (e.g. change of state – break – versus existence – destroy – in the inchoative construction).
- Lexical blocking: one of the components of the LT can block the fusion with a certain construction given that this component is a suppletive form (e.g. kill, die).

- Predicate-argument conditioning: co-instantiation of a verbal predicate with one argument places restrictions on the kind of instantiating element that we can have for other constructional arguments.
- Internal variable conditioning: the internal predicate variables place constraints on the nature of both the predicate and constructional arguments.

Apart from these constraints, a process of accommodation or coercion may take place. Coercion is only possible when a construction requires a particular interpretation that is not independently coded by particular LTs. The entire expression is judged grammatical

to the extent that the occurring lexical items can be coerced by the construction into having a different but related interpretation to the one specified in their LTs. Therefore, the construction is able to coerce the locative term into a directional reading.

In this line, according to Goldberg, locative terms are coerced by the intransitive and the caused motion constructions into having a directional meaning related to their meaning, and "the location encoded by the locative phrase is interpreted to be the endpoint of a path to that location" (Goldberg 1995: 159). Conversely, our data show that it is not always the construction that coerces the spatial particle into having a directional meaning, but some particles contribute that meaning themselves. Interestingly enough, directional particles occur with much more frequency in motion constructions than non-directional particles.

In the following section, we show patterns of occurrence of directional and non-directional particles in the constructions under scrutiny, i.e., intransitive motion and caused motion, as depicted above (see section 2).

VI. SPATIAL PARTICLES IN THE INTRANSITIVE MOTION AND THE CAUSED MOTION CONSTRUCTION

With the purpose of testing the degree of semantic relevance of the spatial particle in the subsumption process, we researched the co-occurrence of eight English prepositions – at, in, on, under, behind, over, onto, into – in the intransitive motion construction [do' (x) [BECOME NOT be-LOC' (x, z)] and in the caused motion construction [do' (x, y)] CAUSE [BECOME NOT be-LOC' (y, z)]. In order to guarantee a fair representation of

different types of verbs, a prototypical verb was chosen from each one of the Aktionsart types, as distinguished in LCM. The data source used was the Corpus of Contemporary American English (COCA© Mark Davies). For each verb-preposition pair, 200 instances of Intransitive Motion or Caused Motion expressions were analysed in context. The data obtained show evidence in the following directions, as summarized in Tables I and II:

1. Stative verbs do not occur in motion constructions. However, certain spatial particles, like *onto* and *into* license causative stative verbs (e.g. *scare*) into the caused motion construction.

   (13) …, *to scare the kid* onto *the sidewalk.*
   (14) *I think someone scared him* into *hiding*.

2. All particles co-occur with active accomplishment verbs (e.g. *come*, *get*, *put*) in both constructions.

3. Only *over* and *into* co-occur with achievement verbs (e.g. *shatter*), in motion constructions in our sample.

   (15) *Glass shatters loudly all* over *the sink*
   (16) … *it isn't the candy that has shattered* into *rocky rubble, but my back molar*
   (17) *Crane shatters the glass bottle* over *the table*
   (18) … *rocket-propelled grenades shattered the column* into *a hysterical mob*

4. Semelfactives (e.g. *sneeze*, *glimpse*) do not occur in motion constructions. Though *into* does occur in some intransitive expressions, the construction does not imply change of location of argument (x).

   (19) *Teach your child to cough or sneeze* into *his elbow*

5. All particles except *on* co-occur with activity verbs in both constructions. Though *on* co-occurs with activity verbs (e.g. *run*), it does not, however, express the end of a path, but a location where the activity takes place.

   (20) … *a set of vines had started to run* on *the wall*
   (21) *The woman ran her hand* on *the sill*

6. *Onto*, *into* and *over* co-occur with accomplishments (e.g. *melt*) in intransitive motion constructions. In the caused motion construction, *in* is also used.

Table 1. Spatial particles and Aktionsart classes in the Intransitive Motion Construction.[3]

verb Aktionsart	state know	activity run	achievement shatter	semelfactive sneeze /glimpse	accomplishment melt	active accomplishment come / get
Particle						
at	no	yes	no	no/ no	no	YES / YES
under	no	yes	no	no / no	no	YES / YES
on	no	?	no	no / no	?	YES / YES
behind	no	yes	no	no /?	no	YES / YES
in	no	yes	?	no / no	no	YES / YES
onto	no	yes	no	no / no	yes	YES / YES
over	no	YES	yes	no / no	yes	YES / YES
into	no	YES	YES	? / ?	YES	YES / YES

Table 2. Spatial particles and Aktionsart classes in the Caused Motion Construction.

verb Aktionsart class	causative stative scare	causative activity run	causative achievement shatter	causative semelfactive sneeze / glimpse	causative accomplishment melt	causative active acc. put
Particle						
at	no	yes?	no	no / no	no	YES
under	?	yes	no	no / no	no	YES
on	no	?	no	no / no	?	YES
behind	no	yes	no	no / no	no	YES
in	?	yes?	no	no / no	yes?	YES
onto	yes?	yes	no	no /no	yes	YES
over	no	YES	yes	no / no	yes	YES
into	YES	YES	YES	? / ?	yes	YES

VII. DISCUSSION

In light of the results shown above, we may suggest some hypotheses about the semantic contribution of some particles in motion constructions.

The spatial particles *into*, *over* and *onto* contribute the semantic prime MOVE or [BECOME be-LOC (x)], that is, they express a trajector's change of location. This fact is reflected in the LTs of these particles and has also been proven by the examples in our

sample. As a consequence, these particles make it possible for the intransitive motion construction to license non-dynamic verbs (achievements and accomplishments), because these are telic. On the other hand, *into*, *over* and *onto* make it possible for the caused motion construction to license causative verbs, even if these do not contribute the semantics of motion, or 'change of location' (causative stative, causative achievement, causative accomplishment).

On the other hand, achievements (shatter) and accomplishments (melt), or their causative uses, do not occur in motion constructions with other particles that do not contribute the motion sense. In these cases, no lexical item contributes the 'change of location' sense, and neither does the construction. The construction alone cannot coerce a lexical item into subsumption. Conversely, it is the spatial particle (*into*, *onto*, *over*) or the lexical verb (*put*, *come*, *get*) that contributes the 'change of location' sense. Thus, if we find a spatial particle like *at*, *on* or *under* following a non-telic verb like *shatter* or *melt*, the intransitive motion construction, or the caused motion construction, cannot occur, as can be seen in examples (22) and (23):

(22) *In the oven, melt cheese* on *the croutes*

(23) *The ice melted* under *the lamp*

Nor can causative stative verbs occur in caused motion constructions if no 'change of location' sense is brought in by the spatial particle, as we see in the contrast between (24) and (13), reproduced here as (25):

(24) *don't scare people* at *the mall*

(25) …, *to scare the kid* onto *the sidewalk*

Activity verbs (*run*), active accomplishment verbs (*come*, *get*), and their causative correspondents (*run*, *put*) license most of the spatial particles into both the intransitive motion construction and the caused motion construction. These verb types are those that express durative dynamic events. In these cases, verb semantics contributes the agentive character of the mover or causer. Thus, activity verbs can usually occur in motion constructions with most particles. However, the pairs *in vs. into* and *on vs. onto* do not behave likewise in co-occurrence with activity verbs. Whereas *into* and *onto* occur normally in motion constructions with activity verbs, as it is to be expected from their own semantics, *in* and *on* only occur with activity verbs in motion constructions where

'change of location' is ambiguous, or ambiguity results between motion and locative constructions, as illustrated in the following examples – (20) and (21) as (26a) and (27a):

(26a) … *a set of vines had started to* run on *the wall*
(26b) … *a set of vines had started to* run onto *the wall*

(27a) *The woman* ran *her hand* on *the sill*
(27b) *The woman* ran *her hand* onto *the sill*

(28a) *We saw people* run in *(and out of) the house*
(28b) *We saw people* run into *(and out of) the house*

(29a) *photographs of them were* run in *all the newspapers*
(29b) *photographs of them were* run into *all the newspapers*

In view of these facts, we may suggest that spatial particles might be considered lexical entries that contribute some semantic content to the constructions they occur in, rather than just mere formal devices marking a locative argument.

VIII. FINAL REMARKS

The proposal presented here for a formalization of spatial particle LTs is rather tentative, given that no universal semantic meta-language has yet been established for topological, dynamic and functional spatial configurations. Further research points at the consolidation of a meta-language that expresses Lexical Functions of spatial particles in diverse languages.

The relevance of semantic descriptions of spatial particles may turn out to be more important than has been considered to date in cognitive functional models.

A further step is the investigation of subsumption constraints of spatial particle predicates in different constructions, since constructions like the Caused Motion Construction do not license all verbs. We could start by checking which spatial particles occur and which ones do not occur in the Caused Motion Construction, for instance, and then see whether a particular preposition licenses the use of certain verbs in the construction. For example, preliminary observations through corpus analyses suggest

that *into* and *onto* license some stative verbs in the Caused Motion Construction (e.g. *she scared him into a depression*).

Since spatial particles contribute meaning and are relational predicates (like verbs), we could account for some constructions as encompassing two predications, one as the main predication and the other as a secondary one. Each predication can be described in terms of argument structure. According to our view, spatial particles are predicates that relate two arguments, trajector and landmark, which may be shared by other relational predicates occurring in the same construction.

Finally, the metaphorical and figurative uses of spatial particles could also be studied as instantiations of external constraints in LCM.

Notes

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[2] This is a terminological issue that we do not tackle here due to lack of space.

[3] For a proper understanding of Table 1 and Table 2, the reader should take into account the following specifications:

no = no instances have been found;
? = only one (or a few) dubious instances have been found;
yes? = only one instance has been found;
yes = some instances have been found;
YES = the co-occurrence of the pair in the construction is very frequent.

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Analyses of the semantic features of the lexical bundle [(VERB) PREPOSITION the NOUN of]

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ABSTRACT

This paper investigates twenty-two prepositions in two different lexical bundles – [PREPOSITION *the* NOUN *of*] (*at the point of, from the perspective of,* etc.) and [VERB PREPOSITION *the* NOUN *of*] (*shouted above the noise of, suffering from the effects of,* etc.), the only difference being that the former does not include the head verb that is present in the latter. Strings of constructions were extracted from the British National Corpus and the types of possible verbs, prepositions, and nouns in each possible combination were analyzed. The paper also details an experiment in which the types of nouns under each of the twenty-two prepositions were coded by human subjects in terms of their semantic features. Finally, a computer program was also utilized to calculate the shared meaning of the different VERBs and NOUNs. The results showed that the nouns in [(VERB) PREPOSITION *the* NOUN *of*], though they might form clusters of meanings, may not behave in the same way with and without the presence of the verbs.

Keywords: *prepositions, lexical bundles, nouns, semantic features, corpus, constructions*

I. INTRODUCTION

According to Biber et al. (2004) and Levy (2008), who investigated 'lexical bundles' in spoken versus written registers, lexical bundles, or multi-word sequences, are "the most frequent recurring lexical sequences in a register", including, but not limited to, four-word sequences such as *do you want to, take a look at, to come up with, I don't know what, one of the things, those of you who,* and so forth (p. 376). Their instances of bundles may or may not contain a head verb.

Most previous studies on lexical bundles focus on register-specific materials. For instance, Biber (2009) compared the most common multi-word patterns in conversation and academic writing and found that the multi-word patterns occurring in the two registers are different. Patterns in conversation tend to be fixed sequences including both function words and content words; patterns in academic writing, however, tend to

be formulaic frames consisting of invariable function words with an intervening variable slot that is filled by content words.

Focusing on academic prose, Biber proposed that there are numerous fillers that may occur in the frame *the * of the*. It was found that four different prepositions tend to precede *the * of* to form the four-word lexical bundles: *at the * of*, *on the * of*, *in the * of*, and *to the * of*, all of which are patterns of interest in the present paper. Among these, the most distinctive frame is *at the * of*, which co-occurs frequently with the fillers *end, time, beginning, level, expense, start, center/centre, top,* and *base*. On the other hand, *in the * of* takes several high frequency fillers that are distinctively used in this frame, namely *case, absence, form, context, course,* and *process*. Using a similar 'frame', this paper investigates the distributions of different variables (in capitals) in the pattern [(VERB) PREPOSITION *the* NOUN *of*]. The present work focuses not on any specific genre, but on material contained in the British National Corpus (BNC), a general corpus. We propose that similar clusters of nouns (and verbs) can also be found in a general corpus. Our study further hypothesizes that the VERBs and NOUNs can be measured in terms of their semantic relatedness. To answer this question, two types of methodologies were employed – one including an experimental-based analysis of semantic features, while the second involves the automatic extraction of semantically related hypernyms. The details of this will be illustrated in the next section.

In a different study, also following a genre approach, Luzón Marco (2000) investigated the collocational framework in the medical research paper. The results showed that two of the most common frameworks in the corpus are: [*the* NOUN *of*] (e.g. *the start of*), *a* NOUN *of* (e.g. *a variety of*). [*The* NOUN *of*] tends to be used in expressing the construction of nominalizations (e.g. *the cloning of*); [*a* NOUN *of*] is frequently applied to describe the process of quantifying and categorizing. Another important finding is that these two frameworks are likely to precede or follow the collocates belonging to specific semantic classes. For example, *the risk of* is always preceded by verbs with causative meanings (*related/associated with/to the risk of*). It was concluded that the selection of specific collocates for these frameworks is conditioned by the linguistic conventions of the genre. In a different study and in an attempt to improve the understanding of the function of lexical bundles in academic prose, Biber et al. (2004) compared the use of such bundles by published authors in history and biology. The most

frequent four-word lexical bundles in these genres were classified in terms of their structure groups. The findings revealed that lexical bundles in history mainly belong to two structural groups – noun phrases and prepositional phrases – while lexical bundles in biology cover a wider range of structural groups, including noun phrases, prepositional phrases, [*it* + Vbe + adjective], [Vbe + complement], and [noun phrase + V + complement] clause fragments. In general, in both history and biology genres, the majority of the bundles could be categorized into the groups containing a noun phrase with an *of* phrase fragment (e.g. *a measure of the*, *the beginning of the*) and prepositional phrases with an embedded *of* phrase (e.g. *as a function of, at the beginning of*, *at the university of*). From here, one can see that most of these studies in lexical bundles needed to deal with noun phrases and prepositional phrases in one way or another. For instance, Biber and Conrad (1999) found that, in academic prose, 60% of the bundles are phrasal, parts of noun phrases or prepositional phrases, as *in the case of*, *as a result of*, *on the basis of*, and *on the other hand*. Noun phrases and prepositional phrase fragments were also found as the most frequent patterns in academic prose (also found in Biber et al. 2004 and Hyland 2008a, 2008b). Similarly, scientific discourse is also characterized by very frequent occurrences of nouns, long words, prepositions, conjuncts, being agentless, and by-passives, as well as past participial adverbial clauses (Biber 1988). In a book by Silvestre (2009), he investigated the particle meanings of *in* and *on*. In his methodology, "*multi-word lexicalized expression*" was recognized as one of the criteria in extracting verb-particle constructions (VPC). Multi-word expressions were included in his VPC analysis because some uses of *in* and *on*, such as in "*to decide in favor of sb*" are "motivated by" the noun (*favor* in this example) "rather than being directly bounded to the verbal element" (p. 159). Given the above studies, we postulate that it might be useful to investigate lexical bundles by examining the nouns (and the verbs) in a given construction. This paper inspects both the nouns and the verbs in the constructions [(VERB) PREPOSITION *the* NOUN *of*], which co-occur with twenty-two different prepositions.[1]

Rather than looking at one particular preposition, this paper investigates a group of prepositions in terms of distributional patterns. As Silvestre (2009) discovered, some of the particles were more closely related to the nearby nouns than to the verbs, and this is the kind of phraseological phenomenon we inspect in this study. The foci of this study

are: (a) To compare the distributions of NOUNs and VERBs in the construction [(VERB) PREPOSITION *the* NOUN *of*] when twenty-two different prepositions are involved; and (b) To display similarities of meanings among NOUNs and VERBs in this construction. The ultimate goal is to propose a systematic way to analyze semantic features of nouns and verbs given a preposition-containing construction. Two types of methodologies were employed, namely experimental analysis of semantic features, and computational calculation of semantic meanings by measuring the common hypernym, if any, found between any two nouns or verbs. Both these methodologies complement each other and the results were cross-referred.

II. DATA FROM THE CORPUS

All data discussed in this paper were taken from the written portion of the BNC, retrieved through BNCWeb, a platform which allows access to the BNC through a search engine of its own (Hoffmann et al. 2008). Twenty-two prepositions (*about*, *above*, *across*, *after*, *against*, *among*, *around*, *as*, *at*, *beside*, *by*, *down*, *for*, *from*, *in*, *into*, *like*, *of*, *off*, *on*, *onto*, and *with*) were investigated. It was hypothesized that the groups of words that appear with a similar preposition would share some similarities in semantic features. In the following sections, the distributional patterns will first be discussed, followed by a semantic analysis by human subjects. Finally, in section III, a computational program will be discussed.

II.1. Distributional patterns

In the written portion of the BNC, 373,258 instances of [PREPOSITION *the* NOUN *of*] and 86,877 instances of [VERB PREPOSITION *the* NOUN *of*] were found. These instances were analyzed according to the different types of verbs and nouns used in them.

Table 1, below, displays the most frequent patterns for each preposition, along with their frequencies and percentages. For example, *about the nature of* has a frequency of 225 and the percentage of *nature* in the construction of [*about the* NOUN *of*] is 4.5%. Patterns with the same scores were all listed (as for *among* and *onto*).

Table 1. Frequencies of [(VERB) PREPOSITION *the* NOUN *of*] in the BNC.

Prep.	**Four-Word Bundles** [PREPOSITION *the* NOUN *of*] **Most Frequent Nouns (Freq., %)**	**Five-Word Bundles** [VERB PREPOSITION *the* NOUN *of*] **Most Frequent Verb-Noun Pairings (Freq., %)**
about	*about the **nature** of* (225, 4.5%)	***set** about the **task** of* (11, 0.52%)
above	*above the **level** of* (57, 10.14%)	***shouted** above the **noise** of* (3, 2.01%)
across	*across the **top** of* (49, 5.85%)	***runs** across the **front** of* (3, 1.01%)
after	*after the **death** of* (270, 7.2%)	***look** after the **interests** of* (7, 1.29%)
against	*against the **background** of* (176, 6.22%)	***seen** against the **background** of* (10, 1.02%)
among	*among the **members** of* (36, 5.15%)	***discovered** among the **remains** of* ***was** among the **member**s of* ***were** among the **beneficiaries** of* ***distribute** among the **members** of* ***was** among the **founders** of* ***are** among the **findings** of* ***be** among the **victim**s of* (2, 1.36% each)
around	*around the **time** of* (90, 6.86%)	***was** around the **time** of* (5, 0.99%)
as	*as the **result** of* (183, 3.66%)	***used** as the **basis** of* (23, 1.24%)
at	*at the **end** of* (1086, 21.72%)	***is** at the **heart** of* (101, 0.98%)
beside	*beside the **bed** of* (4, 5.33%)	***lived** beside the **Loch** of* (2, 10%)
by	*by the **end** of* (688, 13.76%)	***completed** by the **end** of* (56, 0.45%)
down	*down the **side** of* (89, 7.09%)	***turned** down the **offer** of* (12, 1.42%)
for	*for the **rest** of* (207, 4.14%)	***called** for the **establishment** of* (24, 0.40%)
from	*from the **point** of* (143, 2.86%)	***suffering** from the **effects** of* (24, 0.44%)
in	*in the **case** of* (259, 5.18%)	***was** in the **middle** of* (88, 0.44%)
into	*into the **hands** of* (247, 4.94%)	***fall** into the **trap** of* (37, 1.36%)
like	*like the **rest** of* (158, 7.57%)	***look** like the **sort** of* (14, 3.33%)
of	*of **The House** of* (70, 1.4%)	***is** of the **order** of* (25, 1.73%)

off	*off the* ***coast*** *of* (107, 10.3%)	***fallen*** *off the* ***back*** *of* (6, 0.98%)
on	*on the* ***basis*** *of* (357, 7.14%)	***was*** *on the* ***verge*** *of* (93, 0.76%)
onto	*onto the* ***surface*** *of* (15, 7.5%)	***screws*** *onto the* ***front*** *of* ***moves*** *onto the* ***carbon*** *of* ***tacked*** *onto the* ***end*** *of* ***built*** *onto the* ***end*** *of* (2, 2.56%, respectively)
with	*with the* ***help*** *of* (155, 3.1%)	***charged*** *with the* ***murder*** *of* (52, 0.67%)

From Table 1 it can be seen that higher percentages were generally found for the four-word bundles (without the verb) than the five-word bundles (with the verb). The percentages for the [VERB PREPOSITION *the* NOUN *of*] patterns are all lower than 5%, except *lived beside the Loch of,* although its frequency is only 2, further indicating that very few patterns were found matching this construction. For the four-word combination, higher percentages indicate that the top noun patterns are less varied (e.g. *at the end of* (21.72%), *by the end of* (13.76%), *off the coast of* (10.3%), and *above the level of* (10.14%).

From Table 1, the most frequent nouns (column 2) may not be the same as the verb-noun pairings (column 3) because the verbs added in column 3 might affect the most frequent nouns used under each combination. Interestingly, in two of the prepositions (*against* and *around*), similar nouns were found in both four- and five-word lexical bundles. This shows that *against the background of* and *around the time of* are equally frequent with or without the verbs appearing before them, further indicating the strength of the occurrences of nouns with the prepositions.[2] Some prepositions (e.g. *of, as, with,* and *about*) have a wider range of nouns, as the most frequent nouns (*The House*, *result*, *help*, and *nature*, respectively) constitute less than 5% of the total number of nouns in the [PREPOSITION *the* NOUN *of*] patterns.

Thus, Table 1 provides a general overview regarding the different prepositions when appearing in the [(VERB) PREPOSITION *the* NOUN *of*] construction. In the following section, we discuss an experiment we conducted in order to code the semantic features of the nouns.[3]

II.2. Semantic coding

Since there are twenty-two prepositions and each has its own instances to be analyzed, human subjects were trained to code the semantic features of this part of the analysis. Two Ph. D. experimenters were in charge of the experiment and the procedures that were followed are described in the following.

In this experiment, one hundred instances of each of the twenty-two prepositions were analyzed. Six English-major university subjects were paid to participate in the analysis process. Among the subjects, two senior subjects were each responsible for six prepositions, two junior subjects each took responsibility for three prepositions, and two junior subjects were each made responsible for two prepositions. The task was assigned based on a student's experience in coding the semantic features. Two of these senior students had had training in coding semantic features for over six months.

Each preposition contained one hundred noun types to be analyzed. The selection of the noun types was based on the frequency of patterns in the whole BNC, from high to low percentages. In this experiment, the singular and plural forms of the nouns were counted as one, and the duplicate one was deducted if the percentage was lower, e.g. *at the corner of* (0.32%) and *at the corners of* (0.17%), so the latter one was deducted.

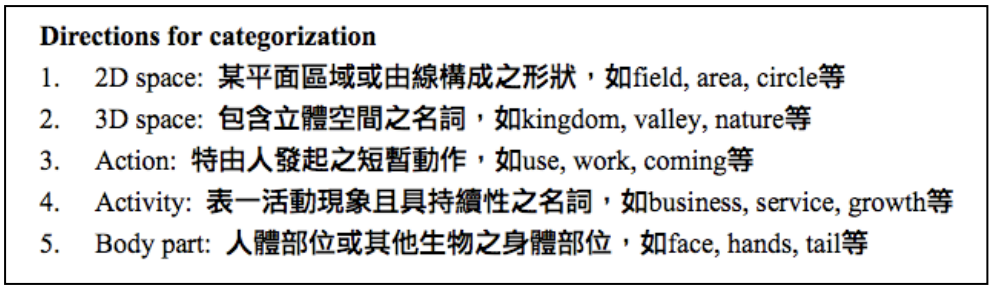
The noun of the preposition was to be categorized by the subjects (e.g. *of the bank of, of the history of*). During the analysis process, the subjects were allowed to use dictionaries, but other documents or books, or having discussions with others were not recommended. The purpose of such restrictions was to avoid any distractions that could affect the subjects' judgment. The categorization should be based on their instinct.

The subjects were required to sort the nouns into categories based on similarity of semantic features. No exhaustive list was provided, but the generality of the category level was hinted at through the instructions. For instance, before starting, the subjects were given instructions such that *bank*, *post office*, *library*, and *cottage* should be categorized and tagged as "building". The subjects were then asked to generate the category names by themselves. All data were distributed through excel files and subjects were allowed to work at their own pace. The subjects saw the nouns in excel files, exemplified in Table 2 for the preposition *of*.

Table 2. Example of excel data used for semantic coding of nouns

	A	B	C	D	E	F	G	H
1	*of*	*the*	*	*of*	*bank*	25	0.50%	
2	*of*	*the*	*	*of*	*history*	23	0.46%	
3	*of*	*the*	*	*of*	*city*	23	0.46%	
4	*of*	*the*	*	*of*	*law*	23	0.46%	
5	of	the	*	*of*	*role*	22	0.44%	

The subjects were required to analyze the nouns in column E, which originally occupied the asterisk (*) in the phrase but were moved to the end for the sake of convenience. The result of the analysis was tagged in column H. If a noun could be categorized into more than one category (e.g. *bank*, as in (1) a financial establishment, and (2) the land alongside or sloping down to a river), all categories would be provided. Furthermore, the subjects were required to provide their own criteria for the categorization. An example of their definitions is displayed in Figure 1.[4]


Directions for categorization

1. 2D space: 某平面區域或由線構成之形狀，如field, area, circle等
2. 3D space: 包含立體空間之名詞，如kingdom, valley, nature等
3. Action: 特由人發起之短暫動作，如use, work, coming等
4. Activity: 表一活動現象且具持續性之名詞，如business, service, growth等
5. Body part: 人體部位或其他生物之身體部位，如face, hands, tail等

Figure 1. Definitions of semantic categories by subjects.

The two experimenters in charge would then collect and standardize the results from all subjects. If inconsistency was detected, the subjects were required to carry out revisions. After the coding, one of the experimenters then went through each of the instances for all 22 prepositions and checked whether consistency had been achieved. With the criteria and the revisions, the analysis process was made more systematic. Some parts of the final results of the subjects' analysis are shown in the following snapshots as examples.

<>	A	B	C	D	E	F	G	H
1	by	the	*	of	end	688	13.76%	point
2	by	the	*	of	use	84	1.68%	method
3	by	the	*	of	department	74	1.48%	part
4	by	the	*	of	time	71	1.42%	time
5	by	the	*	of	secretary	65	1.30%	profession

<>	A	B	C	D	E	F	G	H	I	J
1	onto	the	*	of	surface	15	7.50%	2D space	surface	
2	onto	the	*	of	end	14	7%	sequence	point	
3	onto	the	*	of	back	13	6.50%	body part	location	direction
4	onto	the	*	of	top	11	5.50%	location		
5	onto	the	*	of	front	9	4.50%	location		

Figure 2. Sample of completed coding.

Based on the outcomes of the semantic coding, results such as the following Tables 2 and 3 were obtained. Since the lists are long, this paper only provides selective categories. Twenty-two tables were prepared for twenty-two prepositions.

Table 2. Selective semantic features of NOUNS in [*on the* NOUN *of*].

Categories	**Groups of Noun Collocates**	**Explanation**
1	*on the (edge, verge, side) of, on the (top, surface, end, point, back) of*	The nouns in *on the * of* usually denote positions. The first three (*edge, verge, side*) have similar meanings. The other five (*top, surface, end, point, back*) can be used to denote different location or positions on concrete subjects; moreover, *point* and *end* can also refer metaphorically to a temporal meaning.
2	*on the (basis, grounds, floor) of*	The three nouns all refer to the base of something. However, *on the basis of* and *on the grounds of* tend to be followed by abstract nouns while *on the floor of* usually goes before concrete nouns.
3	*on the (day, night, morning) of*	The three nouns refer to different periods of the day.
4	*on the (face, outskirts, site) of*	The three are concrete (visible) nouns.
5	*on the (role, subject, eve, future, development, use, number, question, nature, issue) of*	These are abstract nouns. The phrases with *subject, question,* or *issue* here are usually followed by different topics or themes for discussion.

Table 3. Selective Semantic Features of NOUNS in [*at the* NOUN *of*].

Categories	**Groups of Noun Collocates**	**Explanation**
1	*at the (end, top, back, bottom, centre, edge, base, side, front) of*	These are nouns denoting locations.
2	*at the (beginning, start) of*	The nouns denoting different times also occur frequently in this construction.
3	*at the (head, hands, heart, foot) of*	The nouns found here refer to different parts of the body.

Based on the semantic coding of the nouns, we further confirm that it is possible that the nouns that share the same construction reflect certain similar clusters of meanings. In order to examine further how far these similarities can be measured, the following computational process was undertaken.

II.3. Automatic data extraction

In order to calculate all the possible verbs and nouns that might fill the [VERB] and [NOUN] slots of [(VERB) PREPOSITION *the* NOUN *of*], a program was written to measure the combination of these verbs and nouns. The program consisted in the following steps:

a) First, based on the retrieved data indicated in Table 1 above, the occurrences of each verb or noun that appears with its respective preposition were recorded. For instance, for [PREPOSITION *the* NOUN *of*], the instance *about the nature of* would mark 1 occurrence for *nature* under the preposition of *about*. For [VERB PREPOSITION *the* NOUN *of*], *seen against the background of* would mark 1 for *seen* as well as 1 for *background* for the preposition *against*.

b) For both verbs and nouns, all lemmatized forms were counted as a similar group (e.g. *seen* was grouped under *see* and so were *saw*, *sees*, *see*, and *seeing*). The lemmatization process followed Someya's (1998) e-lemma list.

c) A normalized score called the z-score was then used to measure the occurrences of verbs and nouns found in these two constructions. The z-score was selected because it reduces the problems that arise when a word is particularly high or low in frequency.[5]

As our previous hypothesis assumed that all the verbs and nouns that occur with a similar preposition might share certain similarities, our program also included a calculation of similarities. This was executed through finding out the common shared hypernym(s) for any two verbs or nouns in a lexical resource called WordNet 3.0 (cf. Fellbaum 1998). The following example shows two nouns for *among* in the [PREPOSITION *the* NOUN *of*] construction.

(a) *among the group of*
(b) *among the world of*

In WordNet, we first found many different synsets (synonymous sets) for *group* and for *world*. These synsets indicate the different meanings of *group* and *world*. *Group* has three synsets of nouns, whereas *world* has seven synsets of nouns. Each of the three synsets from *group* were paired with each of the synsets from *world* to find any common hypernyms. The number of common hypernyms was then recorded, and presented as z-scores.

The results are shown in Table 5 below. A high z-score might mean the nouns or verbs of these prepositions possess a higher number of common hypernyms. A higher number of common hypernyms usually means that the meanings among the nouns or verbs might be closer to one another. This part of the analysis thus attempted to prove our hypothesis of semantic relatedness among the nouns or verbs in the [(VERB) PREPOSITION *the* NOUN *of*] construction.

Table 5. Total Z-scores of different types of nouns.

Prep	**Total Z-score**		**Prep**	**Total Z-score**	
	Nouns	**Verbs**		**Nouns**	**Verbs**
as	12.01	-1.5	*off*	-0.17	1.22
with	11.72	-1.25	*onto*	-0.42	-0.51
from	11.65	-2.41	*above*	-0.73	0.14
of	10.25	-0.08	*in*	-1.19	0.83
across	1.94	-0.7	*down*	-1.8	-1.09
like	1.73	0.03	*on*	-3.25	-1.66
around	1.49	1.60	*about*	-4.36	-0.35
against	1.21	0.07	*into*	-4.86	-2.21
among	0.97	0.31	*for*	-5.35	-2.19
at	-0.01	0.87	*after*	-6.14	-0.51
beside	-0.13	0.04	*by*	-7.82	4.90

The results in Table 5 show that some prepositions (*as*, *with*, *from*, and *of*) co-appear with nouns with higher z-scores, but their verbs are not necessarily displaying higher z-scores. These controversies demonstrate that the types of nouns co-occurring with these prepositions (*as*, *with*, *from*, and *of*) are more similar than their verbs are. For instance, a closer investigation through the semantic coding in the previous section shows that the NOUNs in [*as the* NOUN *of*] display semantic groups related to amount (such as *amount, sum, majority, proportion, ratio*, etc.) and point in time or space (such as *end, beginning, center, start, last, first*, etc.), and so forth. The VERBs in [VERB *as the* NOUN *of*] (e.g. *regarded as, seen as, defined as, calculated as*, etc.) are more varied and it is harder to generate a pattern for them.[6]

Other than that, Table 5 also shows a reverse pattern, i.e., some VERBs in [VERB *by the* NOUN *of*] seem to show a higher z-score than those of NOUNs in [*by the* NOUN *of*]. This indicates that constructions such as *completed by the NOUN of, approved by the NOUN of, divided by the NOUN of*, etc. might share greater similarities than those of [*by the NOUN of*]. From this example, too, we might assume that those possessing higher scores for verbs are likely to form stronger bonds for [VERB+PREP] than those of nouns. However, this part will need further investigation, as the measurement of bonding is not the current focus of this work but will be an interesting aspect to explore.

To sum up this section, we used a computational program to calculate the similarities of meanings among the NOUNs or VERBs in the constructions [(VERB) PREPOSITION *the* NOUN *of*]. The results may help explain whether a noun behaves similarly with or without the presence of a verb in the construction [(VERB) PREPOSITION *the* NOUN *of*]. As shown in Table 5, the nouns may not behave similarly with the presence of the verbs under a similar construction.

IV. CONCLUSION

Unlike previous studies, our sequences of words contain two patterns – one with the presence of the head verb [VERB PREPOSITION *the* NOUN *of*], and one without the head verb [PREPOSITION *the* NOUN *of*]. This paper analyzes the semantic features shared by all the VERBs and NOUNs in the lexical bundle [(VERB) PREPOSITION *the* NOUN *of*]. In order to ensure that the nouns are semantically related, an experiment

was run in which subjects were asked to code the semantic features of the nouns in this construction. To compare the data, an automatic data extraction program was run to measure the shared meaning (their hypernyms) in a lexical resource.

Some limitations remain because the verbs in [VERB PREPOSITION *the* NOUN *of*], especially the copula BE (e.g. *was among the members of*), were not completely dealt with at the present stage. These copulas might cause problems as they do not possess a specific meaning, and they also tended to be dropped in the WordNet searches. The hypothesis-testing of semantic relatedness on the verbs, therefore, will need further inspection.

Notes

[1] Although more attention will be given first to the nouns.

[2] In addition, some prepositions (*among*, *around*, *at*, *in*, *of*, and *on*) appear to be less likely to form verb-particle constructions, as their most frequent patterns collocate more often with a copula BE, showing the tendency of the prepositions to become a single preposition rather than a verb-particle combination.

[3] At present, only the nouns have been discussed because the analysis of the verbs was found to entail more difficulties than expected. In addition to removing the copula BE, which contains no lexical meaning, there was also the problem of selecting suitable semantic features.

[4] Instructions and definitions were given in Mandarin to avoid misunderstanding. The results in Figure 1 might not represent the finalized code, as revisions and modification might have been undertaken.

[5] More about the z-score can also be found in McEnery and Wilson (1996) and Hunston (2002). McEnery and Wilson further mentioned that the z-score is particularly useful in "multi-word units" (p. 87).

[6] When most of the verbs fell under a general category of 'Act', this might mean a problem existed with the WordNet verb trees and it was not due to the methodology itself. However, an evaluation of the WordNet hierarchies is beyond the scope of the present work.

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BOOK REVIEW

Macmillan Collocations Dictionary for Learners of English

Michael Rundell (Editor-in-Chief)
Macmillan Publishers: Oxford, 2010. 911 pages. ISBN: 978-0-230-72403-7

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1. INTRODUCTION

The *Macmillan Collocations Dictionary for Learners of English* (MCD) is a monolingual print dictionary aimed primarily at helping upper-intermediate to advanced students in productive use situations, such as taking English exams (especially the IELTS exams) and working in academic or professional environments. It has over 121,000 collocational phrases, a figure that leads Coffey to claim that the MCD attaches more collocates to each headword than competing dictionaries, for example, the *Oxford Collocations Dictionary for Students of English* (OCD) (Coffey 2011: 329). A review of the dictionary cover, the introduction and the outer text "Using the Dictionary in IELTS", written by Sam McCarter, makes it possible to summarise some of the main lexicographical characteristics of this dictionary as follows:

- It is a dictionary of common word combinations that has been compiled using leading-edge collocation-finding software and a 2-billion word corpus of modern English.
- It focuses on students' productive needs, with collocations for over 4,500 carefully-selected key words. The term 'collocation' used in this dictionary refers to the "property of language whereby two or more words seem to appear frequently in each other's company" (Hoey, cited in the Introduction, p. vii). McCarter summarises the frequently-stated view that collocations are very useful for production by indicating that there is a direct correlation between frequency and coverage, and between frequency and collocation. The rationale for both

assumptions stems from the often-quoted assumption that maintains that a wordlist of around 2,500 headwords should account for around 80% of all texts, and 7,500 accounting for 90% (p. ix).

- The dictionary divides up the collocations according to the meaning(s) they express, i.e., collocations are grouped in semantic sets within each entry.
- The examples included are authentic and show how collocations are used in context.
- The dictionary offers an easy-to-use layout with all headwords printed in red, as well as grey and pink usage boxes with grammatical notes, synonyms and alternative expressions. Grey boxes are used "when there is a common way of expressing the same idea using a phrase rather than a collocation" (p. xii). And pink usage notes are used "when a collocation needs to be used in a particular way, for example when a verb is often in the passive or a noun usually in the plural" (p. xiii).

2. HEADWORDS

The headwords in the MCD are nouns, adjectives or verbs. Coffey (2011: 329) indicates that the figures for nouns, adjectives and verbs are 55%, 24%, and 21% of the headwords respectively, that almost all headwords in the MCD are single words (the only exceptions being compound nouns such as *credit card*), that verbs can be single-item words or phrasal verbs (in the usual linguistic sense of the term) and that there are "no semantic divisions of homographs at headword level, except where they constitute different parts of speech". For example, there is one entry for the noun *crash*, with subentries for *crash* (accident) and *crash* (noise), but separate entries for the verb *cough* and the noun *cough* (example 1):

cough V

to make a sudden noise by forcing air up through your throat

(…)

cough N

the action of coughing or an illness in which you cough

Example (1). The treatment of homographs in the MCD.

3. LEXICOGRAPHICAL DATA AND TYPOGRAPHICAL REPRESENTATIONS

A sample page from the dictionary is reproduced in Appendix I. As with other Macmillan learners' dictionaries, headwords and circular and triangular symbols are in red. Headwords are followed by an indication of the part of speech. On the line below, there is a brief definition of the headword worded in an easy-to-decode phrase-like style (for example, *employ* is defined as "use something for a particular purpose"). Red circular dots signal the beginning of each lexico-grammatical group (for example, adj + **N** for *employee*), whereas the red triangular symbol begins a new line and indicates a new semantic set in the same grammatical group. For instance, the lexico-grammatical structure adj + **N** in *employee* has two semantic sets, each labelled "working for a particular time" and "in the past/present/future" respectively. Then a new red circular dot precedes the lexico-grammatical structure **N** + n of *employee*, which is followed by a list of eight collocates in bold and an example in italics (e.g. **N** + n **benefits, contributions, involvement, morale, productivity, relations, representative, satisfaction** *Are your pension costs affecting your ability to offer other employee benefits*?). When the lexico-grammatical structure has only one semantic set, this is not preceded by a semantic label, as shown in the lexico-grammatical structure for *employee* (**N** + n) above.

Coffey (2011: 333) summarises the main structural patterns, i.e., lexico-grammatical structures, in the MCD (Table 1).

Table 1. Collocation patterns in the MCD (Coffey 2011: 333).

NOUN-BASED PATTERNS	EXAMPLES
adjective + **NOUN**	strong **desire**
noun + **NOUN**	city **centre**
NOUN + noun	**design** concept
verb + **NOUN**	express a **desire**
NOUN + verb	**counsel** argued
NOUN + prep. + noun	**advance** in design, **immunity** against infection
noun + prep + **NOUN**	issue of **gender**, countries across the **globe**
verb + prep. + **NOUN**	arise from **desire**, collapse into **giggles**
coordinated **NOUNS**	alcohol and **gambling**, **goods** or services

VERB-BASED PATTERNS	
adverb + **VERB**	fully **deserve**, **peer** about
VERB + noun	**deserve** applause
noun + **VERB**	injuries **heal**
VERB + adjective	**gleam** white
verb + **VERB**	seek to **illustrate**
VERB + prep. + noun	**disagree** with a conclusion, **act** on advice
coordinated **VERBS**	**relax** and unwind, inspire and **motivate**
ADJECTIVE-BASED PATTERNS	
adverb + **ADJECTIVE**	eminently **desirable**
Verb + **ADJECTIVE**	become **desirable**
ADJECTIVE + noun	**desirable** attribute
ADJECTIVE + infinitive	**glad** to hear
adjective + **ADJECTIVE**	pale **green**
ADJECTIVE + prep. + noun	**grateful** for assistance, **generous** with time
coordinated **ADJECTIVES,**	**desolate** and lonely,
ADJECTIVES used together	**cosy** little, **glossy** black

The Guide to the Dictionary (pp. xii-xiii) informs potential users that the lexico-grammatical structures above show a grammatical relationship between headwords and collocates. For instance, 'adjective + **NOUN'**, which is coded as 'adj. + **N**' in the dictionary, means the noun (**N) employee** often occurs with the adjectives listed: full-time, part-time, permanent and temporary. And 'verb + **NOUN**', which is coded as 'v + **N**', means the noun **employment** is often the object of the verbs listed in five semantic sets: (i): look for and seek; (ii) find, gain, get, obtain and secure; (iii) terminate; (iv) give up and leave; (v) create, generate, guarantee, increase, promote and provide. The Guide to the Dictionary also indicates that when a word has more than one meaning, each meaning is shown by a number (**empire** has two meanings "**1** a number of countries ruled by one government" and "**2** a group of companies controlled by one company"). In a similar manner, it also points out that when a word is often followed by a particular preposition, the dictionary highlights this using bold type in the example

(e.g. *the programme also provides the opportunity to study part-time while* ***in*** *full-time employment*).

4. LEXICAL COVERAGE

Coffey (2011: 336) claims that the MCD is a 'general collocations dictionary', a dictionary with a wide lexical coverage, particularly by giving prominence to some areas of meaning and types of communication. One broad area given priority is that of academic and professional writing. In the Introductory text "Using the Dictionary in IELTS" (pp. ix-xi), Sam McCarter writes that the purpose of IELTS is to test students' competence in using English and therefore the MCD aims primarily at covering the kinds of combinations that fluent speakers would produce naturally in, say, an academic and professional context. Coffey (2011: 336-338), for example, examines whether the academic and professional vocabulary included in the MCD agrees with Coxhead's (2000) Academic Word List (AWL), a list that includes relatively high-frequency words in academic texts. Coffey's analysis reports that 16.2% of the MCD headwords are in the AWL, a proportion that is higher than in the case of the OCD, which stands at 13.5%. The analysis also adds that the proportion would rise to 40-45% if the examination were extended to cover impressionistic data, for instance, the whole entry and not only the headword.

Following suit, I have carried out an empirical analysis of the lexicographical treatment of the academic and professional words used in business included in the MCD. By extracting 20 business words from Nelson's (2000) business word list, it was possible to assess whether the above claim on coverage of academic and professional words merits respect or not. The analysis focuses on ten nouns, five verbs, and five adjectives, i.e., here the percentages reported by Coffey (see Introduction, above) were followed, with the aim of evaluating both the number of frequent business words included and their lexicographical treatment, especially their lexico-grammatical structures, and number of meanings for each structure (Table 2). The 20 words were chosen at random.

Table 2. Business Collocational Patterns in the MCD.

Nouns	MCD
Customer: one meaning and 23 semantic sets	1. adj + **N**: 10 semantic sets, e.g. **delighted** *customer* 2. v + **N:** 5 semantic sets, e.g. **deal with** a *customer* 3. **N** + n: 8 two semantic sets, e.g. *customer* **satisfaction**
capitalisation	Not found
brokerage	Not found
CEO	Not found
seller	Not found
deregulation	Not found
Outlet: one meaning and 7 semantic sets	1. V + **N**: 3 semantic sets, e.g. **want** an *outlet* 2. **N** + for: 4 semantic sets, e.g. *outlet* **for** our frustration
Business: 22 semantic sets in two senses: 1 to 5: the work of buying and selling things; 6 to 8: a commercial organization	1. adj + **N**: 3 semantic sets, e.g. **big** *business* 2. v + **N**: 4 semantic sets, e.g. **attract** *business* 3. **N** + v: 1 semantic set, e.g. *business* **flourish** 4. **N** + n: 4 semantic sets, e.g. *business* plan 5. v + in + **N**: 2 semantic sets, e.g. **stay in** *business* 6. adj + **N**: 3 semantic sets, e.g. **family** *business* 7. v + **N**: 3 semantic sets, e.g. **develop** a *business* 8. **N** + v: 2 semantic sets, e.g. *business* **collapse**
Competitor: one meaning and 5 semantic sets	1. adj + **N**: 3 semantic sets, e.g. **important** *competitor* 2. v + **N**: 2 semantic sets, e.g. **overtake** *competitors*
Price: one meaning and 24 semantic sets	1. adj + **N**: 13 semantic sets, e.g. **good** *price* 2. n + **N**: 1 semantic set, e.g. **admission** *price* 3. v + **N**: 9 semantic sets, e.g. **offer** a *price* 4. n + in + **N**: 1 semantic set, e.g. **drop in** *price*
Verbs	
*Incur**:*** 7 semantic sets in two senses: to have to pay something and experience something unpleasant as a result of your actions	1. **V** + n: 3 semantic sets, e.g. *incur* **expenses** (usually passive) 2. **V** + n: 4 semantic sets, e.g. *incur* a **risk**
include	Not found
employ: 1 semantic set	1. **V** + n: 1 semantic set, e.g. *employ* **means**
downgrade	Not found
Earn: 6 semantic sets	1. **V** + n: 6 semantic sets, e.g. *earn* a **name**
Adjectives	
Global: 14 semantic sets	1. adv + **ADJ**: 1 semantic set, e.g. **truly** *global* 2. **ADJ** + n: 12 semantic sets, e.g. *global* **business** 3. v + **ADJ**: 1 semantic set, e.g. **go *global***
overseas	Not found
leveraged	Not found
Financial: 8 semantic sets	1. **ADJ** + n: 8 semantic sets, e.g. *financial* **management**
domestic	Not found

Table 2 shows that the dictionary contains frequent collocational patterns of typical academic and professional words used in business. The words not included are very specific business words and their absence can be considered congruent with the stated aim of the dictionary. Furthermore, the coverage of both lexico-grammatical structures and semantic sets must be considered adequate for production purposes.

5. OVERALL EVALUATION

I agree with Coffey (2011: 339-340) that the *Macmillan Collocations Dictionary* is a well-planned pedagogical dictionary which aims to help learners find suitable collocations. To this end, the "majority of collocating items have been grouped into semantic sets, each of which is preceded by an indication of meaning". They are especially aimed at helping learners of general academic and professional English.

My main contention is that the structural labels, i.e., the grammatical codes, are not explained, which hinders its usability in some teaching/learning situations, e.g. Spanish universities, in which students are unfamiliar with grammar information. Coffey (2011: 338) also indicates a number of inaccuracies, mainly involving categorisation and labelling. For instance, **get across** should be presented as **V** + n (**get across** facts) instead of **V** + across. In spite of the above inaccuracies, I found that the MCD does a very good job and is a useful addition to the English learners' collocation dictionary market, which is characterised by using the term *collocation* or referring either to a type of phraseological unit, e.g. a lexical collocation, or to an umbrella term for designing word combinations or multi-word expressions. Both views are connected with an interest in phraseology, s manifested in the publication of the MCD, which is greatly indebted to scholars from Russian and German traditions and to the distributional approach or frequency-based approach originated in the English tradition (see Cowie (1998) and Granger and Paquot (2008) for a review on phraseology; see also Fuertes-Olivera et al. (2012) for a different view of the term 'collocation').

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Appendix I

A sample page from the Macmillan Collocations Dictionary

empire N
1 a number of countries ruled by one government

- adj+**N** **far-flung, huge, large, mighty, sprawling, vast** *Under Charles V, Austria was part of a vast empire.*
- v+**N** increase the size of an empire **expand, extend** *At that time European powers fought brutal battles throughout Africa to expand their empires.*
- establish an empire **build, create, establish, forge, found** *Ur-Nammu founded the empire, which stretched into Iran.*
- rule an empire **control, govern, rule** *We are going to examine how Britain, a small country, came to rule a huge empire.*
- destroy an empire **destroy, dismantle, overthrow** *In the year 1532, the Inca empire was destroyed by the Spaniards.*
- **N**+v be destroyed **collapse, come to an end, crumble, decline, disintegrate, fall, fall apart** *The Western empire finally crumbled in the fifth century AD.*
- increase in size **expand, grew, spread** *The Russian empire expanded gradually.*
- continue for a particular distance **extend, reach, stretch** *They became intent on creating a new empire stretching from the Caucasus all the way to central Asia.*
- n+of+**N** **break-up, collapse, downfall, fall** *The gradual and messy collapse of the Empire is a complex story.*

2 a group of companies controlled by one company

- adj+**N** large **huge, large, vast** *Having built up a vast empire, he disposed of it to the US Steel Corporation in 1901.*
- types of empire **business, commercial, fashion, financial, industrial, media, newspaper, property, publishing, trading** *He then moved to the Bahamas, from where he controls his business empire.*
- v+**N** create an empire **build, build up, create, found** *I admire the way he has built his enormous media empire.*
- increase the size of an empire **expand, extend** *This profit will obviously increase their bank balance and enable them to progressively expand their empire.*
- control and organize an empire **control, rule, run** *She continues to run her empire from a home office.*

empirical ADJ
based on real experience or scientific experiments

- **ADJ**+n facts **data, evidence, findings** *I am struck by how little empirical evidence supports their claims.*
- study **analysis, investigation, observation, research, study** *These assertions have not been backed up by any large-scale empirical studies.*
- method **approach, method** *He contributed much to the development of empirical methods in the social sciences.*

employ V
use something for a particular purpose

- **V**+n **means, method, methodology, strategy, tactics, technique** *Different schools will employ different means to achieve the same result.*

employee N
someone who is paid regularly to work

- adj+**N** working for a particular time **full-time, part-time, permanent, temporary** *They now have 14 full-time employees.*
- in the past/present/future **existing, former, potential, prospective** *At present employees and prospective employees have protection against discrimination.*
- **N**+n **benefits, contributions, involvement, morale, productivity, relations, representative, satisfaction** *Are your pension costs affecting your ability to offer other employee benefits?*

employer N
a person or company that employs workers

- adj+**N** possibly going to employ someone **potential, prospective** *Your main aim is to convince a prospective employer that you have the skills, experience and enthusiasm to do the job.*
- past/present/future **current, former, future, previous** *He said that despite his sacking he had no hard feelings towards his former employers.*
- employing a particular number of people **large, major, small** *We are the third largest employer in the county.*

employment N
work that you are paid regularly for; a situation when a person or people have paid work

- adj+**N** for a particular time **casual, continuous, full-time, part-time, permanent, regular, secure, temporary** *The programme also provides the opportunity to study part time while* ***in*** *full-time employment.*
- past/present/future **current, future, previous** *Please give a description of your previous or current employment.*
- paid, or paid badly/well **gainful, low-paid, paid, salaried, well-paid** *We need to give young people opportunities to secure gainful employment.*
- v+**N** try to get employment **look for, seek** *How many recent graduates will decide to seek employment elsewhere?*
- get employment **find, gain, get, obtain, secure** *Other employees are being helped by various agencies to find alternative employment.*
- end someone's employment **terminate** *You will also be given a notice in writing terminating your employment.*
- leave employment **give up, leave** *She received a letter from his employer saying that he had left their employment on 16 August.*
- provide or increase employment **create, generate, guarantee, increase, promote, provide** *This new initiative will create employment in a very depressed area.*
- **N**+n legal matters **contract, law, legislation, rights, status, tribunal** *Employment legislation is extremely complicated.*
- opportunities **opportunities, options, possibilities, prospects** *We aim to ensure that local people benefit from the employment opportunities generated by construction work in the borough.*

MULTIMEDIA REVIEW

Terminology Management Systems for the development of (specialised) dictionaries: a focus on WordSmith Tools and Termstar XV

Mike Scott, 2011
<http://www.lexically.net/downloads/version6/HTML/index.html>
Star Servicios Lingüísticos, 2011
<http://www.star-spain.com/es/tecnologia/term.php>

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This review aims to focus on the analysis of the technical possibilities offered by two of the main Terminology Management Systems (TMSs) – the corpus-query program *WordSmith Tools* (currently in its 6.0 version) and the multilingual terminological database *TermStar XV*. Subsequently, they will be compared with other similar systems that are currently available, as well as in terms of their potential for the development of (specialised) dictionaries.

Terminology management includes a series of activities ranging from terminology extraction to the creation and validation of terminology, including the classification, retrieval and exchange of such terminology (Mesa-Lao 2008). Therefore, being aware of the most appropriate TMS according to one's particular needs is paramount for three main types of users: terminologists, translators and authors. In this review, our attention will be focused on terminologists' needs. Consequently, the software tools or TMSs analysed here were chosen because of their potential in the two main stages generally involved in the dictionary-making process: 1) term extraction and term in-corpus analysis, and 2) data processing, management and storage.

For the first main stage, a closer look will be taken at *WordSmith Tools* (WST), *MonoConc Pro* and *AntConc*, some of the more readily available and reasonably priced packages for working with corpora, with the aim of contrasting the different options they provide. Then, for the second big stage mentioned, *TermStar XV* will be analysed

and compared with other similar software systems such as *AnyLexic*, *SDL MultiTerm*, *Multitrans TermBase*, *Déjà Vu X Termbase* and *Gesterm*.

The main aspects of these software tools that will be reviewed will be mostly those related with the possibilities offered as regards their functionality and management, their potential for the creation of terminological cards and for the retrieval of specific information (specific searches or data filters), the management of export and import tasks, and the user-friendliness of the environment, among others.

The first main stage in the development of any specialised dictionary, i.e. that of term extraction and term in-corpus analysis, is normally carried out by means of corpus-query programs or software concordance programs like *WordSmith Tools*. WST is an integrated suite of programs for looking at how words behave in texts (Scott 2011), apart from providing varied corpus counts which may be useful for different purposes. Hence, WST is a corpus-query program capable of processing large numbers of texts with the aim of identifying characters or chains of characters that could be potential terms. Term extraction is thus "an operation which takes a document as input and produces a list of term candidates as output" (Streiter et al. 2003: 2). Those terms are then analysed in context in order to verify or revoke their "term status" in real use.

The software concordance program *WordSmith Tools* is a collection of three programs or applications: Wordlist, Concord and KeyWords. With Wordlist the user can create frequency and alphabetical lists and even a combination of the two; it also reveals relevant statistical and numerical data, and different wordlists can be compared. Furthermore, Wordlist offers the possibility of easily showing how many of our texts each word occurred in. This is important because frequency does not always imply importance or relevance in discourse – it may simply be due to some author's idiosyncrasies – and this is easily noticeable if we check that a top frequency word is top-frequent only in a given text from the corpus. Wordlist also allows the user to lemmatise and to make a word list with pairs or triplets of words (n-grams), for which he/she will first need to compute an index file.

Concord is the pure concordance application of WST and thus the one in charge of generating lists of concordance lines (also known as *Key Word in Context* – KWIC), apart from automatically identifying words that appear jointly a given number of times:

collocations, clusters (groups) and patterns (structures). For instance, Concord enables researchers to find recurring clusters, i.e. multi-word units, from within the entire corpus. It also allows users to perform multi-word queries and provides the plots (or distributions across the corpus) of the lexical units analysed. The Concord application Concordance also generates polylexical lists in which the degree of interdependence or the degree of the link or relation between words is established through the measure "Mutual Information". Concord also has *sort* functions that allow users to sort concordance lines in several ways with respect to the search word, which can provide insights on word uses and senses.

Finally, the Keywords application retrieves a series of key words from the corpus and this keyness is established by determining those words from the corpus which occur unusually frequently in comparison with some kind of reference corpus. Collocates, plots, patterns and clusters can also be analysed with Keywords.

Nonetheless, apart from WST, nowadays there are many other alternative corpus query programs with similar applications and possibilities. *AntConc* and *MonoConc Pro* are just a couple of examples from the many software packages currently available to carry out corpus-based research. All of them offer the basic functions expected of any concordance software program: frequency and KWIC lists generation, clusters and collocates retrieval, concordance plots generation, different sorting possibilities, and so forth. The differences have mainly to do with the user-friendliness of the programs, the displays of data offered and their specific ability to carry out certain tasks.

In general, the three programs mentioned here for term extraction and term in-corpus analysis are valid and reliable, even when WST seems to show a greater potential with respect to the other two in terms of the number of functions it is able to perform. *MonoConc Pro* is a fast concordance program with a really good user-interface. Apart from the intuitive nature of its interface, *MonoConc Pro* also presents a feature not shared by the other two that makes it particularly attractive for researchers, namely: the split screen which allows users to expand the context of an entry line when highlighting it, the fuller context being displayed in the upper window. As Reppen (2001) states, in WST, the entire display must be expanded or reduced, so the context is expanded for all of the entries being viewed rather than for a single highlighted entry. *MonoConc*

Pro is thus easy to use (in fact it is the program that is generally used nowadays for language learning purposes) but it also comes with a range of powerful features such as context search, regular expression search, part-of-speech tag search, collocations and corpus comparison. Its simplified version, *MonoConc Easy*, however, has many of the features of *MonoConc Pro*, but does not include some of the advanced features such as the advanced sort and corpus comparison. *MonoConc Pro* is known for its intuitive interface but *MonoConc Easy* is even easier to use, as its name indicates, and is therefore a good choice for less experienced concordance users. It is thus very useful for general concordancing and for use in computer labs, but it is probably not the best option for terminologists and terminographers, since the program is targeted more towards student and teaching use than for in-depth, professional corpus research.

Therefore, the main advantage of *MonoConc Pro* over *WordSmith Tools* is that it is much easier to use. For example, when *MonoConc Pro* is launched, a clear easy-to-use screen appears with a bar across the top, providing the options available. The screens are clearer, and since they resemble the screens of many word processing programs, users, especially those starting out in corpus analysis, may feel more comfortable. Nevertheless, when *WordSmith* is launched there are many screens that appear, and it may be more time-consuming and a bit challenging until the user becomes familiar with the program.

However, in addition to the functions that these programs have in common, *WordSmith* is able to perform a number of useful tasks that *MonoConc Pro* and *AntConc* are not, apart from providing a greater range of features and possibilities in terms of establishing and working with personalised settings:

> For example, *WordSmith* can provide information about the distribution of a feature in a single text or across texts. Distributions are shown with a graph that plots the occurrences of the target item in the text or corpus […]. The distribution of a particular lexical or grammatical feature across a text or series of texts can provide interesting information about the text structure and also about how the feature functions across various texts (Reppen 2001: 34).

To sum up, all three programs – *WST, MonoConc Pro* and *AntConc* – include many of the same features, such as the ability to create word lists (in both alphabetical order and order of frequency), generate concordance output and give collocation information. In addition, they can all easily handle large corpora and work with either tagged or untagged texts. However, the three programs have different strengths: *Antconc* and

MonoConc Pro have the added advantage of being free software packages that are quite easy to manage and conceptually, for users who feel less comfortable with computers, *AntConc*'s and *MonoConc Pro's* interfaces are far more user-friendly than that of *WordSmith.* In fact, *AntConc* is probably the simplest to use and performs the basic functions, but has the shortcoming of not offering many ways of saving the results. However, despite the fact that *WST* may seem less user-friendly at first sight, it is also easy to use once you have spent a little time with it and its potential – in terms of the number of features offered and options available – is much bigger than that of the other two programs. Obviously, it is the terminographers themselves who have to make the final choice as to which one best suits their needs but, in general, WST would be the best choice for terminologists and for the more professional researcher and terminologist.

Austermühl (2001: 102) defined terminology management as 'the documentation, storage, manipulation and presentation' of terminology, which could at the same time be defined as the specific vocabulary of a specialised area. Accordingly, terminologists grant a great deal of importance to the necessary creation of multilingual terminological databases, also understood here as TMSs. Such databases for managing and storing terminology are mainly assessed on the basis of their compatibility with various languages and alphabets, on the possibility of carrying out global changes, and on the flexibility of management tasks. Therefore, the very definition of terminological database may help us understand its importance for terminological tasks:

> a computerised storage system of lexical elements that are structured according to a series of criteria (alphabetical order, conceptual hierarchy, etc.), according to the users and according to the purpose of the terminological compilation, which must be flexible and accurately reflect the relationships between the hierarchies of information, making the loading of all the pertinent data and their rapid retrieval with varied possibilities of presentation feasible (Gómez González-Jover and Vargas Sierra 2003).

It is a fact that the easiest way to store terminological data is to do it in software tools or databases that do not require much training or significant expense. They must also allow data storage or simple import and export tasks to be performed using applications like a word-processor such as *MS Word*, a spreadsheet application such as *MS Excel* or a database management system such as *MS Access*. However, the potential of these tools is not comparable with that offered by other TMSs, such as *TermStar*, or other similar

software products such as *AnyLexic*, *SDL MultiTerm*, *Multitrans TermBase*, *Déjà Vu X TermBase* or *Gesterm*.

In this review and for the second big stage pointed out here in the dictionary-making process (i.e. data processing, management and storage), *TermStar XV* was the point of departure for analysis and comparison. *TermStar XV* is a terminological database, a system of multilingual terminological management oriented towards the concept. This implies that *TermStar* is completely focused on meaning and not on the terms of each language. It allows the user to open a new register (terminological card) for each concept, not for each term, since a concept may contain different terms and linguistic variants for a single object, characteristic or action. An example of this could be the term "mouse", either as a computer device or an animal: the term is the same but the concepts are different. Accordingly, with *TermStar XV*, different registers may be created for different concepts denominated by the same terminological unit. *TermStar* allows for more than 50 different fields in each register, some of them assigned by default by the program and some others which can be defined according to the users' needs and the final objective(s) of the work. In this way, a personalised distribution model of the fields (layout) may be enhanced so that the terminologist can optimise his/her work and find it easier to focus on the target aimed at. Figure 1 shows an illustrative register under development from *TermStar*, designed according to the terminographer's needs for a prospective specialised bilingual dictionary of the ceramics industry.

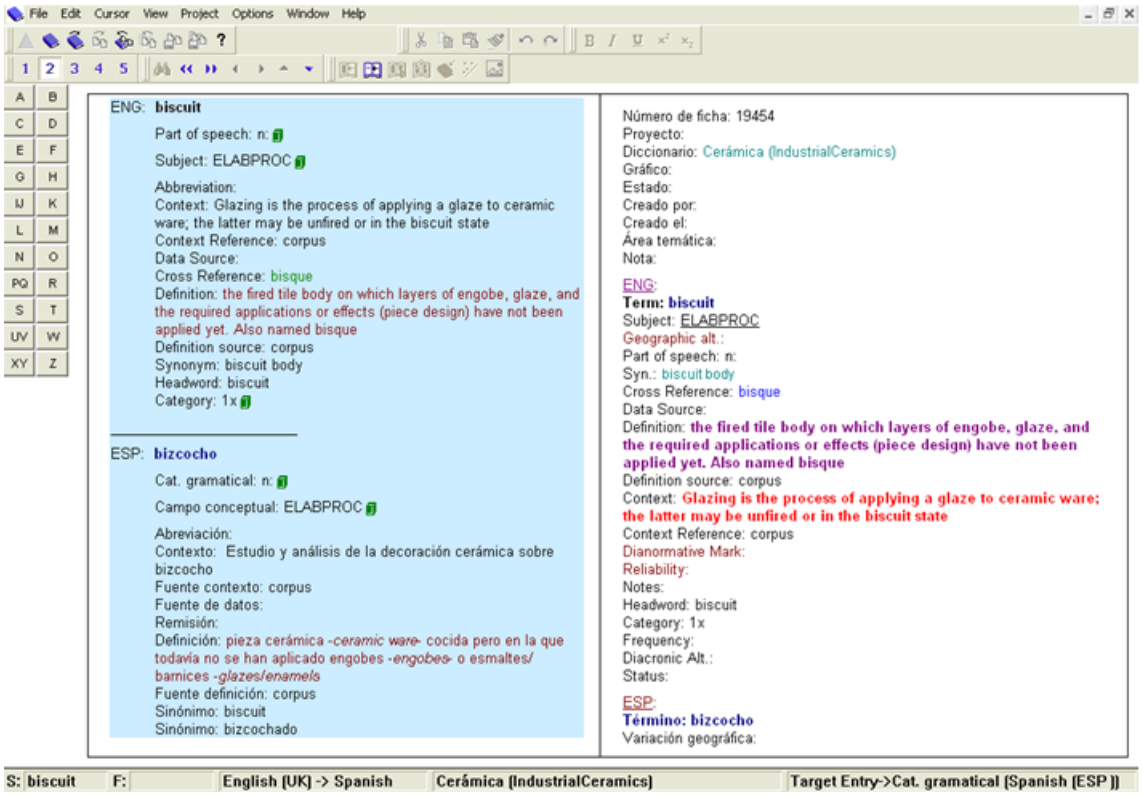

Figure 1. Register under development from *TermStar* and showing a personalised layout.

As indicated on the Star Group webpage (http://www.star-spain.com/es/inicio/), *TermStar* can be accessed as an integrated part of the translation memory and editor Transit, as a macro module of several common text-processing software products (e.g. Microsoft Word), or as a stand-alone dictionary application, which is the option presented here. *TermStar* also offers the possibility of quickly and easily creating registers and having immediate access to them. In the same way, the management carried out by the database management system allows the user to gain rapid and easy access to the data, to have these data ordered according to different criteria, to relate the different data items to each other, and so forth.

Apart from the ones already mentioned, Gómez González-Jover (2005) points out some other technical features that make *TermStar* an overall satisfactory system – despite its price – for the management of terminological data:

- The number of databases which can be created with *TermStar* is unlimited, as well as offering the possibility of opening them all at the same time if desired.

- The number of registers/terminological cards in each database is also unlimited.
- The structure of registers/terminological cards is fixed but dynamic.
- The register/terminological card contains more than 50 fields, some of them predetermined, with administrative information (for instance the number of the concept, graphics, images, entry date, etc.) and some others of a terminological nature that can be repeated in the card/register in each of the working languages.
- The number of working languages is also unlimited.
- It is possible to perform searches of truncated words with the character asterisk, as well as to specify the fields to search (term, abbreviation, synonyms, etc.).
- In addition to the search function, the program also provides, by means of filters, another way of searching for terms.
- Cross references in the form of hyperlinks can be created either manually or automatically (this option allows the terminographer to go from one card to another instantly).
- It allows the user to include non-linguistic fields (such as graphics or images) which, in spite of having no direct correspondence with the kind of information to be contained by the lexical entries of conventional dictionaries, may be useful and enlightening.
- It offers a flexible selection of sorting criteria.

Terminological databases are employed by a wide range of users with very different profiles so that their information needs are, normally, also diverse. In this sense, *TermStar* provides a high degree of flexibility that allows it to be adapted to the needs of each user, apart from offering various modes of data retrieval. However, it is quickly noticeable that the import/export processes in *TermStar* are rather complicated, since several commands from more than one menu are required. Missing a step or making a small mistake in the process implies that the whole import/export procedure fails, which is frustrating, especially for the new user or for the non-professional. Nonetheless, updating data is very user-friendly within *TermStar*, as is adding a new entry, since the whole procedure follows an intuitive logic which anyone familiar with computers can grasp.

TermStar is thus an excellent repository for huge amounts of terminological data, since it allows numerous databases to be created, each capable of housing several bilingual and multilingual dictionaries supporting different languages. *TermStar* also allows the user to personalise the prospective microstructure of the dictionary through "entry arrangement codes", something that is especially useful for dealing with compound terms and multi-word units. The codified category "Category" (together with the category "Headword") in *TermStar* may be configured, for instance, to offer four main arrangement categories: Category 1x shows that the term in the entry has no abbreviation and has to be considered a main entry in the final dictionary layout, whereas category 1 indicates the same main entry status but referred to a terminological unit with abbreviated form(s). On the other hand, the "subentries" in the dictionary are assigned categories 2 or 2x, depending on whether they have an abbreviation or not. In the case of 2 or 2x category terms, the headword that these subentries belong to must also be specified for a correct subsequent arrangement of final dictionary entries and subentries. For instance, when creating the entry "abrasion", if the user wants "abrasion/abrasive hardness (AH)" to become a subentry of the headword (main entry) "abrasion" (category 1x), "abrasion/abrasive hardness (AH)" will be assigned to category "2" because of its abbreviated form, whereas "abrasion resistance" will be assigned to category "2X", since it does not have an abbreviation (see Figure 2). Filling in these fields correctly is the key to obtaining a successful final arrangement of dictionary entries and subentries, both with simple terms and multi-words units, and the possibilities offered by *TermStar* in this respect are very operative and practical.

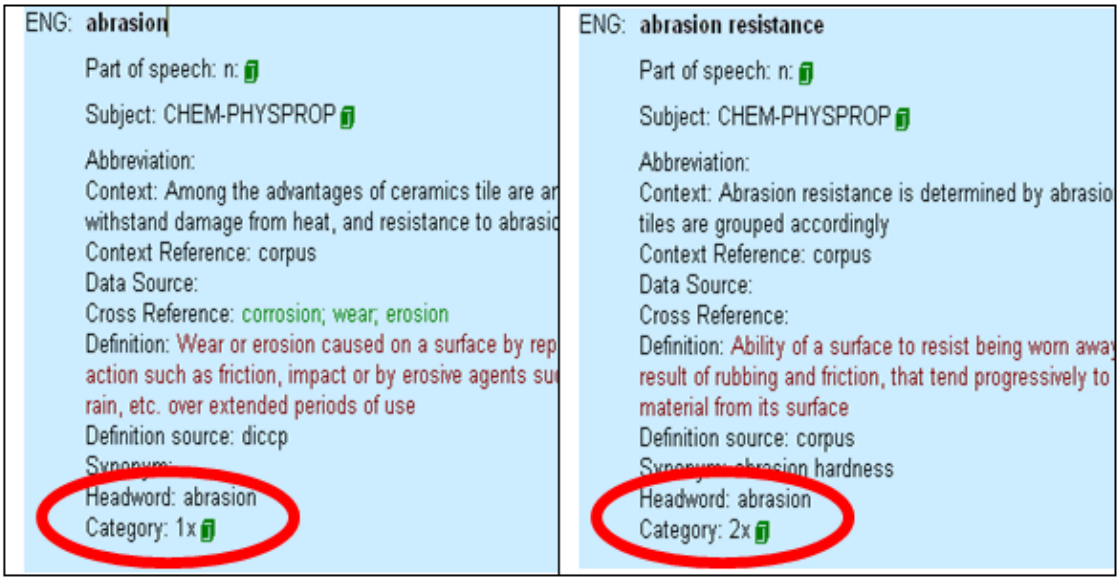

Figure 2: Example of entry and subentry arrangement through codes in *TermStar*.

The huge potential of *TermStar*, despite some of the shortcomings mentioned above, makes it a good and complete option for the second broad stage of the dictionary-making process. This may be clearly observed in Table 1, which, owing to space limitations, shows only a graphic comparison between *TermStar* and *AnyLexic*, *SDL MultiTerm*, *Multitrans TermBase*, *Déjà Vu X TermBase* and *Gesterm*. It can be seen that *TermStar* accomplishes all the functions and possesses all the features included in the table.

Table 1. Table comparing the main features of the TMSs under analysis (adapted from Mesa-Lao 2008).

SEARCH OPTIONS							
TMS name	**Exact search**	**Partial search (fuzzy)**	**Truncated search (wildcards)**	**Search with Boolean operators**	**Search history**	**Showing/hiding entries through condition filters**	**Creating cross references among data registers**
Termstar	X	X	X	FILTERS	X	X	X
AnyLexic	X			X	X		
SDL MultiTerm	X	X	X	FILTERS		X	X
Multitrans TermBase	X	X			X	X	
Déjà Vu X TermBase	X		X			X	
Gesterm	X			FILTERS		X	

ENTRY MODIFICATION							
TMS name	**Terminological management or edition according to users' profiles**	**Adding entries from outside the application**	**Global modifications in the data through replacing functions**	**Copying complete entries**	**Adding illustrative graphics**	**Adding links to external hypertext. resources (Intranet/ Internet)**	**Defining predetermined values (automatic. added for new entries)**
Termstar	X	X	X	X	X	X	X
AnyLexic							
SDL MultiTerm	X	X			X		X
Multitrans TermBase	X	X	X				X
Déjà Vu X TermBase	X	X					X
Gesterm							

DISPLAY MODE			
TMS name	**Choosing the different ways of presenting the dictionaries**	**Designing personalized display modes and users' profiles**	**Configuring the visual aspects of any field within the database**
Termstar	X	X	X
AnyLexic			X
SDL MultiTerm	X		X
Multitrans TermBase			
Déjà Vu X TermBase			
Gesterm			

TERMINOLOGY MANAGEMENT (DICTIONARY ORGANISATION) AND LANGUAGE MANAGEMENT							
TMS name	**Kind of information that can be codified**	**Opening various dictionaries at a time**	**Modify/create from scratch the structure of the entries in the DB**	**UNICODE support**	**Interchange between the source-target languages of a DB**	**Using languages with alphabets different from the Latin one**	**Windows IME (Input Method Editors) support**
Termstar	Textual, graphics, hypertext	X	template	X	X	X	X
AnyLexic	Textual	X		X		X	X
SDL MultiTerm	Textual, graphics, hypertext	X	X	X	X	X	X
Multitrans TermBase	Textual	X	X	X	X	X	X
Déjà Vu X TermBase	Textual		template	X	X	X	X
Gesterm	Textual			X	X	X	X

Therefore, among the basic functions to be taken into account in order to decide on the suitability of any TMS, the terminologist should consider mainly the possibilities

offered as regards their functionality and management, their potential for the creation of terminological cards, and the data-filtering options, as well as the feasibility of export and import tasks and the user-friendliness of the environment. However, as Reppen (2001: 32) states "as with software purchase, the needs of the user should play a key role in deciding which program is most appropriate", since the value of such tools varies greatly depending on individual needs and circumstances.

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