

Understanding the English preposition 'at'. Semantics and translation from a cognitive perspective

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*For Dunja,
a humble contribution
aimed at finding the way
to employ the infinite(ness of) semantic theory
at the service of everyday translation practice.*

Abstract:

In this paper, which aims at bridging the gap between theoretical assumptions of semantics and practical problems of translation by means of cognitive linguistic tools, we will:

- a) ask whether prepositions are empty or 'full' lexical items, and, if full, see if it is possible to define their semantics;*
- b) ask and try to understand what, exactly, 'at' (one of the most troublesome prepositions for foreign learners) means;*
- c) try to address the frequently raised criticism that the representation of 'at' in dictionaries and other EFL materials is frequently unsystematic, vague, misleading, with mismatched and even inaccurate examples / translations, and make suggestions for the improvement of the representation / translation of the meaning of 'at'.*

It should be noted that the suggestions presented in the conclusive part of this paper go beyond the concrete case of 'at', and are intended as being relevant for the representations of prepositional meaning in general. They are furthermore intended as a contribution towards a future detailed framework of cognitive linguistics seen as a field of scientific inquiry with a clearly defined subject, methodology and scope.

Introduction: the task

'At is perhaps the most troublesome preposition for foreign learners' observes Lindstromberg (1997: 165) in his very detailed and insightful analysis of English prepositions. He explains the problems that foreign learners have with the English preposition 'at' by noting that 'at is **imprecise** about the relation between Subject and Landmark ...[and that it] **cannot** be depicted' (*ibid.*, emphasis mine). While perfectly agreeing with Lindstromberg on the first point, i.e. about the semantics and usage of 'at' being extremely difficult to master for foreign learners, I strongly disagree with him on his second observation, relative to the semantics of the preposition 'at'. In fact, in this paper, I would like to try to:

- a) show that the semantics of the English 'at' is quite precise, and
- b) suggest ways for improving the representation of 'at' in EFL materials.

The paper is divided into three sections. In the first section, some general issues relative to prepositions are introduced. In the second section, we look at past attempts to define and formalise the meaning of the English preposition 'at', and then discuss them in the light of lexicographic and translation needs. Finally, in the third section, we try to combine theory and practice and propose a way for incorporating our

findings into the context of EFL / ESL materials and, more generally, into the developing framework of cognitive semantics.

Let us begin by introducing some notions that are important for our understanding of prepositional semantics, notions that we will later need for our attempt to accomplish the tasks set out above.

1. Preliminary notions

1.1. Prepositions or locatives

The lexical items that fall within the category of prepositions are sometimes referred to as 'locatives'. This is a reflection of the fact that prepositions can be studied from two different perspectives: a) the grammatical, and b) the 'local' (semantically driven). The main part of this paper focuses on the semantics of prepositions, but since there can be no exhaustive semantic account unless we also consider issues relative to the syntax-semantics interface, so let us start by observing the most important syntactic facts about prepositions.

From the grammatical perspective, prepositions have, for a long time, been treated as merely "an annoying little surface peculiarity" (Jackendoff, 1973: 345). It is, then, encouraging from the perspective of the development of linguistic science, to note that the attitude towards this word class has changed considerably since the time when Jackendoff was able to challenge the linguistic community by saying that 'people seem never to have taken prepositions seriously' (ibid.). The main change has been given by the promotion of the lexical category of prepositions from the category of exocentric (i.e. non headed) constructions, into that of endocentric (i.e. headed) constructions. This means that from a syntactic point of view, prepositions are now treated on a par with verbs, nouns, and adjectives (they are now seen as projecting like other categories). Looking at things from a semantic perspective, it might be interesting to ask whether the recognition of a new syntactic role could be a symptom of the recognition of a semantic core of prepositions (since, when they were seen as simple 'relators', prepositions were almost completely devoid of meaning). Section 1.2. is aimed at answering this question.

Talking about prepositions as a syntactic form class, we should spend a few words on the term itself. The name suggest that words belonging to this word class precede something (usually an NP) with which they form a phrase. However, in many languages (e.g. Japanese, Turkish, and Hindi) lexical items having the characteristics of prepositions appear regularly after the element they are related to (thus, postpositions). In English, too, they are found in positions other than relating two NPs (although we only study them here in this context). In order not to underestimate their syntactic (but perhaps also semantic) potential, we should mention cases in which they appear in adverbial position (for intransitive prepositions, as in 'She ran across.')

or as subordinating conjunctions (for prepositions that take finite complements, as in 'The day before she arrived'). For all the above reasons some people would rather have prepositions termed 'adpositions', but this name is still quite rare.

Although, our analysis being semantic, it might seem more appropriate to use the term locative instead of preposition, given the familiarity of the latter term, we shall keep using it in the rest of this paper.

We will conclude our remarks about syntax by noting that in both languages under consideration for the purposes of this paper (i.e. English and Croatian), prepositions are, in traditional grammar books, listed under the heading of the morphologically invariable parts of speech, forming a closed class. Having reviewed some general issues relative to prepositions within the syntactic framework, let us now turn to the core problem of this paper: the semantics of prepositions as a word class and then, more concretely, the semantics of the English ‘at’.

1.2. The meaning of the word class

As already noted, linguistics has, for some time now, been familiar with the idea that syntactic categories express certain semantic traits which are common for all members of a given syntactic category (e.g. Talmy, 1983, 2000; Slobin, 1985, Levin and Pinker, 1991). Is it then possible to establish a ‘general meaning’ for prepositions, i.e. the word-class as such? If we take a look at one of the traditional grammar reference books, we read:

"a preposition expresses a relation between two entities, one being that represented by the prepositional complement." (Quirk, 1985: 673).

If prepositions are, by definition, relational words, then in order to understand the nature of their meaning, i.e. of the type of relation they can establish, we need to stop for a moment and think about the sort of things they put into relation. Herskovits (1986: 7) notes that the simplest type of prepositional spatial expression is composed of three constituents, i.e. the preposition and two noun phrases (NP), as in

‘the spider (is) on the wall’

The two NP-s are referred to in the literature by various names (‘theme’, ‘located entity’, ‘located object’, ‘spatial entity’ ... for the first NP, and ‘reference object’, ‘reference entity’, ‘localiser’, ‘landmark’ ... for the second NP). The terminology adopted in this paper is: **Figure** (abbreviated as ‘F’) for the first NP, i.e. the object being located, and **Ground** (abbreviated as ‘G’) for the second NP, i.e. the object in reference to which F is being located. The notions of Figure and Ground were originally described in Gestalt psychology, but their application in linguistics stems from Talmy (1983), who characterised them as follows:

“The Figure is a moving or conceptually movable object whose site, path, or orientation is conceived as a variable the particular value of which is the salient issue.

The Ground is a reference object (itself having a stationary setting within a reference frame) with respect to which the Figure’s site, path, or orientation receives characterisation”

(Talmy, 1983: 232).

Given that preposition seems to relate F’s location with respect to G (F’s location being static in the case of locational prepositions and dynamic in the case of motional ones), we might easily be led to conclude that the relation established by a preposition (as word class) has a locational or topological nature. But let us contrast:

‘F (is) above G.’ vs. ‘G (is) above F.’

While it would be possible to view the two sentences as differing only in expressing a different (reversed) location of F and G (thus the preposition having a

pure topological character) I would like to hypothesise that the difference between F and G in the two sentences is much deeper, with the semantic contrast residing in a differently profiled conceptual content (cf. Langacker, 1987), with the profiling being **functionally** motivated. Here is what I mean.

To begin with, let me explain the reasons which make me believe that ‘above’ in ‘*F (is) above G.*’ and ‘*G (is) above F.*’ does not establish a topological relation. Let us consider:



1) ‘The smoke is in the cheese cover.’ 2) ‘The pear is *in/under the cheese cover.’¹

Topologically, the relations between the smoke and the cheese cover in (1), and the pear and the cheese cover in (2), look very much alike. However, the problem of the unacceptability of the preposition ‘in’ in (2) (unacceptable also in Croatian), is easily resolved within the cognitive framework, which takes into account features that result from our functioning as and interaction with entities in the world. ‘Containment’ is a good example of an interactive relation established between entities (including ourselves) in the world. ‘Support’ is another one. While in (1) the cheese cover controls the location of the smoke, in (2) it is not the cheese cover (in terms of ‘containment’), but rather the table (in terms of ‘support’) that controls the location of the pear. So in (2) we have to say either that ‘The pear is on the table’, or, with respect to cheese cover, that it is ‘under’, but in no case ‘in’ it. It is hence not ‘location’, but rather ‘the function of *controlling location*’ that seems to be at the core of prepositional semantics. The same logic helps understand the following examples; compare, on the one hand, the unacceptability of ‘The table is on the carpet’ (where the acceptable way of conceptualizing the situation is ‘The table is on the floor’, although the table is technically on the carpet, which is on the floor. However, it is the floor, not the carpet, that is supporting the table’). On the other hand, consider ‘The cup is on the table’. Although the table is on the floor, one cannot say that ‘the cup is on the floor’ (unless it is indeed directly on the floor), because, the table is the Ground that is supporting the cup.

Another theme is pervasive through most of the accounts of prepositional meaning: prepositions do *not* link objects, but rather *geometric descriptions* of objects (Herskovits, 1986), different conceptualisations, i.e. *views of objects* (Leech, 1969; Bennett, 1975) or, as shall be suggested in the next section, views or abstractions of *parts of objects*. We could take stock of the situation by noting that the notions of ‘function of control’ and ‘schematization’ represent the main ideas underlying and guiding our analysis. In other words, prepositions are not to be viewed, interpreted and semantically explicated as lexical items coding abstract entities described by

¹ Sentence (1) is taken from Vandeloise (1986: 233), and sentence (2) from Herskovits (1986: 16), both cases analysed also in Cuyckens (1993).

geometry and / or topology, but rather as categorical representations of dynamic relations (or rather dynamic exchange / kinetic situations) based on and represented through our everyday experience (in and with space) in the world. As discussed at great length in Brala (*in press*) this latter observation pertains to the lexical representation of space and spatial relations in general.

Having tackled the problem at the general level, i.e. that of prepositions viewed as a lexical class, let us now turn to our concrete task – the semantic analysis of the English preposition ‘at’.

2. The meaning of ‘at’

What does all the above mean with respect to the English preposition ‘at’? In order to answer this question, we first need to take a look at the ways in which the issues of the semantics of ‘at’ have, most influentially, been dealt with in the more-or-less recent past. Searching through the literature, looking for accounts of the meaning of ‘at’, I found seven analyses which seem to be particularly useful when trying to pin down the semantics of the English preposition ‘at’. In chronological order, they are: Cooper (1968), Leech (1969), Bennett (1975), Quirk (1985), Herskovits (1986), and Lindstromberg (1997), Tyler and Evans (2003). In order to compare and contrast these seven accounts, we will look at what would, according to each of the accounts, ‘F at G’ mean. We will then try and find some shared elements, and probe them against our conclusions reached in the first section of this paper.

As we review these accounts, it might be interesting to note that, when ordered chronologically, the approaches under consideration could be said to reflect the shifts in climate regarding the relation between language and cognition. In fact, while older, i.e. ‘classic’ frameworks (e.g. Cooper, Leech, Bennett, Quirk) generally tend to exhibit a high degree of formality and linguistic autonomy, in the late 80’s and in the 90’s we have a number of more cognitively based accounts of prepositional meaning (e.g. Herskovits, Lindstromberg, but, for e.g. ‘on’ and ‘in’ also Bowerman and Vandeloise), which can be seen as a reflection of new times in which an increasing number of scholars believe that questions about meaning will get their answers directly from answers to central issues regarding the workings of the human mind. This trend reaches its peak in the purely cognitive approach proposed by Tyler and Evans (2003).

Let us now turn back to the English preposition ‘at’ and see what, according to the most frequently cited literature, ‘F at G’ means.

A) Cooper (1968: 26)

For F **at** G: F is near or in G, with the constraint that F is portable relative to G and G is not a geopolitical area.

B) Leech (1969: 159-164)

AT expresses simple contiguity or juxtaposition, where **the dimensions of G are not significant**

'at': → **PLA [1DIME]** (paraphrased as: F is contiguous or juxtaposed to the place of G, where the dimensionality of G is not significant.)

(e.g. *at the door / at the stadion / at the bus-stop*)

C) Bennett (1975: 65-72)

'AT' is rendered by the formula: **F [locative G]** (reading: G is the location of F);

D) Quirk (1985)

for **F at G** - G conceived of as a **dimensionless** location (i.e. **point**)

At is then used in cases of, what Quirk terms, '**dimension type 0**'.
(e.g. *'The car is at the cottage', 'Bob is at the North Pole'*)

E) Herskovits (1986: 128-140)

Ideal meaning: 'AT' – for a point to **coincide** with another

Suggested use types:

- spatial entity at location (*Julie at the post office; party at office*)
- spatial entity at sea (*containers at sea*)
- spatial entity at generic place (*vacations at the seaside*)
- person at institution (*Prof. Jones at Berkeley; son at University*)
- person using artifact (*Maggie at desk; girl at typewriter*)
- spatial entity at landmark in highlighted medium (*bubbles at surface of water*)
- physical object on line and indexically defined crosspath (*campsite at river*)
- physical object at a distance from point, line, or plane (*airplane at 10,000 feet*)

F) Lindstromberg (1997: 165-174)

'AT'- imprecise about the relation between F and G;

- neutral about the sizes of F and G.

Main senses proposed:

- 1) purely spatial

- a) point along a route (*He got off at Naples; I stopped at page 7*)
 - b) G-s of intersection (*Turn right at the next street*)
 - c) G-s of boundary and extremity (*We stopped at the edge of the woods*)
 - d) G-s in broad scope views (*The temperature at Moscow was –30 degrees*)
 - e) G-s as battlefields (*Marlborough’s victory at Blenheim ...*)
 - f) G-s as restaurants, hotels (*at the Ritz, at the Savoy vs. in the hotel*)
- 2) non-spatial
- a) G as ‘activity’ (*Bob is at the door / - at his computer / - at work*)
 - b) G as target / focus (*Aim at the bull’s eye; I am mad at you*)
- 3) temporal
- used when time is thought of as:
- a) G as a point on a continuum (*That happened at 4pm*)
 - b) G as a boundary of a period of *time* (*At the beginning of 1995, sales jumped*)

G) Tyler and Evans (2003: 178-179; 187-188)

AT – lexicalizes co-location between Trajector and Landmark, where the Landmark is conceptualized as a one-dimensional point, serving simply as a reference location (for the localization of the Trajector). This view stems from the position that the human capacity to construe spatial scenes from a variety of perspectives extends to how we construct space (in particular dimensionality and perspective) for the purposes of linguistic expression, or rather, guided by language.

Through a very limited number of examples (e.g. a) ‘Turn right **at** George Street’, b) ‘They are **at** war’) the authors show that ‘at’ lexicalizes ‘conceptual intersection’ in terms of space(as in a) or state (as in b).

It should be noted here that unlike with other prepositions discussed in their 2003 work, Tyler and Evans confine the treatment of ‘at’ to only a few sentences. This ‘dismissal’ of the problem of the semantic load of the English ‘at’ – made even more puzzling by the fact that the work in question is entitled ‘The semantics of English prepositions’ - is not explained i.e. justified. Thus, we are entitled to doubting whether this move is a result of the problems encountered when trying to deal with the semantic complexity of the English preposition ‘at’.

2.1. Discussion

We will begin our discussion of ‘at’ by noting what seem to be two themes that are pervasive in the treatments of ‘at’ reviewed above:

- a) the first reoccurring theme with respect to ‘at’ is ‘*coincidence*’ between *F* and *G* (Leech, Bennett, Herskovits, Tyler and Evans);

- b) the second fact noted by several authors in reference to the semantics of 'at' is the *irrelevance of G's dimension* (Leech, Quirk, Lindstromberg, Tyler and Evans).

Let us take a closer look at each of these two observations.

To begin exploring the first point, let us recall the words by Herskovits when she says that "most commonly, an expression with *at* asserts that ... two points overlap in space. [These two points] are conceptualised as **coincident** points" (Herskovits, 1986: 128, emphasis mine). Apart from the compelling evidence offered by Herskovits², I would like to present another example supporting this claim. In fact, while we can have something being 'partly in a box' (i.e. with one end e.g. sticking out of it), and 'partly on a surface', we cannot have 'partly at'. In fact, '*the train is partly at the station*' is unacceptable³. Semantically, coincidence refers to perfect rather than partial correspondence. It might be interesting to note here that while Leech formalises the meaning of 'at' through coincidence between F and G, Quirk, by accentuating with 'at', 'proximity' of F and G, misses what is in this article suggested as the main semantic trait of 'at', namely coincidence.

Bennett's (1975: 69) sentence: '*Trevor is at the sofa*' is another example which speaks loud and clear in favour of coincidence as being the dominant semantic trait of 'at'. In fact, this sentence would seem inappropriate to describe a situation where Trevor is sitting on the floor with his back resting against a sofa (he is 'by' it, rather than 'at' it). However, if, in Bennett's (*ibid.*) words, we were to imagine a situation where Trevor is sitting on the floor with his back against a sofa, Gwyneth is sitting on the floor with her back against a chair, and several other people occupied an identical position relative to other objects, '*Trevor is at the sofa*' would be perfectly appropriate for describing Trevor's location. This can be explained by the fact that it is not the exact nature of Trevor's position that determines the choice of the preposition (in fact, Trevor did not move). What seems to be determining it, is the prominent feature of the situation, i.e. the fact that, in the second case, we can establish coincidence between each person and the object next to which s/he is located.

Another argument in favour of coincidence as the main semantic trait of 'at', but also supporting my proposal to view prepositions as lexical elements expressing functional rather than locational content, is given by Herskovits' (1986: 135) category which she terms 'person using artifact'. If we take '*Maggie is at her desk*' as an example of this category, we note that this sentence is correct only if Maggie is sitting at her desk, *using it*. If, while doing some housework, Maggie just sits sideways, or, as Herskovits points out, if she is on her knees cleaning the floor next to the desk, 'at' is no longer acceptable, and 'by' is required. This seems to support our claim that 'at' requires coincidence, and, in this latter case, it requires clear **functional coincidence**⁴.

Turning to point b) above, i.e. the 'at' being associated with 'irrelevance of G's dimension', we might wish to recall Leech's assumption that prepositions, apart from

² We cannot say 'Joe is at the bush' if Joe is lying next to the bush, but if Joe is running, and he reaches the bush, thus making it into a point on his trajectory, the sentence above becomes acceptable. This goes to show that proximity is not a sufficient condition for the appropriate use of 'at'. (Herskovits, 1986: 128).

³ For a fruitful discussion of this point, and the example given, I would like to thank Emile Van der Zee, personal communication.

⁴ With all examples in Herskovits' 'person using artifact' category F must be engaged in the proper use of G, in order for 'F at G' to be acceptable.

saying that F is where G is, also ascribe a particular dimensionality to G. It is very important to stress here that, in Leech's and Tyler and Evans' accounts, ascription features (i.e. 'dimensionality') have only a subjective, psychological import: *they do not directly reflect the actual physical character of the location*. Hence, differences in prepositional usage with the same noun (e.g. 'at the wall', 'on the wall', and 'in the wall') have nothing to do with the real dimensional properties of the wall, but only with those dimensional properties which are uppermost in the speaker's mind (Leech, 1969: 161).

Linked to dimensionality is the issue of prepositional mono- vs. polysemy. While it would appear that Quirk, Leech, and Herskovits allow for prepositional polysemy, Bennett, considering the examples of '*at the door*', '*at the station*', and '*at Oxford Street*', explicitly states: "From the point of view of the present analysis, the differences reside in the **context** of the preposition rather than in *at* itself" (Bennett: 1975: 65, emphasis mine). In his discussion, Bennett treats every preposition as having one sense only, allowing only for changes of F and G, intended i) as physical entities, ii) as conceptualised elements, but also iii) as **a particular way of thinking** about F, G and their relation on **a particular occasion of speaking** by a particular speaker⁵. Bennett's third observation is a particularly interesting one. In fact, as already suggested, our semantic reading of the preposition 'at' in this paper is based on the idea, comparable with Slobin's (1996) proposal of verbalised events, that prepositional meaning 'happens', perhaps more than for other lexical categories, in the 'head of the speaker' during the very process of speaking.

This latter idea takes us to another aspect of the problem with (prepositional) semantics, i.e. the one related to the question whether or not, and if yes, how and to which extent, mental representations, while representing the world, also underlie language use⁶. In the framework of cognitive semantics, where our analysis is located, mental representations or, rather, conceptual structures (cf. Jackendoff, 1996:5-13) are crucial links (interfaces?) between our spatial representations and our language representations. These representations are to be investigated from the perspective of universal cognitive structures, and *not* as semantic structures⁷. The features advanced here as being at the basis of meaning, i.e. 'RELATION', 'COINCIDENCE', 'BOUNDEDNESS', 'ZERO-DIMENSIONALITY' etc. are envisaged as primitive cognitive structures that are mapped onto the 'lexicalisable' i.e. onto world events, only then becoming semantic structures. Their universality is pre-lexical, i.e. shared

⁵ A nice example by Bennett (1975: 67), illustrating this point: A town such as Coventry may be thought of as the area enclosed by the city boundary (as in: *The Hollands live in Coventry*), as a point on an itinerary (as in: *You'll have to change trains at Coventry*), or as a surface (as in: *More bombs were dropped on Coventry than on Nottingham*). Crosslinguistically, it might be interesting to note here that one 'changes trains IN Coventry' in Croatian, and 'the Hollands live AT Coventry' in Italian.

⁶ For a detailed discussion between (spatial) language and cognition see Bloom et. al., 1996, and Gumperz and Levinson, 1996.

⁷ It should be noted at this point that the issue of mental representations, particularly those posited exclusively on linguistic evidence, is highly debatable (as suggested e.g. by Croft, 1998 and others). Although this issue is outside the strict scope of this paper, it is important to note in this context that the mental representations that the analysis in this paper is based on do not stem exclusively from linguistic evidence, but are rather proposed by a number of authors (e.g. Talmy, 2000; Langacker, 1999; Tyler and Evans, 2001) as being shared between the linguistic domain and other sub-systems of human cognition (e.g. vision, haptic subsystem etc.), where they have been recognized as basic modular elements.

between the human language faculty and other sub-systems of the human language system (such as vision, kinaesthesia etc.)

While being extremely important and potentially far reaching in terms of our understanding of the structuring and functional properties of the human language faculty (cf. Peterson et al., 1996: 553-573), this issue is, from the perspective of the tasks set out in the introductory part of this paper, outside the focus of our attention and we shall, therefore, leave it at this, having merely noted its importance, and stressing the fact that this view represents a departure from Langacker's (1987: 149) view of semantic structures, as he suggests that the search for universals among the semantic inventory of languages is outside the scope of Cognitive Grammar. From the perspective adopted in this paper, the cognitive and the universal cannot be studied separately.

Going back to our main concern, i.e. the semantics of the preposition 'at', let us conclude the discussion of the dimensionality of 'at' by suggesting that with this preposition the dimensions of G, but, I would like to add, of F as well, are treated as irrelevant or, rather, both F and G are treated as points. We shall return to this observation in the examples below.

Finally, we might want to conclude the discussion of the meaning of 'at' by noting that the preposition 'at', as a lexical item, is absent in the Croatian language. How is the semantic weight of English 'at' distributed in Croatian? I tried answering this question by translating the examples offered by Herskovits for the different use types of the English 'at' - into Croatian (Herskovits, 1986: 128-140, chosen as the most exhaustive treatment). The are given in Table 1:

ENGLISH (after Herskovits)	CROATIAN
spatial entity at location	
15 'at'	9 'na' ('on') + 6 'u' ('in')
spatial entity at sea	
3 'at'	3 'na' ('on')
spatial entity at generic place	
2 'at'	1 'u' ('in') + 1 'na' ('on')
person at institution	
2 'at'	1 'u' ('in') + 1 'na' ('on')
person using artefact	
9 'at'	8 'za' ('for') + 1 'na' ('on')
spat. Entity at Lm in highl. Med.	
14 'at'	10 'na' (on)+3'kod'(near)+1'oko'(round)
object on line & index. def. Path	
2 'at'	1 'na' ('on') + 1 'uz' ('next to')
object at distance from 1-2-3dim	
2 'at'	2 'na' ('on')
TOTAL: 49 'at'	28 'na' (on)+8 'u'(in)+13 miscell.

Table 1.: *The mapping between Herskovits' English use types for 'at' and the Croatian language system*

We immediately note that Herskovits' categories are broken down when translated into Croatian. This makes her analysis less satisfactory at a crosslinguistic level, where we might want or even need to look for linguistic universality⁸. This same incoherence makes it also unacceptable from the point of view of cognitive science.

Can the data from Table 1 be of any use for us? Let us try and make sense of it by starting to analyse the most obvious thing: the fact that the most frequent translation of the English 'at' is the Croatian 'na' (on). Now, one way of trying to gain insight and get some explanatory value with respect to this fact might be by contrasting the English 'at' and 'on'. Let us, then, contrast the following sentences⁹:

- a) '*Lorna at her desk*' vs. '*Lorna on her desk*';
- b) '*He stopped at page 7*' vs. '*He stopped on page 7*';
- c) '*John looked at Mary*' vs. '*John looked on Mary (with admiration)*';
- d) *'*We stopped at the middle of the woods*' vs. '*We stopped *on / in the middle of the woods*';
- e) '*I'll see you at 5 p.m.*' vs. '*I'll see you on Sunday*'.

Let us analyse the contrasts one by one:

- a) The contrast in the sentences under a) provides further support for the 'functional coincidence' meaning of 'at', already mentioned above. In fact, with Lorna 'at the desk' the interpretation is that of Lorna using her desk (writing, typing etc.). With Lorna 'on the desk', we picture her as probably sitting on it or similarly.
- b) The next two sentences are supposed to accentuate another possible ramification of the meaning of the core 'coincidence' sense of 'at', i.e. coincidence with a 'point-on-a-route' (Lindkvist, 1978: 52). In 'he stopped at page 7' the reader is understood to stop reading at some point on page 7, and then probably to go on, i.e. the act of reading is here seen as a 'journey through a book' (cf. Lindstromberg, 1997: 165-6). Stopping 'on page 7' gives more the idea of a reader who stops reading before reaching the end (ibid.).
- c) In the third pair of sentences, the main contrast is the way in which the Ground, i.e. Mary is interpreted. When John is looking 'at Mary', she is simply the focus of John's look, while with 'John looked on Mary', Mary is much more 'physical', i.e. the idea that a Ground has a surface and size is here emphasized (or, as Lindstromberg, 1997: 172 puts it, 'on is suitable when one wishes to emphasize that the Landmark looms large in ones thoughts).

⁸ In order to analyse the problem from a crosslinguistic perspective, I translated the same examples from Herskovits (Table 1) into Italian as well, to note that out of 49 at-s in English, 28 have been rendered by 'a' ('at') in Italian, and exactly 28 by 'na' ('on') in Croatian. The distribution is not perfectly identical, but it is quite close. This interesting coincidence is paralleled by an overlap (albeit not perfect) between the meaning clusters associated with the Italian 'a' ('at') and the Croatian 'na' ('on') in the overall distribution of spatial 'on' through 'in' relations (cf. Ch. 3 in Brala, 2000).

⁹ Examples a), d) and e) are original; examples b) and c) are adapted from Lindstromberg (1997: 165-174).

- d) The sentence pair under d) is, once again, a clear illustration of the extreme degree of precision associated with ‘at’. The fact that *‘We stopped *at* the middle of the woods’ is unacceptable (just as *‘We stopped *on* the middle of the woods is’) and ‘We stopped *in* the middle of the woods’ is required instead is here interpreted by the fact that the woods is not something that has a clear, geometrical mid-point. Where, exactly, among all those trees and bushes, is the point that we can precisely identify as ‘the mid-point of the woods? If we consider this problem more closely, we note that a ‘middle’, in order to be established, requires some extension, i.e. some sort of dimensionality of F and G. ‘At’, being associated with points, i.e. point-like F-s and G-s is then in its very semantic nature opposed to the notion of ‘middle’, and only when a ‘middle’ can be exactly determined as to become a point, i.e. ‘mid-point’ could ‘at’ be used with it. This seems to be strongly supported by the fact that ‘middle’ always requires ‘in’, whereas with ‘mid-point’ the tendency is to use ‘at’ as in ‘at the mid-way point, he stopped for some water’, or ‘at the mid point between two roads’.¹⁰
- e) Finally, with ‘at 5 pm’ contrasted with ‘on Sunday’ (which can both be further contrasted with ‘in 1975’), we may want to note that with temporality, the following scale applies: ‘at’ is used with hours (*precise!!! points on a time line!*), ‘on’ is used with days (‘extended’ ‘surfaces’ on a time line), and ‘in’ is used with period of time which are so extensive as to be able to be thought of in terms of ‘containers’ (of many events? – cf. use of ‘in’ with months, years and centuries). Within this context, we may wish to recall another excellent example from Lindstromberg, where he contrasts the following two sentences: ‘*At* the beginning of 1995, sales jumped’, and ‘*In* the beginning of 1995, sales jumped’. With ‘at’ we have an exact boundary of a period of time, and sales are understood as having jumped quite early in the year (probably early January). With ‘in’, nearness to a boundary of time is not emphasised so clearly, so sales might have jumped a few weeks after 1st January 1995 (cf. Lindstromberg, 1997: 174).

Can the above observations yield any applicable conclusions, i.e. can they be systematised in such a way as to offer some useful guidelines to the compilers of EFL materials and to the teachers in an EFL classroom. In order to answer this question, let us first take stock of the situation, and see whether our analysis has provided any concrete ‘tools’ for explicating the semantics of the English ‘at’.

2.2. Concluding: ‘at’ as coincidence of two points

Trying to sum up the most relevant conclusions reached up to this point, we might want to state that:

- a) with ‘at’, G controls the location of F in terms of ‘at’ expressing the fact that F is coincident with G;
- b) in order for coincidence to be possible (and perfect, else it would not be coincidence – cf. point 2.1. above) F and G are being treated as ‘point-like’¹¹.

¹⁰ For the examples under a), I would like to that Lawrence Groo, personal communication.

¹¹ The idea that ‘object schematization’ represents one of the techniques that are frequently exploited by the language system in order to ‘adapt’ reality to the purposes of lexicalisation is nowadays accepted by most scholars. The proposal of ‘mental object schematization’ was first put forward by Talmy

‘At’ can, thus, be said to lexicalise a situation in which a point-like F is made to coincide with a point-like (but, either locationally, temporally, functionally or ‘quantitatively’ precisely ‘defined’) G.

Apart from the general features of ‘coincidence’ and F’s and G’s ‘point-likeness’, always associated with the semantics of ‘at’, there seem to be four different subcategories that these two features extend into:

- a) ‘at’ of spatial coincidence – precise coincidence of two points, frequently at a point ‘along a route’;
- b) ‘at’ as directional coincidence – interpreted for the ‘Ground as focus’ uses of ‘at’ (look at, throw at, kick at, work at ...). Here, F is a source of a vector (associated with the primitive notion of force-dynamics – cf. Bowerman, 1996), which is coincidental with the FG axis (basically, a straight line between F and G); Most ‘at’-s in phrasal verbs fall into this category.
- c) ‘at’ as functional coincidence – for all cases where G is made coincidental with the activity (work, play, fight) carried out in terms of G’s functional potential (functioning as a ‘function-site’ (school, restaurant, hotel), a battle-field, a tool etc.).
- d) ‘at’ as temporal coincidence – simply, ‘at’ used with exact points in time expressed in terms of hours (and / or minutes).

In the concluding section of this paper, we will try and see if, and if yes then how can the above be incorporated into, at a general level, the framework of cognitive science and, more specifically, EFL / ESL materials.

3. Towards a cognitive theory (of prepositions)

Let us begin by noting that some most recent critiques that have been raised with respect to ‘at’ within the realm of EFL materials were related to the representation of ‘at’ in English monolingual / bilingual dictionaries (for a detailed criticism complete with a long series of concrete examples see Lindstromberg, 2001). The main complaint was raised with regards to the fact that the ‘at’ sense information in lexicographic materials is frequently inaccurate; vague, misleading, with mismatched examples. Furthermore, most modern EFL i.e. pedagogical grammars and materials still follow closely the accounts of prepositional meaning developed in traditional grammars, where their uses are represented as long lists of rules, followed by an even longer list of exceptions. The results are usually pretty unhelpful for the learner or, even worse, confusing. It has been shown that lack of systematicity and a high frequency and density of “special uses” can lower the learner’s attention, shorten the

(1983) in his seminal work on the geometry of Figure and Ground. Talmy’s findings have given rise to a proposal of strong universal constraints on the geometric properties relevant to F and G. More specifically, it has been proposed that there is an asymmetry in the geometric description of F and G, where F is often represented as relatively shapeless (frequently point-like), whereas G is represented more richly, often in terms of the object’s three principal axes. This proposal was accepted by most researchers working in the cognitive domain, even those who analysed the preposition ‘at’ in terms of the (conceptual) feature ‘COINCIDENCE’. Interestingly, none of them have noted that in order for coincidence to be the case, the same degree of object schematization needs to be applied to both Figure and Ground, i.e. that in order for F and G to both be viewed (for linguistic purposes) as point-like, G needs to be represented equally schematically as F.

attention span, and ultimately discourage him / her from mastering the problem at hand (cf. e.g. Ellis, 1997).

The main purpose of this paper has been a) to show that these shortcomings stem from the fact that the very problem (in this case that of the semantics of the preposition 'at') had not been analysed adequately at its root, and then b) propose a way for carrying out an adequate investigation, the results of which are, crucially, applicable. The proposed solution is grounded in cognitive science, i.e. it is suggested that the problem can successfully be solved by adopting a cognitively based representation of prepositions. The main idea is to create a framework that is valid at a crosslinguistic level. Cognitive science, or more specifically, cognitive semantics, being grounded in universal elements which exist separately and independently of any language specific lexical patterning schemata (see Talmy, 2000, *passim*.) should allow for a universal representation of meaning, which would, thanks to its universality, be easily translatable and understandable irrespective of the natural language environment into which it is being set. In our concrete case, a central representation of the semantic core of 'at' defined as 'a preposition establishing a relation of 'perfect (or bounded)¹² coincidence' should be valid within the EFL context as such, and translatable without any loss from one natural language to another.

Two immediate points follow from this one:

- a) apart from being aimed at universally describing 'at' as the one-to-one substitution operator that locates F in the same place where G is, the cognitive analysis proposed in this work puts forward also a semantic subdivision of the meaning of the English 'at' into spatial, directional, functional and temporal subcategories. If valid, this subdivision should prove particularly useful at a crosslinguistic level. It is namely at this level that certain languages can provide a one-to-one lexical substitute (equivalent) for rendering the senses realised by an entire subcategory. E.g., in the case of spatial / locational coincidence, the English 'at' is always rendered by the Croatian 'na', with the only exception being that of toponimes (which usually take 'u'). Another example is that of the temporal 'at', which is always rendered by the Croatian 'u'. (For a more detailed explanation of lexical equivalence at the crosslinguistic level see Brala 2000, 2002a)
- b) Being cognitively based and thus universal, the elements and (patterning, or combinatorial) principles proposed in this paper should extend far beyond the sole preposition 'at', and be applicable to all the prepositions as well as to all closed class lexical items. What is meant by this can, at a somewhat smaller scale, be represented by the examples of the English prepositions 'on' and 'in'. These two prepositions should now – if our framework is to make any sense and be of any use – be describable following the principles suggested above. This is, indeed, the case. The English preposition 'on' is satisfactorily described (at a crosslinguistic level) as:

¹² Boundedness is another frequently suggested cognitively based semantic feature (cf. Bowerman & Levinson, 2001: *passim*). In the present analysis it is used with 'coincidence' to distinguish the type of coincidence expressed by the English 'at' from other types of coincidence (e.g. the one expressed by 'on' or 'in', which are not fully bounded, but are interpreted simply as 'located in the same place' and existing in opposition with 'separation')

‘on’ prep. Central meaning: locate F with respect to G, so that G supports F (prevents F from falling) in terms of one of G’s axis (usually horizontal or vertical)

The same applies for the case of ‘in’, which is rendered as:

‘in’ prep. Central meaning: locate F with respect to G, so that G controls the location of F in terms of its (F’s) voluminosity.

For a detailed cognitively based analysis and a detailed representation of these prepositions, complete with concrete examples, see Brala, 2002b.

Apart from being ‘malleable’ linguistically, such an explicit description of the central semantic features of prepositions should be useful from the methodological point of view as well. It has been shown, namely, that explicit descriptions of meaning (followed by examples) seem to be particularly useful after the ‘critical period’ (and most users of bilingual dictionaries / EFL materials are beyond it), and raising learners’ awareness via explicit routes, has proven particularly useful in SLT (cf. Lindstromberg, 1997: 99; Ellis, 1997: 84-5).

Therefore, we might wish to conclude that an explicit representation of the meaning of ‘at’, possibly followed by a (usage) subdivisions under ‘at’ which would ideally be both semantically motivated and (crosslinguistically) coherent (where every new subcategory would highlight a different semantic trait of the preposition – cf. subdivision in 2.2. above) represents a universal solution to the problem of the representation of the English ‘at’ in lexicographic / EFL / ESL materials.

Summing up; the concrete purpose of this paper has been to point to the major problems relative to the semantic representation of ‘at’, and try to look for possible ways for solving these problems. In order to accomplish this latter task, we first ventured into a general discussion of prepositional semantics, and then considered specifically the English ‘at’. We concluded that prepositions are full lexical items, the core meaning of which is, at least from the perspective of what we know today, probably most fruitfully defined within a framework of cognitive semantics¹³. The observations spelled out in these pages have, as their underlying stimulus, lexicographic and EFL classroom needs, and my hope in dealing with these issues has been to provide a treatment of ‘at’ that, could, in the lexicographic / EFL context, prove useful for dealing with other (spatial) prepositions as well.

It is in fact crucial to stress again at the end of this paper that the analysis proposed in it is not intended as an end to itself, nor has it been written as a framework fitting exclusively the analysis of ‘at’. This investigation into the understanding and the representation of the English preposition ‘at’ is to be viewed as another example meant to illustrate the merits of applying insights from cognitive linguistics – more specifically cognitive semantics – to the representation of (English) prepositional systems in lexicographic / EFL materials in general, or, more specifically,

¹³ In this framework, we look for ‘primitive senses’ that are found in our most primitive experience: that of bodily beings who live and develop in interaction with an environment that is perceived via different senses and processed by the same neural system which processes language. Wouldn’t it then be logical to assume that there are some ‘meaningful experiences’ which form not just the basis for (the processing of) various types of sensorial input, but also the semantic basis of at least a part of the human language faculty?

pedagogical grammars and monolingual and bilingual dictionaries. Its conclusions tie into the very core of cognitive science, which is where they will be ultimately confirmed or dismissed.

In fact, the semantic description of ‘at’ proposed above is grounded in the idea that prepositions are semantic feature bundles that are image-schematic in nature, which code abstract mental idealisations of spatial relations. This is entirely in line with the main proposal currently advanced by the ‘cognitive science movement’,¹⁴ i.e. the presupposition that all mental (and therefore also lexical) representations can be studied and represented structurally, where this structure has to have some innate, embodied elements, (and where the differences are to be seen as external i.e. surface representations). Epistemological questions are central to cognitive science, and yet, out of all the core disciplines with an interest in the workings of the human mind (i.e. psychology, philosophy, neuro-sciences, biology, anthropology etc.) only linguistics has the necessary tools to access the one basic touchstone of this discipline: disentangling between the innate and the acquired, namely understanding cultural variation (cf. Vodopija-Krstanović & Brala, 2007, Brala, *in press*).

Here, spatial cognition – and spatial language – play a central role. A unique, universal, objective reality is differently partitioned (categorised) for lexical purposes. What is ‘at’ in English is frequently ‘na’ (‘on’) in Croatian. But sometime it is ‘u’, or ‘oko’, ‘pri’, ‘do’ etc ... Although many interesting observations and, more importantly, fundamental research questions stem out of this fact (cf. .eg. Bowerman & Choi, 2001), from the perspective adopted in this paper we simply note that the variations at issue are mere surface realisations of differing combinatorial patterns of otherwise universal features (such as COINCIDENCE, CONTAINMENT, SUPPORT, CONTACT, BOUNDEDNESS etc. - cf. Brala, 2000, 2007, *in press*). These would be universal and universally available for linguistic coding, thus also lending themselves readily for (explanatory) purposes at a crosslinguistic level. Different languages would simply make different use of them, i.e. combine them differently in order to form words.

For every preposition it should then be possible to determine a semantic focus which is at the base of a semantic network representing the complexity of the semantic extensions (inter and intra linguistic) of a given preposition, verifiable at a crosslinguistic level. Crucially all the senses in a semantic network would be extended in a systematic, constrained way, at all levels of analysis. The possibility of this latter claim being the case makes the precise definition of the semantics of each preposition even more important. Once we have pinned down the semantics of all (spatial) prepositions, we should be in the position to see:

- a) whether all the core semantic senses are realised in terms of a closed set of cognitively based, universal semantic atoms;
- b) whether all the semantic senses i.e. extensions for each preposition can be defined in terms of a closed set of cognitively based, semantic (combinatorial, patterning) ‘principles’;

¹⁴ A movement that has originated in the work of brilliant scholars such as Lashley, Chomsky and Miller, and has subsequently had as its most brilliant spokesmen people such as Levelt, Levinson, Lakoff, Langacker and Talmy, to mention just the Goliath group.

- c) whether for each element, principle and structure, we can come up with a (perfect) crosslinguistic mapping.

A positive outcome of such an enterprise might yield a new reading of Chomsky's (1981) idea of principles and parameters¹⁵, whereby semantics and syntax would become even more unified and more mutually dependant than even the most adventurous scholars have ever dared to propose.

¹⁵ Where – quite speculatively - a set of universal, cognitively based, innate features (corresponding to some primitive semantic atoms, which however would need not be confined to only the human language faculty, would be combined into feature bundles i.e. lexemes according to language specific principles i.e. combinatorial patterns.

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