A Glimpse of the Semantic Structure of the Bulgarian Preposition *na*

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Abstract   This paper demonstrates the applicability of a cognitive lexical semantic analysis to some of the meanings of the highly polysemous Bulgarian preposition *na*. It proposes an account of the various senses of *na* as a radial (conceptual) category with a prototypical sense and various extensions referred to as lexical concepts in the Principled Polysemy Approach developed by Tyler and Evans. Similarly, it is argued that, in addition to the spatio-geometric parameters, the core spatial lexical concept of the Bulgarian *na* includes also functional information from which non-spatial meanings such as 'active state' derive.

Keywords   Bulgarian preposition na. Polysemy. Radial category. Lexical concept. Spatial and non-spatial meaning.

Summary   1 Introduction. – 2 Problems with the Monosemous View of Meaning. – 3 Polysemy as a Conceptual Phenomenon. – 4 Conclusion.

1   Introduction

The purpose of this paper is to demonstrate the application of a cognitive semantic analysis to the most common and highly polysemantic Bulgarian preposition *na*.[1] To do this, I have stepped on two strands of previous work. The first one is the studies of Bulgarian linguists such as Andreychin (1944), Boyadzhiev (1952) and Mincheva (1973) who accept that the primary meaning of the preposition *na* is spatial, i.e. locative, and the other senses have sprung from this primary sense. Mincheva writes about the use of the preposition *na* with the locative case in Old Bulgarian as evidence for the primary meaning of location and mentions that there are other meanings of *na*, which are somewhat tenuously linked to the primary one. Andreychin points out the metaphorical meaning of the preposition *na* in expressions such as in (1a) which refers to the emotional state of worry or anxiety and (1b) which expresses the beginning of an intellectual mental process.

(1)   a. *lezhi mi na sartseto.*
         It is lying heavy **on** my heart (lit).
         b. *diode mi na um.*
         It came **on** my mind (lit).

Boyadzhiev's fine-grained lexico-semantic classification is the most elaborate attempt to analyse the semantics of this preposition, thus providing a vast amount of linguistic data. Only within the class of the spatial (locative) relations he distinguishes ten subclasses. All in all, he identifies 38 uses of the preposition *na*. More recent Bulgarian researchers (Kutsarov 2007) have also pointed out the difficulties in providing a semantic classification of prepositions. However, these authors did not dwell on the various links among the multiple senses of this polysemous item and its semantic structure in terms of language cognition and representation.

   The second strand is cognitive semantics work, pioneered by George Lakoff and Ronald Langacker in the 1980s and recent refinements of the theory such as Tyler and Evans' (2003) Principled Polysemy Approach and Evans' (2010) Lexical Concepts and Cognitive Models (LCCM). Central is the idea that lexical polysemy is an epiphenomenon, resulting from how our conceptual categories are structured (Agustín, Falkum 2017). In other words, it is a conceptual (cognitive) phenomenon. This article examines only a small portion of Boyadzhiev's data focusing on the various image schemas that derive the prototypical spatio-geometric senses of the preposition *on*

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as well as some non-spatial meanings anchored in the functional element of 'support' and 'active state' in the lexical concept.

2 Problems with the Monosemous View of Meaning

Structuralists and formal linguists (Ruhl 1989; Pustejovsky 1995) have long recognized the existence of polysemy, but as emerging from monosemy: a rather abstract/underlying semantic representation from which other senses are derived by the fill-in of context or pragmatic principles. On this account a form like the preposition *na* would possess a relatively abstract underlying representation, e.g. the relationship of two entities in space, which is filled in or disambiguated by context, thus 'generating' surface interpretations of the meaning of *na*. The monosemous approach can, in principle, account for the various spatial senses of a preposition. However, prepositions also exhibit nonspatial meanings. Consider the example below:

(2)   *Mozhesh da razchitash na men*.
        You can rely **on** me.

While the meaning of *na* in (2) might be characterized as 'psychological support', it is difficult to see how a single abstract meaning as the one mentioned above can derive all the spatial senses as well as the non-spatial 'psychological support' sense illustrated in (2).

3 Polysemy as a Conceptual Phenomenon

Contrary to formal and structuralist approaches cognitive linguistics have viewed polysemy as a central phenomenon in lexical semantics and cognition ever since Berlin and Kay's (1969) discovery of focal colours in colour categorization and Rosch's psychological experiments (Heider 1971; 1972) with colours, shapes, organisms, and objects. Their work provided evidence for the asymmetry in the structure of cognitive categories in terms of prototypes or 'best examples' of the category and peripheral members or 'not-so-good' examples. A philosophical precursor of these ideas was Wittgenstein (1958) with his 'family resemblance' network of category members. Drawing on their insights cognitive linguistics has been able to offer principled explanations for forms in the lexicon such as prepositions which are notoriously difficult to analyse.

Cognitive lexical semantics assumes that lexical items (words) are conceptual categories with a particular structure referred to as radial. A word represents a conceptual category of distinct yet related meanings, with a central (prototypical) concept and the various

category members are related to the prototype by convention. As such, word meanings are stored in the mental lexicon (semantic memory) as highly complex, structured categories referred to as senses or lexical concepts. Radial categories are modelled in terms of a radiating lattice configuration [fig. 1]:
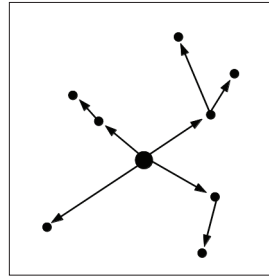

Figure 1
A representation of a radial category

From the above approach to lexical semantics it follows that polysemy is a conceptual phenomenon and it arises via the same general cognitive principles that structure non-linguistic categories. Less prototypical senses are derived from more prototypical (their position is reflected in terms of distance from the central sense) via cognitive mechanisms that facilitate meaning extension, including metaphor, metonymy, and image schema transformations. Such an approach can account for the numerous non-spatial meanings of a preposition. The idea was first demonstrated by Brugman (1988) with the analysis of the preposition 'over'.

Central to such an account is the idea that the senses associated with the preposition are grounded in our spatial experience and relate to spatio-geometric properties such as dimension, axes, or proximity. The spatial senses of *na* most probably would be judged to be the prototypical ones by native speakers. They are listed as primary senses by lexicographers and all three of the Bulgarian linguists mentioned above point out the primary spatial meaning of *na*.

If prepositions exhibit extensive polysemy, how can we identify the distinct meanings or senses? In other words, how do we establish boundaries between the senses as they are stored in semantic memory (the mental lexicon)? How are the various senses related to each other? How do the spatial relations encoded by the preposition *na* give rise to non-spatial meanings? Tyler and Evans' (2003) have suggested a methodology which addresses the above questions, and I shall partly adopt it to analyse the Bulgarian data below. As we shall see, there are very close parallels between the semantic structure of the English preposition 'on' and the Bulgarian preposition *na*. But there are also some differences.

We could argue that the prototypical spatio-geometric sense of *na* is an image schema of CONTACT. Figure 2 represents the basic image schema for *na*. As the term suggests, an image schema is not just an abstract semantic principle but should be understood as a mental picture which is more elementary than both concrete categories and abstract principles. It is a simple and basic cognitive structure which is derived from our everyday interaction with the world. It involves a schematic Trajector (TR), which is the entity to be located and thus is in focus. The TR is represented by the small circle. It is usually smaller and mobile. The other element in the configuration is the Landmark (LM) which serves as a reference point for orientation; it is usually bigger and stationary. The bold horizontal unbroken line represents the LM, which is the orientation point for locating the TR in space, in the case of *na* it is a horizontal surface **[fig. 2]**.[2] The fact that the TR touches the LM indicates that the spatial relation designated by *na* involves the relation of contact (or proximity) to the surface of a LM. The relationship between the TR and the LM also involves the downward force exerted by the TR and the relationship between the TR and the LM is oriented along the vertical axis in relation to the human canonical position. The horizontal dashed arrow illustrates the possibility of having a moving TR which usually involves concepts such as GOALS and PATHS.
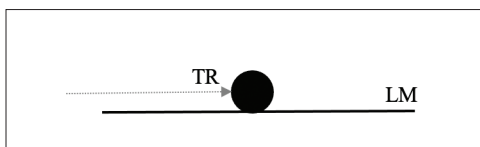

Figure 2
Central image schema for *na*

We can argue that the above schema underlies examples like:

(3)   *Knigata e **na** masata*.
      The book is **on** the table.

However, there are two interpretations of what the central image schema of a preposition is. According to Lakoff's full specification approach the central image schema is highly schematic, lacking detail about the nature of the TR and LM. Tyler and Evans' Principled Polysemy Approach (2003), however, introduces the notion of a functional element which relates to the central sense (lexical concept) in a semantic polysemy network and such a lexical concept is called a proto-scene. This position is a radical departure from Lakoff's central image schema.

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2   TR and LM are derived from Langacker's (1987) theory of Cognitive Grammar.

We shall illustrate the idea with the preposition *na*. The central spatial lexical concept (sense unit) for the preposition *na* is directly grounded in a specific kind of recurring spatial scene which is instantiated in a sentence such as (2). This spatial scene relates the TR (book) and the LM (table) in a particular spatio-geometric configuration, which is the proto-scene. It involves the relation of CONTACT with (or proximity to) the surface of a LM but it also contains the functional information about SUPPORT. Our encyclopaedic[3] knowledge of smaller objects being in contact with the surface of bigger objects tells us that the smaller object is in most cases supported by the bigger objects with larger surfaces. According to Evans this information is also part of the proto-scene. In other words, proto-scenes include a functional element, reflecting the way in which proto-scenes are ordinarily used. Language users typically employ proto-scenes in ways which draw upon the functional consequence of interacting with spatial scenes of certain kinds in humanly relevant ways. Thus, linguistic knowledge associated with proto-scenes appears to involve more than simply knowing the particular spatio-geometric properties encoded by a particular form (Evans 2010, 223). Here are two points that illustrate this idea. The elementary sentence in (3) encodes an elementary locative arrangement but even that raises questions. How do we know that the book is directly in contact with the table? Such a sentence will be felicitous even if the book is on top of another book which is lying on the table (Evans 2009). In addition, there are 'added constraints' which apply to prepositions. For instance, in the expression

(4) *Na more sam*.
     On sea I am (lit).

the relation implied is more specific than 'simple' spatio-geometric relations, i.e. the relation between the TR 'I' and an area in space, the LM 'sea'. Most probably there will be the implication that we are on holiday, spending time on the beach, doing other activities that involve this particular TR and LM and generally having a good time. The point is that we rarely employ prepositions to describe simply spatio-geometric relationship. Spatio-geometric relations have functional consequences from how we interact with our physical environment in our daily lives.

Now I shall provide a short illustration of how some other spatial senses of *na* can be analysed in a principled way involving the functional parameter Support. To begin with, there are two other

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3 'Encyclopaedic' is used in the sense that Langacker (1987) uses it to refer to linguistic semantics.

prepositions in Bulgarian which designate the spatial relation of contact: these are *po* and *varxu*. Yet, only *na* entails the functional consequence of the TR being supported or upheld by the LM. Therefore, in the linguistic content of *na* there is the geometric parameter Contact and the functional parameter Support and they are both encoded by the lexical concept 'contact'. Evidence for this comes from the possibility of applying the preposition *na* to situations in which the LM is a vertical rather than a horizontal surface such as:

(5)   *Kartinata e **na** stenata.*
        The picture is **on** the wall.

(6)   *Na shapkite si vsichki nisyat aleni zvezdichki.*[4]
        On their hats they have small scarlet stars.

This means that the TR (picture, stars) is attached or affixed to the LM (wall, hats) by some means (glue, hook, pin, etc.). Such an image schema has been referred to as the rotated image schema (Navarro i Ferrando 1999) [fig. 3].
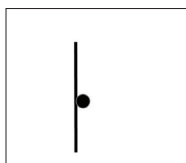

Figure 3
Rotated image schema of *na*

What is interesting is that Boyadzhiev (most probably intuitively) suggested a separate class/sense for examples such as in (5) and (6) within his classification of the spatial meanings of *na*. The Support parameter here comes via 'attachment' since we need something like a hook, or glue, etc. to hold the TR in place as the LM is not in its canonical orientation. Thus, the above examples apply when there is physical contact between the TR and the LM and the latter has the role of supporting the former especially in the canonical scenario when the LM is bigger than the TR.

More evidence for the claim that the functional parameter is also encoded in the lexical concept glossed 'contact' comes from the possibility of having felicitous sentences in which the LM is smaller than the TR as below:

(7)   *Nenko se podpira **na** motikata pred kladenetsa…*
        Nenko is propping himself **on** the hoe in front of the well (lit).

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4   Most of the examples are from Boyadzhiev 1952

(8) *Toi se podpira na grubo odyalana toyaga*
    He is propping himself **on** a hewn stick (lit.)

What is important here is that there is both physical contact between the TR and the LM and the latter supports the former (with the additional help of the hand and a balancing force).

There is yet another spatial scene involving Contact in which Support is also encoded by the examples below:

(9) *prasten na prasta, kolan na krasta.*
    ring **on** finger, belt *on* waist (lit).

This can be referred to as the axial image schema (Navarro i Ferrando 1999) although in Bulgarian it is also often instantiated by the preposition *okolo* (round).

One more set of examples will suffice. Consider the relations illustrated in the sentences below:

(10) *Smehat na Minka beshe **na** ustata i.*
    The laughter of Minka was **on** her mouth (lit).

(11) *Usmivka tsafne **na** litseto i.*
    Smile flowers **on** her face (lit).

The examples in (10) and (11) illustrate a configuration in which the image schema can be identified as the TR is part of the LM**,** more specifically the TR is understood as part of the external side of something.

There is also the other possibility where a part of the TR is the LM as in:

(12) *Hodya **na** 4 kraka/prasti.*
    I walk **on** 4 legs/toes.

In most of the above examples the literal translations in English reveal very close parallels between the uses of *na* and 'on' in Bulgarian and English.

Similarly to English (Evans 2010), in Bulgarian there are other distinct 'support' lexical concepts which are non-spatial and have derived from the Support parameter as illustrated by the following examples:

Subsistence support
(13) *Trima dushi sa mi **na** ratsete.*
    Three people are **on** my arms (lit).
    I look after three people.

Drug dependency

(14) *Na hapcheta li si ili **na** insulin?*
    Are you **on** pills or insulin?

Psychological support

(15) *Mozhesh da razchitash na men.*
    You can rely **on** me.

Rational/epistemic support

(16) ***Na** kakvo osnovanie?*
    On what ground?

In addition, there seems to be yet another 'abstract' meaning of the preposition *na*, the so called 'active state' lexical concept (Evans 2010). It does not derive directly from the Support parameter but from another functional category which can be called 'functionality' or 'activity'. In many spatial scenes when the TR comes in contact with a particular surface, or is in its proximity, the TR becomes functional. Such a possible scenario might be a lightning coming in contact with an object and setting light to it or any physical transmission of energy from objects coming in contact. Subsequently, functionality can involve a range of activities associated with the point of space which the TR is at. As pointed out previously, the expression *na more* (lit. 'on sea') licenses the interpretation that, when one is at the seaside, they are involved in activities such as lying on the beach, swimming in the sea, partying, etc. Here are some more examples from Boyadzhiev's classification:

(17) a. *na rabota*
    on work (lit)/ at work.
    b. ***na** pat.*
    on road (on the road in the sense of travelling).
    c. ***na** svoboda.*
    on liberty (lit)/ at liberty.
    d. ***na** strazha.*
    on watch.
    e. *na sabranie.*
    on meeting (lit).

Apparently, the 'active state' lexical concept associated with *na* relates to adjectives or nouns of action which involve a particular state which can be construed as 'active'. Such states seem to hold for a prescribed or limited period. In English such states are more often conceptualized by the preposition 'at', which is the most general expression of localisation in space in English, marking that a TR is relative to a proximal point in space. Boyadzhiev (1952, 100) described

these uses of *na* as referring to "activity, position, state or conditions" as well as "occupation, or participation at a particular place".

4   Conclusion

Although Boyadzhiev claims that his classification of the uses of the preposition *na* is syntactic as he looks at the preposition *na* as a Prepositional Phrase (PP) in a sentential context thus involving the Verb Phrase (VP), at several points it overlaps with a possible cognitive semantic analysis which shows that the cognitive linguistic approach addresses the intuitions of serious traditional linguists. As far as the theory goes, Evans (2010), with his latest refinement of the Principled Polysemy Approach, has managed to show that we do not always need conceptual metaphors to explain abstract, i.e. non-spatial senses of prepositions or account for the variety of spatial senses of a polysemous form. The idea of the proto-scene, which in addition to the prototypical spatio-geometric configuration contains functional elements which are consequences of this particular configuration, allows a principled account of the numerous senses of the highly polysemous preposition *na*. Thus, the spatio-geometric relation CONTACT of the TR with (or proximity to) the surface of a LM also contains the functional information about SUPPORT. They can both account for spatial senses of *na*, in which the preposition licenses various configurations between the TR and LM, which differ from the canonical one, i.e. the TR is smaller than the LM and the LM is horizontal. The functional element of SUPPORT sanctions configurations in which the LM is vertical as in (6), the TR is smaller as in (7) and (8), the TR is part of the LM as in (10) and (11), a part of the TR is the LM as in (12). The non-spatial senses of *na* listed above, such as Subsistence support, Drug dependency, Psychological support, and Rational/Epistemic support can also be accounted for as deriving from the Support parameter as illustrated by the examples in (13), (14), (15) and (16). Finally, an abstract sense such as 'active state' can derive from a functional element in the lexical concepts. In the case of *na* it goes back to the central spatio-geometric sense of CONTACT which entails a functional element. In this way all of the senses of the preposition *na* presented above have received a principled account.

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