

UNDERSTANDING PREPOSITIONS THROUGH COGNITIVE GRAMMAR.

A CASE OF *IN*

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1. Introduction

Analysing English prepositions means a painful labour. Among reasons responsible for this state of affairs I would enumerate the fact that, as the findings about prepositions published within the Collins COBUILD series (1991-1997) show, *ten* prepositions: *at, by, for, from, in+into, of, on, to* and *with* realize more than *two hundred* meanings. Strikingly, the most modest forms seem to be the richest as regards the number of meanings each of them expresses.

In the majority of works on prepositions spatial aspect of their meanings is considered to be the most representative. For example, Dirven (1993: 73-97) begins with characterizing ‘spatial conceptualisations’ of twelve prepositions and sets of various relationships that obtain among them. Next, he establishes ‘chains of meaning from physical into mental space’, from spatial domains via the domain of time to the more abstract ones such as: state, topic or area, manner/means, circumstance and cause/reason. Concluding, Dirven points to ‘the relationship between the way physical space is divided up in English and the way mental space is structured’. In other words, the author’s position is that the ‘basis of it all is the conceptualisation of physical space’.

Dirven’s position can be regarded as typical of cognitive analyses of prepositions in that it follows the pattern in which the first step is to characterize the type of organization in three-dimensional space the preposition in focus encodes, and then proceed to metaphorical extensions of the structures into abstract domains. My standpoint discussed at length in Turewicz (2000) is that the spatial basis of prepositions is crucial to the *evolution* leading to the formation of meaning schemata of prepositions (indeed, each of the predicates), whereas ‘spatiality’ need not retain the central position in the meaning structure of the *schema* which sanctions specific meanings (of a preposition). In the present article I follow the ‘non – spatial’ approach to the analysis of the preposition *in*.

2. Towards the Cognitive Grammar analysis: the analytic tools¹

¹ The readers acquainted with Cognitive Grammar framework may find this part redundant.

In Cognitive Grammar **all language structure is symbolic** in that “morphological and syntactic structures themselves are inherently symbolic, above and beyond the symbolic relations embodied in the lexical items they employ” (Langacker 1987: 12). This means that grammatical categories (noun, verb, **preposition**, etc.), grammatical morphemes (the, -ed, -s, etc.) and grammatical rules (e.g. plural formation) are characterisable as conceptual structures on a par with lexical items. More precisely, from the perspective of linguistic analysis, a relevant difference between conceptual content of grammatical categories (e.g. prepositions) and content words reduces to a higher level of **schematicity** involved in the characterization of semantic structures of the former. In still other words, the conceptual content may be highly schematic but, nevertheless, is definable by means of analytic tools applicable for the characterization of lexical items. The profile / base alignment is at the heart of semantic analysis of all language structure.

2.1 The profile / base alignment

For Langacker the relation of symbolisation consists in the reciprocal symbolic relationship between a semantic value – the semantic pole of a symbolic structure – and its phonological representation – the phonological pole. To say that all language structure is symbolic means that a full characterisation of a language expression involves defining the values of its semantic and phonological poles.

A linguistic explication of the **semantic pole** of a symbolic structure – the predication – requires reference to respective ‘portions’ of the knowledge system we acquire and reorganize throughout our lives. In Cognitive Grammar framework the ‘portions’ of knowledge system are referred to as **cognitive domains**. In brief, cognitive domains are concepts which provide cognitive contexts for the characterisation of semantic poles of language structures. Typically, an exhaustive characterisation of a predication – semantic structure – requires reference to a **matrix of domains**. Let us take the predicate [TREE] as an example.

In view of the above, a semantic structure derives its linguistic value from certain substructures of the knowledge system organized into matrices of cognitive domains. Hence, a characterisation of the semantic value [TREE] requires (i) identification of the domains indispensable for the formation of the concept *tree* – a mental category; (ii) specifying substructures (in the domains) directly relevant for the concept specification; (iii) discovering

the organization of the conceptual content as a constitutive factor of meaning structure – a linguistic category. Following the procedure defined in (i) – (iii), as the first step towards a Cognitive Grammar characterization of [TREE] an analyst will identify the fragments of our knowledge system which condition, first, the possibility of concept formation and, consequently, categorization of a fragment of reality in terms of the concept.

Allowing a slightly naïve argumentation, the process of discovering and defining the semantic structure of a predicate can be characterised as follows. To identify the domains an analyst can ask a question of the type: *What kind of knowledge is indispensable for learning what a tree is and recognizing some elements of the surrounding reality as trees?*. An answer can be the following: to understand what the tree is and how it differs from non – trees, one has to mentally refer to three-dimensional space (**3-DS**) (a picture with a tree is not a real tree) and its substructure representing shapes; the domain of colour (**DC**); the representation (domain) of touch sensations (**DT**); the representation of **basic division** of the entities of the world into animate and non-animate, the domain of **natural entities and artefacts (DBDNA)**.

From the matrix of domains, in accordance with (ii), the analyst derives the substructures directly relevant for the categorisation judgment (as a cognitive act) and thus relevant for semantic specification (a linguistic act): *a tall object of characteristic shape broadening in the upper part and cylinder – like base (3DS); the upper – broader part of green colour, the cylinder – like base of dark brown, grey, black (DC); the surface of the green elements soft, the surface of the trunk rough and hard (DT); subject to the changes in nature – undergoes the phases characteristic of natural entities of the world: growth, maturity and death (DBDNA)*.

Finally, as specified in (iii) (discovering the organization of the conceptual content as a constitutive factor of meaning structure – a linguistic category), an adequate characterisation of the predicate [TREE] requires discovering and defining the way the specifications discerned above are organized. Precisely, for a categorizing individual to identify an object as a tree she / he has to simultaneously evoke all relevant substructures in the matrix of domains: shape itself cannot differentiate between a tree and a tower; colour itself cannot differentiate between a tree and a painted building, etc. All in all, it seems legitimate to assume that the process of concept formation involves the process of organizing relevant content of relevant domains in such a way that **interconnections of special type obtain among the specifications**. Namely, conceptualising the knowledge system as a vast network of concepts related through numerous nodes (each of the nodes being itself a concept), it is possible to view

the structure of concept as a network formed of substructures relevant for the formation of the concept ‘meeting’ at one nod. In other words, a concept formation requires **content specifications to be organized around a nod related to all of them, as a cognitive (and hence semantic) value of the concept is determined by the alignment between the shared nod and the specifications**. Langacker (1987) postulated the notion of **profile/base alignment** to grasp and characterise semantic values corresponding to respective parts of knowledge system organized as local networks. The base of the alignment is formed of the specifications in relevant domains, whereas the profile is the nod shared by all specification relations. Langacker formalizes this relationship introducing the notion of **scope** to be understood as ‘the array of conceptual content it evokes’, whereas the profiled structure in the base is the **designatum** of the predication (Langacker 1987: 183). In still other words, for each of the networks the shared nod attains special status of designatum and defines the **profile** of the semantic pole, whereas the specification relations the nod participates in – the scope of predication – form its **base**. Profile and base constitute inseparable facets to the definition of the semantic pole; neither of them itself can characterize the value of a predication. Indeed, it is the **alignment** between the two that defines the semantic pole of a symbolic structure.

2.2 Schematicity and prototype

Discussing the procedures involved in concept formation and deriving semantic structure in the form of profile / base alignment, I refer to a lexical category *tree*. Although fairly specific, the category can be simultaneously viewed as fairly schematic. Namely, on the one hand, the language expression can operate in all categorizing judgments, when a speaker faces the fragment of reality that ‘agrees’ with the profile/base alignment defining the meaning of the word, i.e. conceptual content of the lexical category. On the other hand, the profile/base alignment defining the semantic structure of the lexical category *tree* is highly abstract, too abstract to differentiate among various kinds of tree. Cognitive Grammar formally accommodates this aspect of categorization in terms of **schematicity relation** within a category (Langacker 1987: 68-69,132-133). In brief, on the basis of specifications characterizing members of a category, there develops a superordinate structure, the **schema**, which is compatible with the meaning structures of its **instantiations**, i.e. specific category members.

Within a category structure every higher level entity functions as a schema for a lower

level entity; the relationship consists in that the schema lacks in specifications of finer details of its instantiations. For example, the predicate *tree* is less specific than *oak tree* or *apple tree*. Finally, the schematicity relation can be **full** if the schema and its instantiations are fully compatible in their specifications; it is **partial** if the specifications are only partially compatible.

The schematicity relation pertains to all language structure. Precisely by the same process of schematisation, regularities observable in sets of complex language expressions allow for the extraction of **constructional schemas** which describe types of grammatical constructions, i.e. grammatical rules. Langacker (1995b:152) defines them as “templates reflecting in abstract terms the symbolic compositionality observable across arrays of complex expressions”.

Along with the categorization by the schema, Langacker acknowledges the role of **prototype** for the category structure. Namely, where schematisation pertains to the vertical dimension of the category, the horizontal dimension within the structure of the category incorporates the process of extension (including metaphorical extensions). Here the category membership is defined by the degree of closeness of a given member to the prototype. The prototype ‘initiates’ chains of extensions on the basis of perceived similarity of two category members, one of which functions as more prototypical category member for the other.

Langacker (1993: 2) views the two types of processes involved in the category formation as closely related:

In the formation of a complex category, consequently, outward growth from the prototype tends to co-occur with upward growth (i.e., the emergence of more schematic notions).

In other words, to the extent an extension from a prototype involves grasping some similarity between two category members, the similarity allows for the extraction of some schema which sanctions category membership of both.

2.3 Towards the symbolic nature of the category PREPOSITION

Langacker argues for the characterisation of grammatical categories by means of schemas, which reflect the commonality of all category members. To reflect the commonality within a category, its schema must be necessarily highly abstract in both its semantic and phonological

poles. Nonetheless, despite the high degree of schematicity, the type of categorisation is revealing to the extent it provides the foundation for distinguishing one grammatical class from the others. With respect to traditional grammatical categories, Cognitive Grammar differentiates between two types of symbolic structure. The symbolic structure whose semantic pole profiles a conceptual **region** characterises the content of the grammatical category *noun*, whereas the conceptual content of other grammatical categories, i.e. *verbs*, *prepositions*, *adverbs*, etc., has the profile of **relation**.

2.3.1 Nouns as conceptual regions

The semantic structure of the grammatical category noun is characterised, like any other semantic structure, as a predication whose value derives from the alignment between a certain structure – the profile – and the portion in the matrix of cognitive domains which constitutes direct conceptual context of the structure – its base. Langacker (1987:189) states that ‘every nominal predication designates a region’. This special type of profile means that **the content of the base is accessible through the profile as a homogenous whole**, a region whose extension is determined by the conceptual richness incorporated in the specification relations. Accordingly, the conceptual region profiled by [OAK TREE] incorporates more specifications in its base than that profiled by [TREE], hence the two predicates differ in that the profiled regions differ with respect to degree of specification of (conceptual) content (and bounding).

Formally, the internal structure of the conceptual region is characterised as a ‘set of interconnected entities’. Importantly, despite the fact that the internal structure of a region can be both fairly complex and dynamic, the interconnections

are not themselves profiled by a nominal predication; they serve to establish a set of entities as a region, but are not per se constitutive of the region. (...) the profiling of the interconnected entities is collective: the region as a whole (...) functions as a designatum and constitutes one instance of the [THING] category. (Langacker 1987:198).

In other words, the profile of a region *abstracts* away from details of individual entities and ‘*ignores*’ the possible diversity within the profiled region, foregrounding its conceptual **homogeneity**. Just like homogeneity of a region is a mental process, so is the **bounding** of the

region, defined by Langacker (1987:201) as ‘some limit to the set of interconnected entities it comprises’. Hence, bounding is not to be understood in linear terms. For example, [TREE] profiles a region whose internal structure can be described as a set of specifications: shape specification, colour sensations, touch sensation, and taxonomy qualification, organized in a specific way. Both content and its organization define conceptual boundaries of the predicate. Any departure from the specific profile/base alignment means ‘changing the boundaries’ of the concept, thus formation of another concept.

The schema of the grammatical category noun is represented as a symbolic unit of the form: [THING / x]. In the formula, [THING] indicates the semantic pole of the symbolic unit, whereas its phonological pole is indicated by [x] to signal a broad array of possible phonetic realisations (Langacker 1987, Turewicz 2000).

2.3.2 Relations

A conceptual region is formed of a set of interconnected entities, however, their relational character is downgraded because the interconnections in the nominal profile are conceptualised holistically. It should be borne in mind that each of the interconnections individually is a relation whose individuality is suppressed by a collective conceptualisation within a higher-order cognitive entity – region. .

The conceptualisation in which rather than a region within a certain cognitive structure, a relation between two entities of this structure is designated derives an alternative to the nominal profile, i.e. the relational profile. The difference between the grammatical category noun and other grammatical categories resides in the nature of the profile. Namely, where in the case of nouns a set of relations will be profiled as a whole, for other grammatical categories one relation between chosen substructures – an interconnection – may be ‘chosen’ as the designatum.

Crucial to the characterisation of relational profile is the fact that in this type of profile/base alignment three elements are foregrounded simultaneously: *the relation and the entities participating in the relation*. In other words, predications with the relational profile are conceptually **dependent**, because any *instance of conceptualising a relation between two entities involves conceptualising the participants*. As Langacker (1987:215) puts it “one cannot conceptualise interconnections without also conceptualising the entities that they interconnect”.

The dependence of relational predications can be a factor distinguishing between

nouns and other grammatical categories on the level grammatical integration. Precisely, because in the profile of a region no salient internal reference is made to any structure from the outside of the region, the **nominal profile** is conceptually **autonomous**. As regards the internal structure of **relations**, one of the participants can be **autonomous** and the other **dependent**. Thus, with respect to conceptual dependence, there may be a noticeable **asymmetry** between entities within the relational profile.

2.3.3 Trajector /landmark asymmetry

The asymmetry pertaining to the internal structure of relational predications is connected with *salience* of its participants. The status of the participants is not equal as one of them is a **figure** in the relational predication (is to be elaborated by the figure of the conceptualisation), whereas other salient participants, often referred to as **secondary figures**, are called by Langacker **landmarks**. The very term ‘landmark’ is motivated by the fact that “they are naturally viewed (in prototypical instances) as providing points of reference for locating the **trajector**” (Langacker 1987:217)

Viewed from the perspective of potential integration of relational entities with other entities on a higher level of cognitive organisation, i.e. the process of meaning formation of complex language expressions, the trajector and landmark(s) may function as **elaboration sites (e-sites)**. Langacker (1987: 304-305) introduces the term to refer to the substructure in the structure of a relational entity *which schematically defines the predication with which the entity can integrate*. In other words, e-site is the substructure in the semantic structure of relation which bears the schematicity relation with respect to the language expression which can integrate with the relation; the e-site functions as a schema for the language expression to integrate with the relational predication.

So defined relational profile constitutes the foundation for characterising the conceptual structure of grammatical categories other than noun. The differentiation within the relational schema into verbs, on the one hand, and adjectives, adverbs, prepositions, affixes, etc., on the other one, derives from specifications of the schemas for each of the relational categories: verbs categorise as temporal relations as the temporal domain *figures* in their profile. The other relational subcategories are referred to as atemporal relations. The set of atemporal relations can be further differentiated on the basis of *specifications of the elaboration sites defining schematically the profiles of the entities participating in the relations* – trajector and landmark(s).

3. A Cognitive Grammar analysis of [IN]

3.1 The relational profile of the preposition

One of fundamental theses in CG conception of language structure is that semantic structure of any degree of complexity is characterisable in terms of one profile/base alignment. Consequently, if two predications integrate, the result of the integration is *not a sum* of their meanings but a *new composite (semantic) structure* encoded in a ‘new’ profile/base alignment. What follows from this formulation is that the meaning of a preposition ‘by itself’, e.g. *in* is encoded by a profile/base alignment different from the profile/base alignment defining the meaning of a prepositional phrase, where the preposition is followed by a specific noun, e.g. *in a cup*. Specifically, in the process of prepositional phrase formation (a composite semantic structure with a relational predicate and elaborated landmark), the semantic structure of the prepositional object (the noun phrase following the preposition) contributes to the profile/base alignment of the composite structure (a specific prepositional phrase).

The meaning integration of two semantic structures is possible due to correspondences between them specified schematically by respective elaboration-sites (e-sites). In the case of prepositions, the elaboration site (e-site) of the landmark schematically characterizes the nominal entities to elaborate the landmark (the prepositional objects / complements). To the extent the e-site bears the relation of schematicity to these nominals, it restricts the list of predicates capable of elaborating the landmark (instantiations) to the nouns whose specifications are at least partly compatible with the specifications profiled by the landmark e-site.

Putting the above in other words, on the first level of integration (when the prepositional phrase is formed) the elaboration of the landmark specifies the relation profiled by *in* as *in the landmark*. Accordingly, the trajector e-site (the schematic profile of the trajector entity) is determined by the relation *in the landmark* rather than *in*. The characterization may be schematic but it provides foundation for the explanations of more specific cases. To the extent specifications of the landmark specify the conceptual content of the prepositional phrase, the more specific meaning of the phrase restricts the array of entities capable of elaborating its trajector. In brief, the meaning structure of the nominal entity that follows the preposition, having integrated with the type of prepositional schema, specifies the type of *in*-relation thus restricting the array of the nominals capable of entering the ‘*in the*

landmark' relation.

For example, in *the milk in the cup*, the specifications of *cup* derive the prepositional phrase *in the cup*. As a symbolic (composite) structure, the phrase is characterisable by profile/base alignment in which the profile remains relational but the base incorporates specifications of the *cup*. As a result, because the schematic composite structure *in the landmark* changes into more specific one *in the cup*, a new semantic structure is formed whose trajector e-site will be accordingly specified. Simply, while in the prepositional phrase *in the landmark* the trajector e-site allows unconstrained choice of nominal and relational elaborations, specifications of the landmark in *in the cup* restrict the choice of the trajector to entities capable of interacting with the relation *in the cup*, though irrespective of whether a nominal *the milk* or a process, as in *the genii are cleaning up in the cup*, elaborate the trajector. Needless to say, the specifications of the e-site of the prepositional phrase *in the cup* exclude, despite its schematicity, such elaborations of the trajector as *?the girl and boy are cleaning up in the cup*, unless the nominal *the cup* departs from its prototypical meaning, or the expression structures a scene from a mental space of fiction.

There is one more facet to the meaning integration of the trajector and landmark of *in*, which is directly related to the qualities of the scene under conceptualisation structured by respective language expressions. Consider the scene described by *milk in the cup*. Two real world entities are organised in a specific way because their qualities allow the organization. The qualities involved are the 'shape and solid surface' of cup and the quality 'liquid' of milk. Surprising as the observation may appear, I would like to stress that the organisation of elements is determined by the compatibility of respective qualities rather than the fact that one of the objects has all characteristics of a cup, whereas the other has all characteristics of milk. In other words, the qualities: 'shape, solid surface' and 'liquid' are the elements in the structures of the objects which define the way they can interact. In linguistic terms, the qualities of the objects are encoded in the base of respective profile/base alignments. The fact that these specifications represent the qualities allowing the type of organisation encoded in *milk in the cup* is grasped in Cognitive Grammar framework by the concept of **active zone** (Langacker 1987: 272 – 73). Precisely, an active zone of a predication is the substructure in the structure of the predication directly interacting with the structure of the other predication in the process of meaning integration². The notion of active zone differs from the elaboration site in terms of schematicity. While the e-site schematically characterises the profile of the

² Active zone can be viewed as a case of metonymy, if the latter concept is defined broadly enough to cover the meaning integration processes of, apparently, non-metaphorical nature.

predicate to elaborate either the landmark or trajector, the notion of active zone refers to specific substructures in the predications elaborating the landmark and the trajector.

Employing Langacker's notational system, the result of the process of integration deriving a prepositional phrase can be represented as follows:

$$[\text{PREP}/z] \text{ -- } [\text{THING}/x] \blacklozenge [\text{PREP--THING}]/[z \text{ --} x],$$

(where 'z' and 'x' stand for the phonological poles). This constructional schema sanctions the more specific one in which the preposition is specified by the predicate [IN/in]. Crucial to the analysis postulated above is the fact that once the schema [PREP/z] is specified as [IN/in], the other element in the constructional schema also gets specified to sanction only these nominals which are schematically characterized by the landmark e-site of [IN], which can be represented as [_{IN}THING/y]. In this fashion the constructional schema for the prepositional phrase headed by the preposition *in* will be represented by the following formula:

$$[\text{IN}/in] \text{ -- } [{}_{\text{IN}}\text{THING}/y] \blacklozenge [\text{IN--}{}_{\text{IN}}\text{THING}] / [in \text{ --} y]$$

By virtue of its relational profile, the predication [IN--_{IN}THING] schematically defines its higher level valence relations in the structure of the trajector e-site. As reflected by the notation, because the semantic structure of the relational predicate [IN] is more schematic than the semantic structure of [IN--_{IN}THING], the trajector e-site of the former will differ in schematicity from the latter. Precisely by the same principle, once the [_{IN}THING/y] is elaborated by a specific nominal, e.g. [_{IN}THING₁/y₁], the more specific symbolic structure [IN --_{IN}THING₁] / [in -- y₁] will incorporate the more specific trajector e-site, thus narrowing the range of entities with which the predication can integrate.

3.2 The analysis

In my first proposal (Turewicz 1994) I argued that the concept of *inclusion* was central to the meaning of the preposition,. However, a more thorough examination of language data published by Collins COBUILD has shown (Turewicz 2000) that *inclusion* is only one of possible uses of the preposition. Indeed, as pointed out by Dirven (1993)³, the concept of

³ I would like to emphasize the importance of the fact; although Dirven (1993) does not motivate his choice of

enclosure rather than *inclusion* is relevant to the semantic characterization of the preposition. In what follows I am arguing, partly following the analysis of Turewicz (2000), that the concept of enclosure is central to the linguistic analysis of *in* as the meaning schema of the preposition, while Cognitive Grammar tools allow to explain the nature of semantic processes in which the preposition ‘participates’.

In Turewicz (2000) I define the meaning schema of [IN] as follows:

[IN] profiles a relation of enclosure of the trajector entity in the landmark; the landmark e-site is specified as ‘a nominal entity capable of providing enclosure’ (...), whereas the trajector e-site is specified by the type of enclosure as an entity ‘enclosable’ in the landmark...

Dictionary definitions of the meanings of the verb *enclose*, and hence the noun *enclosure*, foreground such characteristics as: **shut in on all sides; putting a wall, fence around; putting in a parcel or envelope; separating by defining the limits, borders**. Accordingly, the language structure [IN THE LANDMARK] can encode such organisation of entities participating in the relation as: shutting in, wrapping in, separating from the outside by delineating the borders, specifying the borders of the area of occurrence. If the concept of enclosure is central to the semantics of *in*, it should be discernable in all uses of the prepositions.

Putting the above in Cognitive Grammar terms, the notion of enclosure specifies the relation between trajector and landmark of [IN] in such a way that: (i) on the level of prepositional phrase formation, the e-site of the landmark specifies the nominal entity to elaborate the landmark as ‘capable of providing a type of enclosure’; (ii) on the level of the noun phrase formation, the trajector e-site of the [IN – LANDMARK] prepositional phrase schematically defines the entity as ‘capable of getting enclosed in the landmark’. Let us apply the above general formulae to some examples analysed by Herskovits (1989)⁴.

- (1) the nest in the tree,
- (2) the mark in the margin,
- (3) the block in the circular area,

the concept *enclosure* as defining the meaning of *in*, I regard it as valuable support to the outcome of my own , independent analysis which has led me to postulating enclosure rather than inclusion as the schema defining *in*-relation.

⁴ I refer to the examples as they have initiated the discussion on the semantics of the preposition.

- (4) the muscles in his leg.
- (5) the grapepickers in the field;
- (6) the pear in the bowl (when being placed on the top of a pyramid of apples);
- (7) the bulb in the socket (though only one part of the bulb can be included in the socket).

My working hypothesis is that in (1) the landmark [TREE] specifies the relation [IN TREE] as a potential enclosure for some entity capable of being enclosed in the area delineated by the borders defining the boundaries of the region profiled by the landmark. Under strict physical interpretation the predicate [TREE] satisfies the landmark e-site of [IN] only to a certain extent. Should the boundary of the region profiled by [TREE] be reduced to physical parts of the tree: wooden trunk, branches and leaves, the localisation of an object between two branches of the tree would exclude encoding the scene linguistically as *in the tree*, unless it were to describe a localisation in the trunk or inside a branch. Nonetheless, bearing in mind that in Cognitive Grammar definition of a category noun it is possible to view bounding in the nominal profile as conceptual rather than spatial (2.3.1), I suggest that the relation of enclosure be understood in its conceptual rather than physical dimension.

Precisely, physical shape specification in the base of the predicate [TREE] is only one of a number of specifications. Perhaps less salient but relevant is another one, contextualised in the physical shape specification, formulated as ‘the shape of trees makes their upper parts hardly accessible’. Hence, in terms of meaning integration processes (defined in (i) and (ii)), [TREE] can elaborate the [IN] relation through the specification formulated as ‘the shape of trees makes their upper parts hardly accessible’. The specification thus functions as an active zone of [TREE] in the formation of more specific relation profiled by [IN THE TREE]. The meaning schema [ENCLOSURE] in the relation profiled by [IN THE TREE] has a dimension of a guarantee of inaccessibility to an entity to elaborate the trajector of the relation⁵.

In reality, a tree can provide enclosure to an object enclosable, that is to say, one that can be located within the upper part of the tree and is small enough to be inaccessible to the sight of whoever or whatever could be watching. What follows from the observation is that size of an object to be enclosed in the tree has to be compatible with the size of the relevant part of the tree. Observe that such objects as a house or a car do not satisfy the size

⁵ It is worth mentioning that the guarantee of inaccessibility can be considered a fundamental function of an envelope, thus a salient specification of the base of the predicate [ENVELOPE].

requirement unless they are not prototypical instances of the categories. The size of prototypical bird's nest is compatible with the size of the tree to make the former enclosable in the latter. The compatibility of size allows to organise the objects in such a way that the tree can enclose the nest to separate it from intruders.

In linguistic terms, the trajector e-site of [IN TREE] relation characterises schematically the entity to elaborate the trajector as 'enclosable' in the tree. In view of the above discussion, the requirement 'enclosable' means *smaller than the tree*. Predicates [HOUSE] or [CAR] are not likely trajectors of the [IN THE TREE] relation as size specifications in their bases (of respective profile/base alignments) do not satisfy the requirement. As regards the profile / base alignment defining the predicate [NEST], one of specifications forming its base can be defined as 'nests are small relative to objects they are located in /on'. Just like compatibility of size allows for a real nest to be enclosed in a real tree, the correspondence between the specification 'nests are small relative to objects they are located in /on' in the base of the predicate [NEST] and the trajector e-site of [IN TREE] relation allows for encoding the real world configuration 'nest within the limits of a tree' by the complex semantic structure [NEST IN THE TREE]. In more formal, Cognitive Grammar terms, respective specifications of the bases of [NEST] and [IN THE TREE] are active zones of the predications facilitating the meaning integration process deriving a new profile / base alignment – the predication [NEST IN THE TREE]. The new predication specifies the (more schematic) nominal entity [NEST] by defining it in terms of its being enclosed [IN] in an entity capable of separating it from intruders [THE TREE].

Concluding this part of analysis I would like to underline that although our everyday experience might suggest that example (1) should profile a case of spatial enclosure, reference to spatial dimension is only one of the elements in the meaning structure of the noun phrase, though presumably most evident and liable to focus an analyst's attention. However, as has been shown at the beginning of the analysis, a more rigorous attitude discovers limitations of the seemingly evident spatial interpretation of the meaning of (1). Therefore, it seems legitimate and more revealing to point to conceptual compatibility of active zones of [NEST] and [IN THE TREE] as motivating the construal profiled by the phrase instead of searching for such a motivation in spatial organisation of the elements of the conceptualised scene.

In (2) the meaning structure of the predicate [MARGIN] specifies the relation of [IN] as [IN THE MARGIN], whereof the trajector e-site of the relation (in the margin) restricts the entities capable of elaborating the trajector to those which are capable of being enclosed in the *margin*. Semantic structure of *margin* allows for the predicate [MARGIN] to elaborate the

landmark of [IN], as the specification ‘outer edge of an area separated from the rest’ satisfies the landmark e-site of the schematic relation of enclosure [IN]; the specification facilitates integration of [IN] and [MARGIN], hence can be considered as an active zone in the structure of the latter.

The trajector e-site of so characterised relation of enclosure would define the entities to elaborate the trajector as capable of being enclosed in ‘an outer edge of an area separated from the rest’. Due to highly schematic nature of the predicate [MARK] – the most salient specification of its base would be: ‘a symbol representing some content’ – the predicate [MARK] can elaborate the trajector of [IN THE MARGIN] because its size is compatible with (and thus enclosable in) a narrow edge of an area. What should be added is that both [MARGIN] and [MARK], under the physical interpretation, are specified as two-dimensional entities.

Although the mode of analysis accounts for physical enclosure profiled by (2), I suggest that the analysis should follow the path outlined for (1), as it does not account for cases when the predicate elaborating the trajector is ‘larger’ than just a ‘symbol’, hence its physical enclosure in the landmark may not be so evident. Consider *My comments to the text are in the margin*. The comments can be so elaborate or the handwriting careless that, occasionally, some fragments of the handwriting may actually cross the physical border delineating the outer edge. Nonetheless, as long as the content of the comment retains the status of ‘expression of opinion on something’, its localization in the margin is legitimate. In other words, as long as the content of the comment does not suppress in terms of importance the value of the entity ‘commented on’, its localisation can be encoded by [IN THE MARGIN], regardless of whether some of the letters used to write it happen to physically cross the borders of the margin.

In the case discussed above, the non – physical dimension of the enclosure relation profiled by *in the margin* in *My comments to the text are in the margin* can be accounted for in terms of conceptual bounding of the nominal profile. Namely, on the one hand, a salient, non-physical specification in the base of [MARGIN] (though deriving from the physical specification: ‘outer edge’) can be defined as ‘a place for entities of non-central status’. On the other hand, a salient specification of the base of [COMMENT] – ‘an opinion on some entity’ foregrounds the non-central status of an act of commenting (and thus a comment); simply, there is no comment unless there is **something to comment on**. All in all, (2) may encourage an analysis focussing on physical dimension of the concept of enclosure profiled by [IN THE MARGIN] relation. Nonetheless, more insightful and revealing is the one

founded on Cognitive Grammar conception of language structure, the analysis which **explains** why, even if an object extends beyond the limits of the margin, the scene can be legitimately encoded by *in the margin*. The language expression is motivated by compatibility of conceptual structures of predications designating respective elements of reality. Specifically, due to specifications in respective bases (of profile/base alignments), which directly interact in the process of complex structure formation – active zones, the enclosure relation can obtain, irrespective of whether physical dimensions of real world entities of a conceptualised scene are strictly compatible.

In (4) enclosure in physical dimension obtains between [LEG] and [MUSCLE], with the size restriction satisfied. Again, salient as physical enclosure can be, it does not explain why conceptualising individuals – speakers – can legitimately talk of muscles in the leg though the muscles are not normally visible, hence there is no visible organisation of muscle and leg that could ‘inspire’ the speaker to talk about the relationship between the two entities in terms of enclosure. Like in (1) and (2), the motivation behind the modifying phrase in (4) derives from meaning structures of the predications involved. In the base of [LEG] there is a specification definable as ‘a part of human body consisting of muscles, ankles, soft tissues, enclosed by skin’. Among base specifications of [MUSCLE] is ‘a constitutive element in the structure of animate body’. The predicate [LEG] can elaborate the landmark e-site of enclosure relation [IN], through its active zone ‘skin encloses’, which satisfies the requirement ‘capable of providing enclosure’. [MUSCLE] satisfies the trajector e-site specification ‘enclosable in the landmark’ due to compatibility of its specification: ‘a constitutive element in the structure of animate body’ with the specification in the base of [IN THE LEG] relation: ‘enclosed in a part of animate body’. The specification of [MUSCLE] ‘a constitutive element in the structure of animate body’ is an active zone in the structure capable of directly integrating with [IN THE LEG] (which profiles the relation ‘enclosed in a part of animate body’).

The composite meaning structure of the noun phrase in (5) profiles a multiple trajector [GRAPEPICKERS], whose occurrence is restricted to the dimensions of ‘field’, i.e. the predicate [FIELD] specifies the type of enclosure for the trajector [GRAPEPICKERS]. Simple physical enclosure is questionable because [FIELD] is a two – dimensional entity whereas the grapepickers are humans, hence entities of three dimensions. Additionally, the boundaries of the field with grapes need not be delineated precisely enough for an observer to be able to trace any crossing of the field’s boundaries. Indeed, accidental crossing the physical boundaries of the field is not relevant for the scene to be encoded by [GRAPEPICKERS IN

THE FIELD].

Implementing Cognitive Grammar analytic tools, the semantic structure of *grapepickers* can be characterised as a region (profile) whose base contains such specification relations as ‘human beings’, ‘capable of walking’, ‘with two hands’, ‘involved in picking grapes’, etc. Among specifications in the base of [FIELD] ‘an area for growing plants’ seems to be the most salient, whereas ‘surrounded by fence’ is not central enough to be activated in all conceptualisations structured by the predicate. Indeed, it seems that the predicate [FIELD] can elaborate the enclosure relation [IN] not because physical bounding figures in the profile of the nominal but because of conceptual bounding defined by the function the area is designated to perform. In view of the above, the [IN THE FIELD] relation may profile enclosure of some entity in a physical area defined by the extension of the plants; the enclosure resulting in ‘surrounding’. It may, however, profile a more abstract type of enclosure, what I call ‘functional shutting in’, for an entity enclosable through function.

The predicate [GRAPEPICKERS] can elaborate the trajector e-site of [IN THE FIELD] in either case. The meaning of ‘physical surrounding enclosure’ is formed through the specification of [GRAPEPICKERS] ‘have legs’, which is an active zone directly interacting with the (surface) of the area profiled by [FIELD]; naturally, the size requirement is satisfied.

‘Functional shutting in’ enclosure can be profiled by [IN THE FIELD] to structure the scene when grapepickers are gone to work in the field, without necessary verification whether they are physically enclosed in the area. [GRAPEPICKERS] can elaborate the trajector of [IN THE FIELD] profiling functional enclosure through an active zone ‘involved in picking grapes’. Under the functional enclosure analysis, the noun phrase [GRAPEPICKERS IN THE FIELD] structures the scene where grapepickers are involved in picking the grapes rather than resting on the surface of the field. To sum up, while acknowledging physical enclosure dimension encoded in the composite semantic structure [GRAPEPICKERS IN THE FIELD], I see reasons to view physical enclosure in (5) as a specific case of enclosure schema defining the meaning of [IN]. The schema sanctions both physical enclosure: surrounded by the area for growing plants, and functional enclosure – ‘functional shutting in’. In both cases the meaning integration is possible through active zones of respective predicates. Indeed, depending on which specification relation directly interacts with the semantic structure of the other predication – becomes an active zone in the process of complex semantic structure formation, the physical or functional facet to the meaning structure of enclosure figures in the complex language expression.

Incidentally, (3) can profile physical enclosure for similar reasons as in the case of [GRAPEPICKERS IN THE FIELD]. Namely, just like in the case of grapepickers and the field, the three dimensionality of the trajector [BLOCK] does not seem compatible with the two dimensionality of the landmark [CIRCULAR AREA]. More precisely, the landmark [CIRCULAR AREA] specifies the relation [IN THE CIRCULAR AREA] as ‘enclosed in a circular surface’, hence the trajector e – site of [IN THE CIRCULAR AREA] characterises the entity to elaborate the trajector as ‘enclosable in a circular surface’. Trajector entity profiled by [BLOCK] incorporates in its base specification ‘3D entity’, thus, with respect to strictly physical dimensionality, the trajector entity disagrees with the specification ‘circular surface’. Nevertheless, language expression profiling the enclosure of a block in a circular area is sanctioned due to conceptual compatibility of the integrating predications. The base of profile/base alignment defining conceptual content symbolised by phonetic sequence [block] incorporates specifications ‘one of its walls functions as a base’, ‘the base interacts with a flat surface’. Just like in reality a block interacts with a surface through the wall which functions as its base, so the specification ‘the base interacts with a flat surface’ is an active zone of [BLOCK] through which it can integrate with the ‘enclosure in a circular surface’ relation profiled by [IN THE CIRCULAR AREA]. Worth noticing is the fact that as long as the base of the block is smaller than the circular area, the active zone of [BLOCK] satisfies the requirement: trajector smaller than the landmark.

(7) structures a scene in which a part of a bulb is in a socket. Observe that, although only a part of the bulb is in the socket, the scene can be legitimately conceptualised by language expression with the preposition *in*. If (7) were to be analysed strictly in terms of physical organisation of the entities *bulb* and *socket*, it would not be legitimate to claim that the relation [IN THE SOCKET] profiles ‘(physical) enclosure in the electrical equipment’. However, following the argumentation postulated for (5), it is possible to analyse (7) as profiling a relation of functional rather than physical enclosure. Precisely, a specification in the base of [SOCKET]: ‘an electrical equipment into which another electrical equipment fits’ specifies the enclosure relation [IN THE SOCKET] as ‘enclosed in the electrical equipment into which another electrical equipment fits’. The trajector e-site of the relation specifies the trajector as ‘enclosable in the electrical equipment into which another electrical equipment fits’. [BULB] with the specification ‘electrical equipment’ satisfies the trajector e-site schema through its active zone, the specification ‘electrical equipment’.

The problem with the analysis is that the base of the predicate [SOCKET] does not incorporate specification of shape. Bearing in mind that the landmark e-site specifies the

entity to elaborate the landmark of [IN] as ‘capable of providing enclosure’ and the fact that the structure of the predicate does not specify shape, the bounding defining the enclosing area is not defined either. Nonetheless, I argue that the predicate [SOCKET] can elaborate the landmark of enclosure relation because its specification ‘to be fitted in’ defines schematically its conceptual boundary (as a region). The boundary can be only schematically characterised as capable of enclosing the ‘fitting in’: electric socket can enclose electric bulb, a tooth socket and an eye socket provide enclosure to a tooth or an eye, respectively. In all cases the enclosure has its physical dimension, but simultaneously, in neither of the cases the physical enclosure is total: a part of tooth is not ‘enveloped’ in the tooth socket; a part of eye is not ‘enveloped’ in the eye socket. The point is that a tooth socket and an eye socket, like an electrical socket function as settings for respective entities to be shut in, i.e. settings to guarantee that the entity in the socket does not leave it. Summing up, the relation [IN THE SOCKET] profiles ‘functional shutting in for an electrical equipment’ relation, while [BULB] can elaborate the trajector of the relation through its active zone ‘electrical equipment’. The enclosure in (7) is sanctioned as a relation of ‘functional shutting in of an entity to fit another entity (trajector) and the one to be fitted in (the landmark).

In the case of (6), used with reference to the configuration in which the ‘pear’ is **not** located inside the ‘bowl’, [IN] also profiles the relation of enclosure, though judging by the organisation of the elements of the conceptualised scene, the pear is not physically enclosed in the bowl. Nevertheless, considering the fact that the concept of *enclosure* makes salient reference to borders, limits, boundaries, the shape of the bowl can define the boundaries of the occurrence of the pear; if one searches for the pear, one should ‘go to’ the bowl, as the pear is enclosed in the area defined by the rims of the bowl.

In terms of linguistic analysis, the meaning structure of [THE PEAR IN THE BOWL] results from the process of integration of the trajector [PEAR] with the relation [IN THE BOWL]. Thus, the nominal predicate [BOWL] incorporates in its base (of profile/base alignment) specifications: (in 3-D space) ‘a round container deep enough’, (in the abstract domain of function) ‘used to hold fruit’. The specification ‘a round container’ satisfies the elaboration site ‘capable of providing enclosure’ and is an active zone through which the predicate [BOWL] elaborates the landmark of [IN]. The prepositional phrase [IN THE BOWL] profiles a relation ‘enclosed in a round container used to hold fruit’. Accordingly, the trajector e-site of the relation defines entities to elaborate the trajector as ‘enclosable in a round container used to hold fruit’. [PEAR] profiles a region (noun) whose base incorporates, among others, specification ‘fruit’, hence can elaborate the trajector of [IN

THE BOWL] through its active zone ‘fruit’ – the substructure which can directly interact with the semantic structure of the relation. What follows from the argumentation is that the language expression in (6) is sanctioned due to compatibility of function of *bowl* and the nature of *pear*: a natural place for a fruit is a bowl, a pear is a fruit hence its natural place is a bowl. Again, it appears legitimate to argue that by structuring a scene with a pear on the top of apples in a bowl as [PEAR IN THE BOWL], the speaker profiles conceptual rather than physical enclosure, conceptual rather than physical organisation of the scene. To foreground physical organisation of the scene, the speaker could structure it as ‘a pear on the top of apples in the bowl’, though there is a possibility that some parts of side apples might extend beyond the ‘boundary’ strictly delineated by the rims of the bowl.

4. Discussion and conclusions

Analyses of examples with *in* postulated above may be found controversial. Founded on the assumption that the concept of *enclosure* defines the meaning schema of [IN], the argumentation does not result in defining specific meanings of the preposition. Naming the type of enclosure realised by respective examples would not be impossible. Indeed, an inventory of meaning sub-schemas of enclosure have been postulated in Turewicz (2000). They are: *inclusion, confinement, restricted area of occurrence, covering / separation*. In the present article I neither employ the labels for sub-schemas nor propose other, perhaps more adequate ones because a reanalysis of my earlier proposal has led me to the conclusion that it is the **procedure rather than results** that is crucial for comprehending the meaning indeterminacy of prepositions.

Another assumption that may arise criticism is that complex language expressions (1) – (7) are motivated by conceptual rather than physical enclosure. That is to say, my position reflected in the argumentation is that in each of the examples the conceptualising individual ‘chooses’ the language structure which is motivated by conceptual ‘enclosability’ of one entity in the other rather than full compatibility of physical dimensions of the objects involved. Honestly, the assumption needs by far stronger support than I can offer here. Nonetheless, I believe the following arguments deserve considering. While structuring a scene, a conceptualiser can either go through a process of construing a completely original language structure encoding all peculiarities of the organisation (via constructive effort), or she/he can employ partly conventionalised structures and define the relation between entities in terms of enclosure sanctioned by conceptual fitting in, irrespective of peculiarities of

physical organisation of real world objects. From the perspective of discourse structure, if in the flow of discourse, question of the type *Where is the pear?* appears, the answer: *The pear is in the bowl* outlines the most direct path to the fruit, both in conceptual and physical terms. The possible answer *The pear is on the top of apples in the bowl* defines the localisation with greater precision but is not more informative from the perspective of the inquiring individual; indeed, the conceptual path to the fruit is longer. All in all, what I argue for is that the expressions (1) – (7) profile relations of enclosure between the elements of respective scenes which ‘fit conceptually’ as enclosing and enclosed, irrespective of whether they fit physically as enclosing and enclosed. The apparent contradiction is possible because conceptual enclosure consists in interacting of active zones of integrating predicates, whereas physical enclosure requires compatibility of objects in their physical dimensions.

The third source of serious criticism may be inadequate scrutiny in discussing and characterising profile/base alignments for each of the predications participating in the meaning integration processes. Indeed, characterising the meaning integration processes I skip the phase of defining the profile/base alignment of individual predicates, wording only the meaning substructures that directly interact. The explanation for the kind of deficiency is two-fold: (i) I do not know of dictionaries which define lexemes in terms of profile/base alignment; (ii) the format of an article imposes limits to its scope. What needs to be stressed, though, is that an analysis of a larger format aiming at adequate characterisation of processes of semantic integration should scrutinise the meaning structures of integrating predications employing such a tool as profile/base alignment and viewing meaning as encyclopaedic in nature.

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