Anita Peti-Stantić / Mateusz-Milan Stanojević (eds.)

Language as Information

Proceedings from the CALS Conference 2012

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PETER LANG
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Preface

Anita Peti-Stantić – Mateusz-Milan Stanojević

This book of proceedings brings together twelve articles presented at the international conference of the Croatian Applied Linguistics Society (CALS) entitled *Language as Information*, held at the Faculty of Humanities and Social Sciences, University of Zagreb from 11 to 13 May, 2012. Three volumes were planned as the result of the conference – two published in Croatia, and the present one, containing papers primarily aimed at the international audience and dealing with a range of issues where information conveyed by linguistic processes in use is of paramount importance. The contributions deal with two main topics: (1) foreign language learning and teaching and (2) grammatical, semantic and pragmatic characteristics of general and specialist language.

The first group of six papers deals with a variety of views on foreign language teaching and learning in online and offline settings, from the point of view of foreign language users and teachers. The papers share a common concern for language processing and communication, but differ in the topics covered and methodology. Still, they all point (more or less explicitly) to a crucial issue: that meaning-making in foreign language learning/teaching situations depends on the users' real-life experience, their strategic construal abilities (for a definition see Geld and Čutić, this volume), their proficiency (cf. Cergol Kovačević, this volume; Šamo, this volume), their language use (Ćurković Kalebić, this volume; Vickov, this volume) and the communication medium used (e.g. online-offline; see Hampel, this volume).

The paper *Salience of topology in the strategic construal of English particle verbs in blind users of English* deals with meaning construal in English particle verbs in blind users of English as a Foreign Language. The authors, Renata Geld and Anita Čutić, show that there is a significant difference in the way blind participants use topology in strategic meaning construal of particle verbs in comparison with sighted participants. This reflects their extraordinary experience and has consequences for the way in which construal should be theorized, as well as practical consequences for foreign language teaching. To go back to the overall topic of the volume, the paper shows that information constructed on the basis of language crucially depends on the users' experience (regardless of what this experience entails).

The following two papers prove a similar point, based on the processing of written and auditory material by non-native speakers of English. In her paper *L1/L2 reading as information processing*, Renata Šamo studies the reading strategies used by Croatian primary school learners of English as a Foreign Lan-

guage. The article shows that successful readers use a greater variety of reading strategies than less successful readers, that they are more willing to ask for help sooner and that they are better at reading in a non-linear way. This is taken to mean that reading strategies should be in the focus of teaching reading. Kristina Cergol Kovačević (*Language switching in auditory processing and Croatian speakers of English*) shows that less proficient second-language speakers of English (whose native language is Croatian) generally react slower to English than to Croatian auditory stimuli. Still, their reaction times seem to differ for the two languages depending on the monolingual vs. bilingual set. All these results are taken as proof that language processing on this level is done locally, rather than globally, which is in line with the Bilingual Model of Lexical Access. On a more global level, both papers highlight the crucial importance of language users' experience.

Two following papers, *Discourse markers in EFL teacher talk: the case of okay* by Sanja Ćurković Kalebić and *Investigating L1 influence on the acquisition of L2 discourse markers* by Gloria Vickov deal with two sides of the same coin – the use of discourse markers in teacher talk and student writing. The paper by Sanja Ćurković Kalebić shows that in a classroom situation Croatian teachers of English as a Foreign Language generally use the same number of discourse markers and use them in the same function as native speakers. Still, a more in-depth view shows that there is great variety between individual teachers in the sample, which may have consequences for how they should prepare for classes, and how they should be trained. The paper by Gloria Vickov investigates the range of discourse markers appearing in student writing (in primary and secondary school) in English as a Foreign Language and in Croatian. The results show that learners generally use the same markers in the same function in the two languages, which the author takes to mean that discourse markers should be given more attention in both L1 classes and L2 classes, because they are generally seen as a way of making writing more coherent and communication more efficient. Overall, both of these papers point to the importance of language users' experience for meaning-making, as seen through the characteristics of their language use.

Regine Hampel's paper entitled *Making meaning online: computer-mediated communication for language learning* concludes the first group of papers. It discusses the way in which online technologies change interaction patterns in language teaching. More specifically, various online technologies used in fully online and blended approaches have a variety of affordances, which has significant consequences for the way in which learners collaborate and interact, for classroom discourse and for the socio-affective dimensions of learning. R. Hampel proposes that these changes be best looked at through the theoretical

prism of multiliteracies. More generally, the characteristics of the communication medium (along with the experience of language users and teachers) has a crucial effect on meaning-making.

Whereas the previous papers emphasize the crucial role of language users in constructing or using linguistic information, the second group of six articles focus on language structure. More specifically, all the papers in this part take a broadly constructional view of language, looking for semantic or pragmatic information that may be present or recoverable from the grammatical characteristics of a particular phenomenon. In other words, all the papers indicate the links between metalinguistic information (i.e. lexical and grammatical structure) and meaning.

The paper Kuća *'house' as a conceptual and lexical category in the semantic space of specialist architecture discourse* by Neda Borić presents a conceptual and lexical analysis of the term *kuća* 'house' from a sociocognitive point of view. Based on a corpus analysis of architectural discourse the author shows that the term *kuća* 'house' may refer to a variety of conceptualizations, i.e. it is not a non-polysemous expression, which is the received knowledge in a classical theory of specialist language. These conceptualizations are shown to depend on background knowledge specific to architecture, a discipline which encompasses both art and engineering. More generally speaking, this shows the context-bound and metonymic nature of background knowledge: only that information which is required in a particular context will be more readily available.

The paper *Grammatical information and conceptual metaphors: the case of anger* by Mateusz-Milan Stanojević, Ivo Tralić and Mateja Ljubičić explores the importance of grammatical information in conceptualization of anger metaphors in English. More specifically, the authors claim that conceptual metaphor theory would benefit from incorporating grammatical characteristics into the analysis of conceptual metaphors. On a more general level, the authors claim that our background knowledge (in the semantic sense) is also determined by structural characteristics of a word.

The paper *Informativity of sentence information structure: the role of word order* by Anita Peti-Stantić deals with information structure on a more global level based on the example of clitics in Croatian. More specifically, the author presents the basic settings of the multi-level approach to analysis, which allows for the establishment of the criteria for labelling a sentence as grammatical or non-grammatical (and, accordingly, as informationally unmarked or marked). In this type of analysis, information structure is assumed to be a component of grammatical description, comparable to phonological and syntactic structure, which sets the informational potential of the sentence. The results of preliminary research on the relationships between segments of phonological (phrasal intona-

tion and word order) and information structure in Croatian, a so-called "free word order" language, serve as a basis for establishing restraints to the combinatoriality of units and the attempt to hierarchize them. Such an analysis significantly influences the understanding of sentence informativity in Croatian.

The paper *Idiom variation and grammaticalization: a case study* by Jelena Parizoska and Zvonimir Novoselec compares and contrasts idioms with a simile structure (e.g. *as white as snow*) and cognate noun-adjective structures (e.g. *snow white*) in English, Swedish and Croatian. Based on a corpus study of the idioms' semantic and structural characteristics, the authors claim that these two groups of idioms in the three languages are in fact variants of the same idiom schema, with the noun-adjective structure being a more grammaticalized form of the simile structure. Such a view means that idiom variation should be seen as a phenomenon that combines variation in meaning as well as in structure. In other words, the crucial importance of combining semantic and grammatical information is emphasized.

The two final papers deal with the structural and semantic characteristics of clauses in Croatian and German. In their paper *The indeclinable relativizer* što – *an analysis of examples from contemporary spoken Croatian* Jurica Polančec and Tena Gnjatović analyze sentences which contain the relativizer *što* 'what' in Croatian, which had been claimed by various authors to be a sign of written bookish usage. They show that the contrary is true – that *što* 'what' is used as a relativizer in everyday communication, and find the reason for its usage in an ecological factor: by using *što* 'what' the structure of the clause becomes closer to the structure of other subordinate clauses in Croatian.

Leonard Pon (*Zu einem Typ des was-Satzes*) analyzes a specific type of a *was* 'what'-clause in German. Based on a corpus analysis of *was* 'what'-clauses in German, the author finds a type of clause which is not used in the more common function of a complement or attribute, but rather as an introductory clause. In addition to its different position to other *was* 'what'-clauses, it is also characterized by a specific pragmatic function – it is used as a metacommunicative device which serves as a way of managing the collocutor's attention to the information that follows it.

To conclude, the volume deals with a variety of discourse-related issues: spoken and written language and its processing, language teaching, learning and use, and language structure on the lexical and clausal level. Although a range of theoretical and practical views are espoused in the articles, what unites them is their common concern for the way in which information appears in language, the way it is constructed by language users and the way to go about investigating it. Thus, semantic and pragmatic information is shown to be related to various levels of metalinguistic information in the papers in the second part of the vol-

ume. The way this information is used by language users in real-life contexts depends on their real-life experience and (strategic) construal abilities, and the context of use. As evidenced by the methodologies used, all this can be seen only if one takes a functional approach to language, studying real-language data in use. Overall, investigating language and its information value hinges on language structure, meaning and sociocognitive factors working together, where the analysis of one cannot be complete without analyzing the other two. We hope that it is precisely this view that readers will find interesting and stimulating.

Finally, we would like to thank all the reviewers and contributors to this volume for all their work, as well as the staff at Peter Lang for their help in preparing the volume. Without all their help and support this volume would not have been possible.

Anita Peti-Stantić and Mateusz-Milan Stanojević

Salience of topology in the strategic construal of English particle verbs in blind users of English

Renata Geld – Anita Čutić

Abstract

The paper explores strategic meaning construal (see Geld 2006; 2009; 2011), that is, meaning construal in L2, in visually impaired English language users. The aim was to investigate whether blind users of English employ similar cognitive strategies in the process of meaning construction of particle verbs (PVs) as sighted users of English. The study was conducted on a sample of 75 L2 users of English in two research groups (30 blind L2 users of English and 45 sighted L2 users of English). The first research group was further divided into two groups based on the degree of the participants' visual impairment: there were 9 congenitally blind and 21 adventitiously blind users of English. The second research group consisted of 45 sighted participants of the same age, language learning background, and L2 proficiency as the participants in the blind research group. The results have shown that, in comparison to their sighted peers, blind users of English significantly more often attend to the topological (or spatial) component of particle verbs while strategically constructing their meaning. Furthermore, the results have shown a statistically significant difference between the frequencies of topological determination with PVs containing light verbs and those containing semantically heavy verbs.

1. Introduction

From Langacker's framework of "Space Grammar" (1982; 1987) to contributions by Lindner (1981), Brugman (1981), Herskovits (1982), Talmy (1983; 2000a; 2000b), Langacker and Casad (1985) Lakoff (1987), Johnson (1987), Vandeloise (1991; 2003), Bowerman (1996), Bowerman and Choi 2003, Tenbrink (2007), and many others, space has been recognized as one of the most fundamental aspects of our experience as well as its structuring force.

The blind experience certain limitations in their exploration of space because they lack visual input, and it is visual experience that plays a crucial role in developing a multidimensional representational framework for spatial relations. However, specificities of haptic exploration of space, its fine-grainedness and unique physical immediacy, result in the blinds' extraordinary experience of the world. Therefore, it is reasonable to assume that the linguistic meaning construal of the blind might show certain bias towards topological elements in composite wholes.

The aim of this study was to investigate meaning construal in L2 by (re)hypothesizing the results of two previous bodies of research:

a) investigation into semantic determination (lexical vs. topological) in the pro-
   cess of constructing meaning of English particle verbs (PVs) (Geld 2009;
   2011; Geld and Maldonado 2011; and Geld and Letica Krevelj 2011);
b) investigation into salience and situatedness in the language of the blind (Geld
   and Starčević 2006; Geld and Stanojević 2006; Geld and Šimunić 2009).

In the subsections that follow we give a brief overview of the above-mentioned
findings related to the meaning construal of English PV constructions, and dis-
cuss fundamental points related to the blind's language development. In section
2 we outline our research aims and hypothesis, provide details pertaining to our
research participants, and, finally, present and discuss the obtained results. In
section 3 we offer some tentative conclusions, their theoretical and applied im-
plications, and possible avenues for further research.

Strategic construal of PV constructions with in *and* out

Studies on the strategic construal of PVs with *in* and *out* (Geld 2009; 2011; Geld
and Maldonado 2011) have demonstrated the following:

1) topological determination is more frequent with light[1] PVs,
2) lexical determination is more frequent with heavy[2] PVs,
3) compositionality is more frequent in PVs with heavy lexical parts,
4) particle *in* is less informative than particle *out*,
5) overall construal depends on the users' L1.

Geld (2009; 2011) investigated the strategic construal of PVs with *in* and *out* in
order to determine how users of English make sense of PVs, and on which com-
ponent of PV constructions they more readily rely in the process of strategic
construal of meaning. The instrument used in these studies was a questionnaire
containing 20 PVs with both light and heavy verbs that were productive with *in*
and *out*. The sample included 100 users of English (32 Mexicans and 68 Croats).
They were asked to make sense of the meanings attributed to the studied PVs.
For PVs with *out* a statistically significant difference was found between light
and heavy verbs: topological determination was more frequent with light PVs,
whereas lexical determination and compositionality were significantly more fre-
quent with heavy PVs (Geld 2011, 59–61). The same results were obtained for
PVs with *in*. The findings suggested that strategic construal of meaning largely

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1   These are verbs that are customarily called light, basic, delexical, simple, semantically
    vague, etc. which is due to their semantic properties. They are considered to be delexica-
    lized and schematic and thus suitable for idiomatic and grammaticalized uses.
2   Heavy verbs are those verbs whose meaning is more specific.

depends on the semantic weight of verbs. Furthermore, the results also support-
ed the starting assumption that topological determination and compositionality
would be more frequent in the group of Croats, whereas lexical determination in
the group of Mexicans. The explanation was based on the fact that Croatian is a
satellite-framed[3] language, that is, it uses verbal prefixes which function as sat-
ellites. In the case of Croatian users of English they facilitate recognition of par-
ticles in English PV constructions. Thus, whether learners will rely on the parti-
cle or the verb in their strategic meaning construal partly depends on the struc-
tures that prevail in their L1. By the same token, Mexican users of English are
more prone to attend to verbs than to particles since Spanish, as opposed to Cro-
atian, is a verb-framed language (Geld 2011, 71). Furthermore, the nature of the
contribution of light and heavy verbs is also evident in the results related to
compositionality. It seems easier for users of English as L2 to find a semantic
relation between a heavy verb and the meaning assigned to the whole construc-
tion than between a light, and hence vague, verb and its construction. As pro-
posed by Geld (2011, 62), in the same manner that it is claimed for native
speakers, L2 users of English 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
trigger certain aspects of the composite structure. Thus, we may conclude that
the semantic continuum of strategic construal runs from L2 users of English re-
lying primarily on semantically heavy verbs to finding primary motivation for
meaning in highly grammaticalized particles. Between the two extremes, there
are a number of intermediate cases involving gradient and partial compositional-
ity (see Figure 1).

| lexical | partial and gradient | topological |
| determination | compositionality | determination |
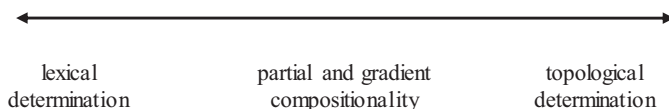
Figure 1: Semantic determination in the strategic construal of particle verbs (taken from Geld 2011, 62)

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3   Typologically, there are two basic language groups in terms of how conceptual structure
     is mapped onto syntactic structure: a) verb-framed languages, and b) satellite-framed
     languages (Talmy 2000b, 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, this category includes a variety of grammatical forms:
     English verb particles, German separable and inseparable verb prefixes, Russian verb
     prefixes, Chinese verb complements, etc.

Finally, the qualitative analyses of the answers obtained for *in* and *out* suggested that *out* is more informative than *in*. In other words, research participants in both groups produced more (detailed) explanations for the contribution of *out* than they did for the contribution of *in* in the examined PV constructions (see Geld 2009; Geld and Maldonado 2011). Their answers implied meanings that ranged from fully concrete and topological to maximally schematic (as in the examples where particles code aspectual meanings).

As suggested by Geld (2009; 2011) and Geld and Letica Krevelj (2011), it would be entirely scientifically irresponsible to discuss meaning construction of English PVs by attending only to language-internal factors such as the nature of components in composite wholes or the structure of the users' L1. Meaning construal is dynamic and subjective and it calls for considering a variety of language-external factors that determine the users' knowledge, and, thus the process of meaning construction. For example, Geld (2009) and Geld and Letica Krevelj (2011) also considered the users' general proficiency in English and found that more proficient language users tend to be more analytical, and the difference is statistically significant with more schematic meanings (e.g. in the cases of light verbs combined with less informative particles). To conclude, the meaning construal of English PVs depends on a number of factors. The model (based on Geld and Letica Krevelj 2011, 164) shown in Figure 2 summarizes the findings outlined in this section. In addition, it announces the rationale for the hypothesis that motivated the study that is going to be presented in this paper. There are at least two major groups of factors shaping the nature of L2 users' construction of the linguistic meaning of PVs:

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 (knowledge of the world and aspects of individual experience of the world, language proficiency, and various elements of the learning environment conducive to developing learning strategies).

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 study: a) their degree of schematicity, and b) their degree of informativeness. Having considered the above-described factors, it is reasonable to assume that the blind's experience of the world, their interaction with the environment, and the resulting mental representations and imagery are bound to affect their meaning construal.
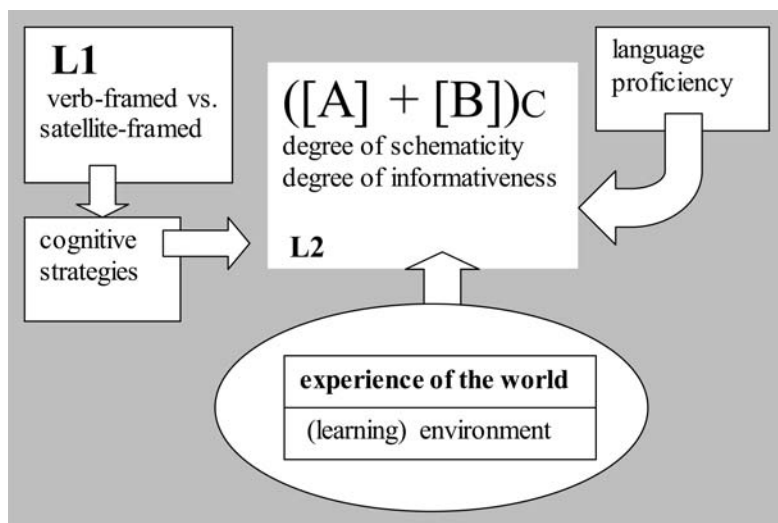
Figure 2: Factors affecting the strategic construal of particles in PV constructions (based on Geld and Letica Krevelj 2011, 164)

The blind's experience of the world

In this section we discuss the role of sensory experience in construal. We argue for a broadly set view of embodiment-cum-culture (see Geld and Stanojević 2006), which extends from the body out into the world. In experiencing the world our sensory capacities provide a variety of basic domains. Basic domains such as TIME, SPACE, MATERIAL, FORCE, COLOR, HARDNESS, HUNGER, PAIN or LOUDNESS (and many others) are rooted in directly embodied human experience and they represent the basis for a semantic characterization of concepts (Langacker 1987). We see embodiment as a very general set of limitations and tendencies which act as a connection between perception and conceptualization, and which are evident on various levels – from the neural to the cultural level (for a review see Rohrer 2007; Ziemke, Zlatev and Frank 2007).

In other words, the blind's extraordinary experience of the world and their unique reliance on other sensory modalities are bound to determine specific aspects of their domains of knowledge. Some researchers believe, for example, that the development of space representation in blind children is seriously delayed (Pérez-Pereira and Conti-Ramsden 1999, 30). They claim that this is due to the fact that they use different sensorial systems, such as touch, perception of body movement, or hearing, which are less efficient than visual information

when gathering and processing information (Pérez-Pereira and Conti-Ramsden 1999, 35). However, various studies show that the differences between blind and sighted children tend to disappear as children grow up. Blind adults seem to have space representations and orientation similar to sighted people and in this regard several authors have suggested that spatial representation of blind people is not qualitatively different from that of sighted people (Pérez-Pereira and Conti-Ramsden 1999, 35). Generally speaking, most principles of cognitive information processing are similar in blind and sighted people. The ways in which they acquire information may differ, but as information moves from modality-specific sensory experiences to more abstract mental structures and operations, the differences tend to diminish (Silverstone et al. 2000, 341).

It is believed that the blind experience a particular kind of mental imagery, which has been explained by the overlap in information obtained through visual and tactile perceptual systems (Kennedy 1993; 1997). Kennedy's research showed that the blind are capable of producing drawings similar to those produced by the sighted in terms of characteristics such as perspective, depth, motion, vantage point, contours and so on. However, there are great differences between tactile and visual perception (see Hollins 2000). Most importantly, the first difference is based on direct contact with the object, which means that it is not possible for the blind to perceive distant objects (such as mountains). The second distinction is related to time – visual perception happens simultaneously, whereas tactile perception happens over a much longer period of time. The blind need to put all the pieces of information together in order to get an image of a given situation which the sighted get with a single glance. Finally, visual perception is mostly involuntary, whereas tactile perception demands voluntary effort.

Let us conclude this introductory section by stressing several findings pertaining to the blind's experience of the world and their cognitive processing which are likely to be directly relevant for this study. First, it is believed that over the course of their cognitive development blind children, due to their restricted experience of spatial relationships, may construct different meanings for spatial prepositions (Pérez-Pereira and Conti-Ramsden 1999, 90). Second, for the blind, language becomes an indispensible source of information about the world and functions as a means of obtaining knowledge. It is claimed that blind children pay more attention to linguistic input than sighted children do because it becomes a crucial tool for obtaining information on their external reality (Pérez-Pereira and Conti-Ramsden 1999, 72). Finally, even though there seems to be an overlap in information obtained through visual and tactile perceptual systems (Kennedy 1993; 1997), tactile perception happens over a much longer period of time.

2. The study

Aims and hypotheses

As already stated, the aim of the present study was to investigate several aspects of strategic meaning construal in blind L2 users of English based on previous research on semantic determination in PV constructions, and findings pertaining to meaning construal in the language of the blind. Since visually impaired individuals have restricted access to visual information we wished to find out whether blind language users' strategies of constructing meaning would differ from those found in their sighted peers.

There were three specific hypotheses:

1) there will be differences in the strategic construal of PVs between blind users of English and sighted users of English;
2) there will be differences in the strategic construal of PVs in the group of congenitally blind users of English in comparison to both adventitiously blind and sighted users of English;
3) there will be no differences between the three groups of participants in terms of which semantic determination prevails in PVs in relation to the nature of the verb (light vs. heavy): topological determination will prevail with PVs containing light verbs, and conversely, lexical determination will prevail with PVs containing heavy verbs.

Sample and procedure

The study was carried out on a sample of a total of 75 users of English –students from two vocational high schools in Zagreb. The sample included two research groups: 30 visually impaired learners of English in the 3rd and 4th grades, and 45 sighted learners of English in the 3rd and 4th grades. The classes that participated in the research were chosen randomly.

The blind participants in the study were further divided into the following two groups: 9 congenitally blind and 21 adventitiously blind. The majority of the participants in this group started learning English at the age of 10 (the 4th grade of elementary school). The sample consisted of 11 female and 64 male participants. The participants were between 16 and 18 years of age.

All blind learners were interviewed individually in their English teacher's office. They were given a list of particle verbs written in Braille, and instructions about the task. Their answers were either recorded and later transcribed, or

written down by the researcher, depending on the participants' preferences. In the school with sighted children, the questionnaire was administered to the participants during their regular English lessons. Both groups of participants were given the same amount of time (20 minutes) to do the tasks, and received the same task-related instructions. They were also given a short introduction to the purpose of the study, and they were informed that the results would be used for research purposes only.

After the data had been collected each answer was independently coded. Each answer was labeled with one of the following codes:[4]

1) TOP for topological determination (the code is used for those answers in which the meaning of the particle seems to override the meaning of the lexical part of the construction);
2) LX for lexical determination (the code is used for those answers in which the meaning of the lexical part seems to override the meaning of the particle);
3) CMP for compositional meaning (the code is used for those answers where both parts of the composite whole seem to play a significant role in their contribution to meaning)
4) PPH/OPP for paraphrase or basic opposition;
5) DNK for I don't know;
6) DNS for It doesn't make sense.[5]

Research instrument

The instrument used in the study was taken from Geld (2009) and modified for the needs of this particular study. Thus, the instrument was previously validated. It was a questionnaire that contained 12 particle verbs. The questionnaire included PVs with both heavy and light lexical parts. Each PV was attributed one particular meaning without additional context(s). The participants were asked to make sense of the meanings attributed to the 12 particle verbs. They were instructed to try to explain what it is in a particular PV that produces the meaning attributed to it. All the questions were open so the participants were allowed to write or say whatever made sense to them, and they were allowed to use both English and Croatian. After having completed the questionnaire the participants were asked to provide the following data: name, age and grade in English.

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4   All the answers were validated by three independent validators – a linguist and two non-linguists.
5   Codes adapted from Geld (2009; 2011).

Results and discussion

The collected data were coded and statistically analyzed with the help of SPSS 17.0 for Windows. The results that follow refer to the first hypothesis stating that there will be differences in the strategic construal of PVs between blind users of English (taken as a single group of participants irrespectively of the nature of their impairment) and sighted users of English. The graph in Figure 3 shows the results pertaining to the above-stated hypothesis.
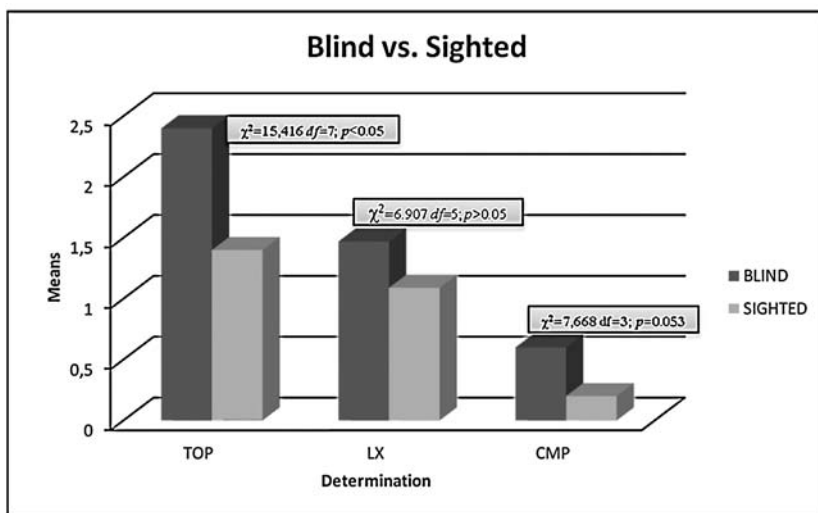

Figure 3: Differences in the frequency of determination: the blind vs. the sighted

The results of the χ^2 test showed a statistically significant difference between blind and sighted learners in the frequency of topological determination, with the blind providing a higher number of topological explanations ($\chi^2 = 15.416$ *df*=7; *p*<0.05). The difference might be explained by the fact that in their daily interaction with the world the blind need to rely on spatial memory far more than the sighted, and, thus, spatial relations become highly salient aspects of their cognitive domains. Therefore, it is reasonable to assume that it is this particular kind of spatial salience that affects the blind's tendency to attend significantly more often to the topological component of particle verbs than their sighted peers seem to do. This particular result might also be related to what has been suggested by Pérez-Pereira and Conti-Ramsden (1999, 90) and that is that blind children, due to their restricted experience of spatial relationships, may construct different meanings for spatial prepositions. Even though various stud-

ies were conducted in order to investigate whether this is really so, and the results thus obtained seem to suggest that blind children do not seem to be atypical in terms of how they understand spatial relations (Pérez-Pereira and Conti-Ramsden 1999, 90), we still wish to stress that meaning construal in the blind should be investigated as a highly dynamic process dependent on the blind's extraordinary experience. It is this experience that is responsible for the formation of mental imagery, and, thus, the process of dynamic meaning construction.

Furthermore, the results of the χ^2 test showed no statistically significant difference between the two groups ($\chi^2 = 6.907$ df=5; p>0.05). However, the results of χ^2 test did show a statistically significant difference in compositionality ($\chi^2 =$ 7.668 df=3; p=0.053) whereby the blind participants gave more compositional explanations than the sighted.

As shown in Figure 3, compositionality was more frequent in the blind group, which might have been interpreted as rather surprising. Since spatial competence involves many different abilities such as recognition of the shapes of objects, knowing where the body is in relation to other objects, where parts of the body are in relation to one another, etc., it might have been assumed that blind users of English would tend to avoid attending to the topological part of PV constructions. However, it seems that they tend to do quite the opposite (see examples 1 and 2 below). Not only did they show remarkable understanding of spatial relations, they also demonstrated excellent analytical skills. We believe that the latter might be due to the fact that they are actually quite prone to analyzing language – they use language as a substitute for visual input whereby language becomes a very important tool for obtaining information, as suggested by Pérez-Pereira and Conti-Ramsden (1999, 35–36).

1) *break out = to escape: You break something and then you can go out. You break a window with something like a rock and then you can go out of the room through the window.*
2) *cut in = interrupt somebody's conversation: You cut someone's conversation in half and insert yourself in it.*

The second group of results refers to our second hypothesis: there will be differences in the strategic construal of PVs in the group of congenitally blind users of English in comparison to both adventitiously blind and sighted users of English. In order to investigate the hypothesised differences in semantic determination between the congenitally blind, the adventitiously blind and users of English without visual impairment, the χ^2 test was conducted for each determination type (topological, lexical and compositional).

The graph in Figure 4 illustrates the results thus obtained. Statistically significant differences are marked by a star.