

On the Motivated Polysemy of the Lithuanian ŽEMIAU *Below*

Dėl lietuvių kalbos prielinksnio *žemiau below* motyvuotosios polisemijos

LINGUISTICS / KALBOTYRA

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The principle of motivated polysemy advocated by cognitively-oriented linguists has been mostly applied in the analysis of English prepositions. However, other languages, especially highly inflected ones, have received less attention. Therefore, the present paper demonstrates how the principle works on a selected preposition in Lithuanian. It aims at: (1) establishing different senses of *žemiau* “below” as (2) related in a single network. The data is retrieved from the Corpus of Contemporary Lithuanian Language and analysed according to the Principled Polysemy Model suggested by Tyler & Evans (2003). Results of the study reveal that the primary sense, which is based on a proto-spatial scene of the Figure (F) underneath the region of the Ground (G), functions as a direct or indirect derivational basis for a network of senses, both in concrete and abstract domains. The investigation demonstrates that the newly established senses only partially overlap with the ones given in Lithuanian dictionary entries.

KEYWORDS: prepositions, motivated polysemy, Lithuanian, Figure, Ground.

Spatial prepositions (Landau & Jackendoff, 1993) have always generated problems for lexicographers and language learners due to the *intricacy and seeming capriciousness of their behaviour* (Herskovits, 1988, p.27). However, methodological approaches to the semantics of these *closed-class forms* (Talmy, 1983, p.227; 2000, p.179) are rather different. The classical, or structuralist, treatment emphasizes the importance of syntagmatic and/ or paradigmatic relations, while the state of the art, or cognitive, framework refers to the conceptual structuring of entities or relations, associated with the experience we gain from our physical functioning in the environment (see a dictionary vs. an encyclopaedic view of word meaning in Tyler & Evans, 2003, p.17). Another disparity pertains to the way these two lines of investigation treat polysemy. As far as the classical studies are concerned, they consider distinct prepositional senses to be unrelated. Cognitively-oriented linguists, on the other hand, advocate systematically motivated relations among different senses. On the whole, English prepositions are the most frequently selected for semantic analysis, but other languages, especially highly inflected ones, have received less attention (for a review

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Introduction



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different approaches to prepositional semantics, see Stasiūnaitė, 2016).

Among all these studies, there are investigations that deal with prepositions involving either negative or positive value of the horizontal/ vertical axis in Euclidean space. The necessity to refer to the alignment of entities with respect to the reference lines of the visual field is especially argued for by Langacker (1987, p.133). According to the researcher, descriptions of spatial scenes presuppose:

(...) the normal horizontal/ vertical dimensional grid we calculated in relation to the surface of the earth: this in turn reflects the orientation of our visual field when we assume our canonical upright viewing (...) We are accustomed to seeing most of the objects in our experience (...) in a canonical alignment with respect to their surrounding (...). To the extent that our conception of such objects includes a canonical viewpoint or alignment, this information is necessarily a part of an encyclopaedic characterization of the predicates designating them (ibid.).

The Lithuanian preposition **žemiau**, which is an approximate translation equivalent of the English **below**, typically designates the lower location of one entity with respect to another on the vertical axis (cf. *vertical space* in Dirven, 1993, p.74). Although it acts as a competing near synonym of the Lithuanian **po** “under”, their semantic affinity might be just cursory. After a contrastive examination there is a possibility of various patterns of structuring physical space, which may result in different uses of the prepositions, thus excluding their substitution. This becomes especially manifest during the process of meaning extension to other conceptual domains, which is determined by the conceptualization of physical space. However, according to Taylor (1988, p.309), even interchangeability in some contexts does not necessarily mean that prepositions are absolute synonyms. Different semantic types, in fact, may emerge when crossing the boundary of one language/ culture, thus attesting to slightly or markedly disparate, or idiosyncratic, ways of dividing up physical space, which consequently results in different paths of meaning extension.

In the traditional linguistic framework, **žemiau** is treated differently. For instance, Ambrazas (1997, p.406; 2005, p.438) points out that depending on its syntactic and semantic properties, it can function as a preposition, e.g. *Vandens buvo žemiau kelių* “The water was **below** our knees”, *Temperatūra nukrito žemiau nulio* “The temperature fell down **below** zero”, or intransitively as an adverb, from which it derives, e.g. *Ji nusileido žemiau* “She descended **lower**”. Due to these etymological ties, the researcher ascribes **žemiau** to a group of secondary prepositions, alongside **aplink** “round/ around”, **arti** “near, close to, about”, **dėka** “thanks to, owing to”, **greta** “near, by, beside”, **išilgai** “along”, etc. (cf. the primary prepositions **su** “with”, **už** “behind/ beyond”, **ant** “on”, **apie** “about, of”, etc.). By way of contrast, also consider the adverbs **iš tiesų** “really, indeed, in truth”, **į valias/ iki soties** “to one’s heart’s content”, signifying the opposite type of semantic development (the preposition → the adverb). Moreover, Kilius (1972), Šukys (1998, p.538), Ambrazas (2005, p.444) attribute **žemiau** to a group of monosemantic prepositions (see also **aukščiau** “above”, **šalia** “by, near, next to”, **greta** “near, by, beside”, **prieky** “in front of”, **užpakaly** “behind”, **skersai** “across”, **išilgai** “along”, etc.), expressing exclusively spatial relations (*lower than, locative lower, holding/ moving to a lower position, a limit under which something is located/ happening*). So do some lexicographic treatments. For instance, the online Dictionary of the Contemporary Lithuanian Language (DCLL) provides the only sense of **žemiau** (“indicating the location or action of something lower”), the validity and importance of which are debated in the present analysis for several reasons. First, such vague concepts hinder the distinction between synonymous prepositions, not to mention meaning extensions, which become a crucial

factor for polysemization. Second, dictionaries, especially in Lithuania, still rely on intuitive explication, not supported by any corpus data, so they frequently fail to reflect the actual usage tendencies. That is why it is important to establish the semantic elements anew to provide unambiguous descriptions: (...) *metalinguistic inadequacy leads us to the idea that there are more specific semantic considerations to be taken into account when describing the meanings of the prepositions under study* (Šeškauskienė, 1998, p.103).

Linguists who ascribe to the cognitive line of investigation identify several senses of **žemiau**: *being located lower and involving location lower in geographical areas*, but do not aim at providing links between the senses (see Šeškauskienė, 2001, pp.91–92). As to cognitive studies on other prepositions pertaining to the negative value of vertical space, both in Lithuanian and English, they usually focus on geometry or functional relations, or the interplay of both, in the interpretation of concrete senses. For instance, **under** and **below** are investigated alongside other projective prepositions, such as **over** and **above**, in Coventry et al. (2001). In the same light, Šeškauskienė (2001) examines **under** and **po**, its approximate translation equivalent in Lithuanian, as well as sheds light on the semantic structure of **below**. However, research on abstract senses and their relations with concrete senses, or the so-called meaning chains covering various conceptual domains, seems to be scarce. For instance, in addition to **above** and **over**, Wege (1991) also discusses **below**, which does not prove to be amenable to a necessary and sufficient description. Taylor (1993), on the other hand, gives an account of **under**, when he tackles the polysemization processes of a number of English prepositions, and so does Dirven (1993), but their discussion of a radial network of extensions is rather sketchy. Furthermore, the researchers end up with numerous senses for each preposition. Tyler & Evans (2003), on the contrary, avoid the problem, by analysing the semantic structure of **under** and **below** according to the Model of Principled Polysemy, but their analysis appears to lack sufficient argumentation, as compared with their investigation of other prepositions, e.g. the amply studied **over**.

Therefore, the present paper aims at demonstrating in detail how cognitive linguistic principles are applied to the semantic analysis of the rarely discussed Lithuanian **žemiau**. First, it describes both concrete and abstract senses of the preposition and, second, shows how they are systematically related in a network. The senses are also compared with the ones given in the traditional lexicographic descriptions and/ or advocated by relevant cognitive linguistic studies.

The semantics of **žemiau** is investigated by drawing on authentic empirical data, for corpus-driven research reduces the linguist's subjectivity regarding tendencies and principles as well as corroborates the hypotheses put forward. In order to achieve the aims of this study, authentic utterances containing the selected preposition have been accessed from the Corpus of the Contemporary Lithuanian Language (CCLL), compiled at the Centre of Computational Linguistics at Vytautas Magnus University, Kaunas. The fiction register is chosen from among a variety of others as it reflects both concrete and abstract senses, whereas, for instance, administrative texts may entail abstract senses more frequently than concrete ones. Out of 673 CCLL instances of **žemiau**, only cases of prepositional usage (261 instances) have been selected for the present analysis, because in the remaining samples it is used as an adverb.

The following principles of the contemporary cognitive framework for prepositional semantics are taken into consideration. First, a prepositional sense is understood to involve reference to elements of mental spaces set up during the discourse, and these elements may not necessarily have counterparts in the outside world. In other words, the potential referents comprise not only objects and people, but also properties, quantities, abstractions, relations, and events (see the

Data and Methods

Mental Space Theory in Fauconnier, 1985; Lakoff, 1987; Dirven, 1993). A combination of different concepts is presumed to make up the definition of a prepositional sense.

Second, a model of word meaning termed Principled Polysemy, as outlined by Tyler & Evans (2003), is employed to establish different senses of **žemiau**. This methodology distinguishes between distinct senses conventionalized in semantic memory and their contextual variants produced on-line for the purpose of local understanding (cf. Lakoff, 1987). For a sense to be distinct, it must contain abstract meaning or a different set of characteristics of the figure/ ground, or a new type of their configuration (geometrical, functional, etc.) than that in the proto-scene (Tyler & Evans, 2003, pp.42–43; cf. Wesche, 1986/ 87, p.386). In meaning construction, the transition may take place (a) within the same domain, i.e., a locative concept may be extended to another locative one, a temporal concept – to another temporal one, etc., or (b) from one domain to another, when the new is conceptualized in terms of the familiar, thus, abstract domains – in analogy to more concrete ones (see the Theory of Conceptual Metaphor in Lakoff & Johnson, 1980; Lakoff, 1987; Kövecses, 2010). A radial category principle (Lakoff, 1987), which has its roots in the Prototype Theory (Rosch, 1975, 1978; Taylor, 1993), is employed to illustrate the systematically motivated relationship between the established senses of the preposition in the form of a semantic network organized with respect to the primary sense (cf. *central sense* in Tyler, 2012; *ideal meaning* in Herskovits, 1986; *super-schema* in Langacker, 1987). Tyler & Evans (2003, pp.47–50) suggest methodology for such sense identification, namely the following prompts that will be followed in this study: (1) the physical aspect of the sense, which is related to the experiential approach and embodiment that allow understanding abstract domains in terms of physical knowledge, relying on the way we interact with the surrounding world, perceive and comprehend it (Lakoff & Johnson, 1980; Johnson, 1987; Lakoff, 1987); (2) predominance or frequency of use in the semantic network, which is the unique spatial configuration involved in the majority of the distinct senses found in the network; (3) grammatical predictions (for the relevance of collocations associated with a distinctive and reasonably stable frequency of occurrence, see Sinha & Kuteva, 1995; Evans & Tyler, 2004); (4) relations to other spatial particles.

In this investigation, the simplest type of prepositional expression consists of a preposition and two noun phrases, as in *plaukai žemiau pečių* “hair **below** the shoulders” (Herskovits, 1986, p.7). However, since the main issue of interest here is semantic structure rather than grammatical relationships, contextual variations are also allowed. For instance, a spatial expression may refer not only to objects, but also to events, states, or actions, and thus consist of a clause rather than just a noun phrase, e.g. *Mes gyvename žemiau Neris* “We live **below** the Neris”. Also consider the significance of *focal adjustments* (Langacker, 1987), *degrees of salience* (Schmid, 2007) and *attention phenomena* (Talmy, 2007), which pertain to linguistic topology, or what Talmy (1983, pp.269–271) defines as a disjunct character of schematization that allows focusing on the same situation within the same conceptual domain from different perspectives, depending on the speaker’s dispositions or social, cultural, etc. constraints. The principle of language economy is not violated in such cases.

The terminology adopted here to characterize the senses of the Lithuanian preposition **žemiau** is borrowed from Talmy (1983, 2000), who refers to the two configurational elements of a spatial scene as *figure* (F) and *ground* (G) (see also Coventry et al., 2001; Levinson, 2003; cf. Fillmore, 1968). An entity which is given mental foregrounding, and typically smaller and movable, is F (the locand), whereas the one functioning as some background with respect to F, and typically larger and immovable, is G (the locator). For instance, in the expression *temperatūra nukrito žemiau nulio* “the temperature fell down **below** zero”, *temperatūra/temperature* constitutes

F, whereas *zero/nulis* is G. Tyler & Evans (2003, pp.50–51) pay attention not only to the spatial configuration of F and G, but also to their functional interaction, in the sense that it is understood by Herskovits (1986) or Vandeloise (1991, 1994), to make up *a spatial scene*. It also seems plausible that functional engagement might be best modelled by a cluster of functions, rather than by a single functional element (Bietel et al., 1997).

There are also other terms indispensable for the semantic study of the Lithuanian preposition *žemiau*. Following Tyler & Evans (2003, p.52), *a proto-scene* is used to distinguish the primary sense in a semantic network from other senses that are diachronically derived from it. Because of combining idealized elements of outside-world experience (F and G) and a conceptual relation between them (the conceptualization of a particular configuration between the entities), it is an abstraction across many similar spatial scenes associated with a particular spatial preposition.

The lexical item *žemiau* displays a relatively restricted range of uses in the CCLL (a total of 673), out of which 261 utterances illustrate prepositional usage, while the remaining samples reflect it employed as an adverb. The low number of concordances with the preposition is believed to echo its semantic peculiarities, which is in line with Langacker's (1987) observation that the frequency of the occurrence of a lexical item correlates with the number of senses it is likely to develop. Consider Table 1 illustrating the semantic structure of *žemiau* in the selected corpus.

Senses	1. Primary	2. Geography-related	3. Measurement	4. Value
No of utterances	160	33	37	31
Total	Sense 1 + 2 = 193		Sense 3 + 4 = 68	
Grand total	Sense 1 + 2 + 3 + 4 =		261 out of 673 (incl. adverbs)	

Results and Discussion

Table 1

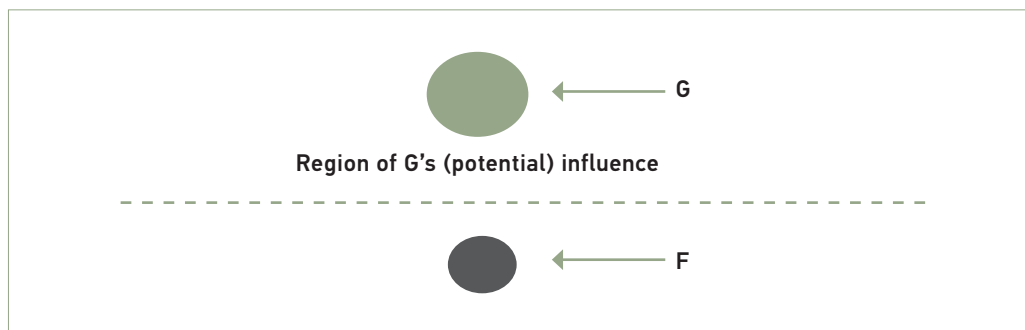
Senses of *žemiau* in the CCLL

As shown in the table, *žemiau* profiles four types of relations: two in the concrete domain (the primary sense (1), and the geography-related sense (2)) and two in the abstract domain (the measurement sense (3), and the value sense (4)). The relationship between concrete vs. abstract senses (193 vs. 68) illustrates preference for the concrete domain in the semantic development of the preposition from the corresponding adverb, a factor which may facilitate multiple extensions of its highly productive synonym *po* “under” away from the domain of spatial verticality (for more ideas on the influence of the neighbouring or contrasting categories on the extension of a category, see Taylor, 1988, p.309). Also note the preponderance of sense 1 as compared with sense 2 (160 vs. 33), and the meaning component of negative verticality in sense 1, which is also inherent in the meaning of the corresponding adverb.

The semantic peculiarities of *žemiau*, as attested by CCLL data, are discussed in the framework of contemporary cognitive research. First, the primary sense is established, and its extensions in concrete and abstract domains are examined. Next, semantically motivated relationships between the senses, or use types, that differ in status are highlighted in the form of a network.

Defining the primary sense. Figure 1 offers an approximate depiction of the conceptual spatial relation holding between F and G, as coded linguistically by the Lithuanian preposition and represented in the proto-scene by the diagrammatic configuration between the two spheres.

Fig. 1
Proto-scene for
spatial scenes
involving *žemiau*



The CCLL data attest to several features assumed to be part of the proto-scene. First, the schematic construal stipulates that F is located lower than G in Euclidean space on an imaginary vertical axis, which pertains to the negative value of vertical space, in the sense it is understood by Dirven (1993, p.74), e.g.:

- (1) (...) *žemiau* *krūtinės* — *atsikišęs mažas apvalus pilvukas*.
“(...) **below** the chest there is a protruding little belly.”
- (2) *Kelnės žemiau* *kelių* *susegtos* *tokiais* *pachiais* *brangakmeniais*.
“The trousers **below** the knees are fastened with the same jewels.”

The examples show that G, whose geometric parameters, such as shape and dimensions, are unimportant for the construer, becomes a means of referencing, i.e. the position of “zero”, and is determined by the speaker’s eye level; hence, the larger sphere in Figure 1. In the majority of the CCLL examples, including the above ones, it is the lower edge of G (the chest, the knees, etc.) that is implicitly referred to by the speaker/ hearer by means of background world knowledge. In some other utterances, on the contrary, *žemiau* explicitly confines F below the spatially lower or upper part of G, thus presupposing biased ground geometry (Talmy, 1983) or profiling (Langacker, 1987), which is attested by the combinability patterns with such words as *dugnas/ apačia* “bottom” or *viršutinė dalis* “upper part”:

- (3) (...) *vamzdžius* *galima* *kloti žemiau* *griovio dugno*.
“(...) pipes can be laid **below** the bottom of the ditch.”
- (4) (...) *vamzdžiai* *0,2 m žemiau* *ledo sluoksnio apačios*.
“(...) pipes 0.2 metres **below** the lower part of the ice.”
- (5) *Maždaug* *keturis* *kartus žemiau* *viršutinės dalies* *plytėjo podiumas*.
“Approximately four times **below** the upper part there stretched a podium.”

F (see the smaller sphere in Figure 1), whose geometric parameters do not bear any significance during the process of conceptualization, either, designates the limits of that vertical space, coinciding with its bottom at the lower end.

Second, the proto-scene involving the conceptual spatial relation denoted by *žemiau* does not presuppose any functional interaction between the two entities, in the sense that it is understood by Vandeloise (1991, 1994). In other words, G is not capable of affecting F, hence, the dotted line in Figure 1, which separates G’s region of (potential) influence from F located below it. According to Šeškauskienė (2001, 2004), the preposition merely divides the proto-scene into two spatially discontinuous portions or *subspaces*, when one of them is conceptualized as being lower with respect to the other on a vertical measurement line. By way of comparison, consider the importance of functional interaction (hiding, covering) between the two entities in the semantics of the seemingly close Lithuanian synonym *po*

“under”, thus, attesting to disparate construals of the same state of affairs:

(6) *Palindau po stalu (...)* “I went **under**/***below** the table (...)”

The fact that the conceptual spatial relation denoted by *žemiau* does not imply contact or contiguity (cf. *coincidence* in Cuyckens, 1994) between F and G is clearly manifested by collocates with adverbs denoting short and/ or long distance. For instance, consider the CCLL data with *šiek tiek/ kiek/ vos* “a little bit/ slightly”, attesting to short distance, and *gerokai/ žymiai* “a great deal, much”, emphasizing long distance between F and G:

(7) *Paskui šiek tiek žemiau praviros burnos pastebėjo tvirtai sunertas baltas rankas.*

“He later noticed tightly interlaced white hands a little bit below the opened mouth.”

(8) (...) *paltais, ilgais, siekiančiais gerokai žemiau kelių.*

“(...) coats, long, much below the knees.”

Various units of measurement denoting distance (e.g. inches, centimetres, metres, etc.), including less typical examples (e.g. floors, fingers, etc.), are also encountered in the contexts with *žemiau*:

(9) *Antroji žaizda žiojėjo per kokius keturis colius žemiau pirmosios.*

“The second wound was gaping approximately four inches below the first one.”

(10) *Kanalas eina palei stuburą ir baigiasi trijų pirštų atstumu žemiau bambos.*

“The channel goes along the spine and finishes three fingers below the navel.”

When vertical distance between F and G is at issue, the Lithuanian preposition *po* “under”, which emphasizes hiding, protection for F (aš “I”) situated below G, is excluded, because the spatial scene reflects merely the geometrical configuration of the two objects without any functional outcomes.:

(11) (...) *palei formą, einančią aplink bokštą, du metrai žemiau denio/*du metrai po deniu.*

“(...) along the form encircling the tower, two metres below/*under the deck.”

When the two prepositions are used interchangeably, they still evoke different construals of the same situation (*žemiau*/ unrelated subspaces vs. *po*/ related subspaces), and it depends on the speaker which of them to select, cf.:

(12) *Sukryžiavau rankas žemiau krūtinės/ po krūtine.*

“I crossed my arms **below/ under** the chest.”

Thus, negative verticality and function-free F and G alignment constitute the key components of the proto-scene involving the conceptual spatial relation denoted by *žemiau*. This type of proto-scene defines the most abstract schematic, and also the least elaborate, content of the Lithuanian preposition. In the present analysis, it will be referred to as the primary sense (see 160 instances out of 261 in Table 1). On the basis of the CCLL data, the typicality of this sense is mainly attested by the physical aspect, which is determined by the nature of G (see Table 2).

F \ G	Human body	Any other concrete object	Total 2
Human body	22	5	27
Any other concrete object	27	43	70
Action/ event/ process	34	15	49
Abstract entities	12	2	14
Total 1	95	65	160

Table 2

Types of F and G in the primary sense of *žemiau*

As seen from the table, in all of the 160 instances, G is either a person/ different parts of the human body or any other concrete entity selected as a reference object in the spatial scene (see Total 1: 95 vs. 65, respectively). The preference for the human body should not be surprising. Studies into conceptual metaphor attest to the fact that reasoning about the world is based on our bodily experience (Lakoff & Johnson, 1980; Lakoff, 1987; Kövecses, 2010). It is no wonder then that the human body acts as one of the most frequent sources not only in the process of metaphorization, but also during the conceptualization of the concrete. For instance, in the expressions *a tree in front of me* or *bushes behind the tree*, the tree is conceptualized as having its front and back parts according to the position of the viewer. Thus, it is the nature of our anatomical architecture that renders the body as the most appropriate type of G in the proto-scene expressed by **žemiau**. Therefore, the primary sense of the Lithuanian preposition illustrates the notion of embodiment in the cognitive linguistics view of meaning, as summarized below by Gibbs (2006, p.9) (see also Rohrer, 2007, pp.25–47):

People's subjective, felt experiences of their bodies in action provide part of the fundamental grounding for language and thought. Cognition is what occurs when the body engages the physical, cultural world and must be studied in terms of the dynamical interactions between people and the environment. Human language and thought emerge from recurring patterns of embodied activity that constrain ongoing intelligent behaviour [;] [therefore] we must... seek out the gross and detailed ways that language and thought are inextricably shaped by embodied action.

Different parts of the human body feature as G in the CCLL concordances with **žemiau** in the primary sense, e.g. *pilvas* "belly", *alkūnės* "elbows", *burna* "mouth", *krūtinė* "chest", *juosmuo* "waist", *bamba* "navel", *pečiai* "shoulders", *širdis* "heart", etc.:

(13) *Net žemiau juosmens buvo nukarusi ilga balta barzda.*

"The long white beard was hanging even **below** the waist"

(14) (...) *švarkelio rankovės vos siekė žemiau alkūnių.*

"(...) the sleeves of the jacket barely reached **below** the elbows."

(15) (...) *skausmas taip pat persikelia, nusileidžia šiek tiek žemiau pečių, tačiau nedingsta.*

"(...) the pain also changes its location, goes down a bit **below** the shoulders, but doesn't disappear."

(16) *Jis smogia žemiau juostos.*

"He hits **below** the waist."

The examples above also illustrate major types of F, when human morphology functions as G. First of all, the location of other body parts (*rankos* "hands/ arms", *kūnas* "body", *plaukai* "hair", *barzda* "beard", *škuosena* "hairstyle", etc.) is determined in this way (22 instances in Table 2). There are also utterances when F constitutes an integral part of G because of internal or external reasons, e.g. *randas* "scar", *ištatuiruotas skaičius* "tattooed number", *žaidza* "wound", *griovelis* "small hollow place", *dėmė* "spot", etc.:

(17) *Akys sustojo ant kruvinos dėmės žemiau smilkinio.*

"The gaze fixed on the the bloody spot **below** the temple."

Other concrete objects, when used with the body as the main reference entity, can also function as Fs. They mainly include garments (e.g. *paltai* "coats", *suknelės* "dresses", *kelnės* "trousers") or their constituent parts (e.g. *rankovės* "sleeves", *kišenės* "pockets", *užtrauktukai* "zips") to be located with respect to the body (27 instances in Table 2).

Moreover, there are other types of F which should be taken into consideration so as to give

a broader picture of the primary sense of **žemiau**. Consider, for instance, abstract entities (example 15) or events/ processes (example 16), the location of which is determined with reference to the body. As shown in Table 2, such Fs appear in 12 and 34 instances out of a total of 95. More examples of abstract entities in the CCLL include *energijos kanalai* “energy channels”, *siela* “soul”, *smūgis* “(blow/ punch)”, etc., whereas *gestikuliuoti* “gesture”, *panižti* “become itchy”, etc. refer to events/ processes that need to be localized.

However, the physical aspect of the primary sense of the Lithuanian preposition is manifested not only when the human body is involved, but also when other concrete objects feature as reference entities (65 instances in Table 2). Consider the following CCLL examples:

(18) (...) *geltoni pakinkliai žemiau sijono.*

“(...) yellow backs of the knees **below** the skirt.”

(19) *Mačiau jį, gulintį ten, du metrai žemiau kryžiaus, įsivaizdavau jo supuvusį karstą (...)*

“I saw him lying two metres **below** the cross, I could imagine his rotten coffin (...)”

(20) (...) *krėgždėms teko ieškotis molėtų upės skardžių žemiau Slabaldos tilto.*

“(...) the swallows had to search for steep-sided river banks composed of clay **below** the bridge of Slabalda.”

(21) *Žemiau pašto ženkle buvo atgalinis adresas.*

“**Below** the stamp there was a return address.”

(22) *Garsas sklido iš siauros gatvelės tiesiai trimis aukštais žemiau mūsų.*

“The sound came from a narrow street just three floors **below** us.”

(23) *Nugėriau maždaug per colį žemiau lašo.*

“I drank by approximately an inch **below** the rope.”

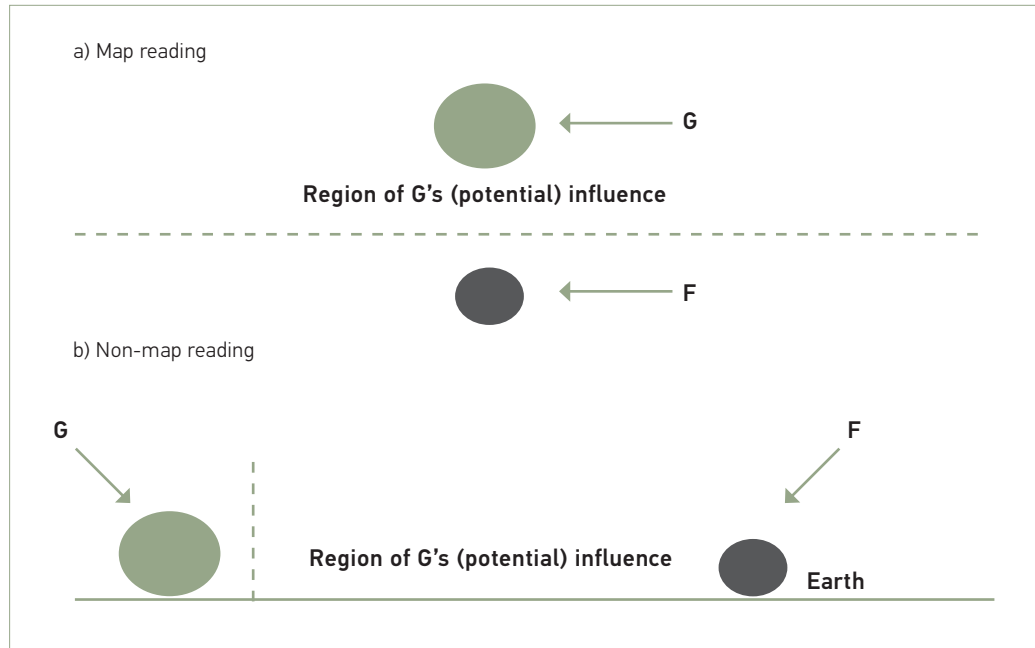
Examples 18 and 19 illustrate body parts or a person as F (5 instances in Table 2). In examples 20 and 21, other concrete objects take the lead, either conceptually distinct, such as bridges, or an integral part of another object, e.g. the address on a postcard (43 instances). Finally, examples 22 and 23 manifest abstract entities and events/ processes, the location of which is determined with respect to G as a concrete object (15 and 2 instances).

As regards the types of F, the location of which is rendered with respect to the human body or any other concrete object in the CCLL examples of the prepositional usage, concrete Fs, including humans or body parts, account for the largest number of instances (27 and 70 in Table 2). Events/ processes and abstract entities are encountered in 49 and 14 instances, respectively.

Thus, in the light of the major components of the proto-scene involving the spatial relationship designated by **žemiau**, the same type of vertical bounded space is retained in all the examples illustrating different types of F and G. Consequently, it would not be mistaken to consider the Lithuanian preposition to have purely spatio-geometric content conventionalized in its primary sense, the typicality of which is attested by the concrete type of G, either the human body or any other concrete object. Further in the analysis, it will be shown how less typical senses, both concrete and more abstract, are continuously related to the primary sense by exploiting and transforming it in different ways, i.e. the underlying principle of motivated polysemy will be taken into consideration. First, **žemiau**, as confined to concrete senses will be discussed, and then the analysis will proceed to the more abstract senses of the Lithuanian preposition

Geography-related sense. Another sense of *žemiau*, which is found in 33 CCLL instances (see Table 1), illustrates both uniform and varying semantic components in comparison with the primary sense. Figure 2 offers a schematic representation of this sense, mostly referring to geographic descriptions (cf. the topographical-distance sense in Tyler & Evans, 2003, p.130).

Fig. 2
A spatial scene in
the *geography-*
related sense



As shown by the figure, the spatial configuration involving the above schematic representation entails the location of F with respect to G in Euclidean space on either horizontal or vertical axes, depending on the vantage point, e.g.:

(24) (...) *Jeloustounas driekiasi žemiau kontinentinės plokštės.*

“(...) Yellowstone spans an area **below** the continental plate.”

(25) (...) *jiedu dažnai pasiekdavo Šventąją žemiau Ožkų salos.*

“(...) they often reached the river Šventoji **below** the island of Goats.”

On the one hand, the schematic representation of the spatial scenes may involve a vertical measurement line if the positioning of F (Yellowstone, the river) and G (the continental plate, the island) is similar to that of entities on maps (see map reading (a) in Figure 2). On the other hand, F may be considered to be spatially aligned with reference to G along an imaginary horizontal line, when both entities are conceptualized as situated on the surface of the Earth, which becomes the third referencing object (see non-map reading (b) in Figure 2). In other words, the second type of construal does not stipulate that the park is buried under the continental plate and the river literally flows under the island (cf. the primary sense of *žemiau*), which makes the element of verticality backgrounded, but still implicitly inferred by conceptualizing G as an elevated entity and, therefore, a geometric means of referencing, i.e. the position of “zero” (see the larger sphere in Figure 2). F and G are not capable of affecting each other, hence, the dotted line in Figure 2. In other words, in the geography-related sense, the preposition merely divides the spatial scene into two spatially discontinuous portions or *subspaces* (cf. Šeškauskienė, 2001, 2004), where one subspace is conceptualized as being lower and ahead with respect to the other on a horizontal measurement line stretched

along the surface of the Earth. It is not important which part of G is highlighted during conceptualization. F, whose geometric parameters bear no significance, either, designates the limits of that horizontal space.

As attested by the CCLL data, the position of G in the utterances of this type is usually taken by such concrete inanimate entities as continents, cities, villages, islands, rivers, bridges, and other salient landmarks in the environment. As to F, it refers to concrete inanimate entities (cemeteries, roads, bathing waters, meadows, houses, rivers, lakes, etc.). **Žemiau**, when used in the geography-related sense, can also code the location of events/ processes (see example 26). Abstract objects are allowed in such utterances, too (see example 27):

(26) **Žemiau** Etenmuro per ją nėra kur persikelti.

“**Below** Edenmore it is impossible to find a suitable place for crossing it.”

(27) (...) dogmos, skleidžiamos **žemiau** Meisono-Diksono linijos.

“(...) dogmas that are spread **below** the Mason-Dixon line.”

As in the primary sense, the apparent lack of contact or contiguity between F and G is manifested by the frequent use of such adverbs as *šiek tiek/ kiek* “slightly, a little bit”, prompting for the reading of “distant from”:

(28) (...) nukeliautume iki Ramiojo vandenyno, šiek tiek žemiau Australijos.

“(...) we would reach the Pacific Ocean, slightly below Australia.”

(29) (...) pieva dar šiek tiek tęsiasi **žemiau** namo.

“(...) the meadow continues slightly below the house.”

Various units of measurement denoting exact distance (measured in feet, miles, etc.) are also encountered with **žemiau**, thus signalling the importance of segregating the two entities:

(30) (...) kelią, esantį beveik trisdešimčiai pėdų žemiau krūmų.

“(...) the road which is almost thirty feet below the bushes.”

(31) Už trijų ketvirčių mylios, žemiau tos vietos, kur stovėjo keliautojai, tyvuliavo ežeras (...)

“After three quarters of a mile, below the place where the travellers were standing, there was lying a lake (...)”

Thus, backgrounding an inherent feature of negative verticality by the relevance of an imaginary horizontal axis and retaining function-free alignment between the two entities constitute the key components of the geography-related sense of the Lithuanian preposition and make it directly related to the primary sense.

Measurement sense. In addition to the primary sense and the geography-related sense, both of which pertain to the concrete domain of human experience, **žemiau** also entails measuring vertical distance from some arbitrary reference level in a more abstract domain (see 37 instances in Table 1; cf. the less sense in Tyler & Evans, 2003, p.128). Like the geography-related sense, the sense of measurement is directly related to the primary sense, for having the same meaning component of distance associated with scales of verticality. Consider lack of contact or contiguity as attested by frequent collocates with such distance words as *gerokai* “a great deal”, *dvidešimt laipsnių* “twenty degrees”, etc. Sentential context, i.e. the verb (*nu*)*kristi* “fall”, should not be underestimated, either, for it further strengthens the interpretation assigned to the preposition. However, what renders the sense of measurement different from the primary sense is the change of domain, when physical space is mapped onto mental space, cf.:

(32) (...) karščio centras yra maždaug penki centimetrai žemiau bambos.

“(...) the centre of heat is approximately five centimetres below the navel.”

(33) *Temperatūra buvo dvidešimt laipsnių žemiau nulio.*

“The temperature was twenty degrees **below** zero.”

(34) (...) *šventykloje, kur temperatūra nukrisdavo gerokai žemiau nulio.*

“(...) in the temple, where the temperature dropped well below zero.”

In example 32, the Lithuanian preposition is used in the primary sense, for the lower location of an abstract entity (the centre of heat) is determined with respect to a concrete object (the navel), acting as a means of referencing. In examples 33 and 34, on the contrary, **žemiau** is used in the measurement sense, as not only F (temperature), but also G are abstract, the latter of which triggers an experiential shift from the domain of physical space to the domain of the intangible. This change is motivated by the tight correlation between quantity and vertical elevation (cf. the orientational LESS IS DOWN metaphor). In utterances of this type, G is some standard, norm or any other level on a vertical measurement line, serving as a division between two subspaces. So, in a number of instances, *nulis* “zero”, *laipsniai* “degrees” constitute typical Gs. Other fairly productive usage patterns in the CCLL pertain to limits, thresholds, lines, levels; hence, frequent combinability with *riba* “limit”, *linija* “line”, *lygis* “level”, *slenkstis* “threshold” and various units of measurement:

(35) *Gyventojų dalis, esanti **žemiau** skurdo ribos (...)*

“Part of the population **below** the poverty threshold (...).”

(36) *Jis buvo apie penkiasdešimt pėdų **žemiau** jūros lygio.*

“It was approximately fifty feet **below** the sea level.”

(37) (...) *valtys greitis nukrito **žemiau** Šeldono konstantos.*

“(...) the speed of the boat dropped **below** the Sheldon constant.”

(38) (...) *pradėjau dietinę kovą su antsvoriu, kurio **žemiau** šešiasdešimt penkių nepajėgdavau numesti.*

“(...) I started fighting against extra weight which I couldn’t get rid of **below** sixty five.”

As shown by these examples, when **žemiau** is used in the measurement sense, such abstract entities as sound, speed, weight, etc. keep functioning as typical Fs, but human beings are not excluded, either (see example 36).

Value sense. The remaining 31 CCLL instances out of 261 (see Table 1) reflect the value sense of the Lithuanian preposition (cf. the inferior sense in Tyler & Evans, 2003, p.129), which entails the field of axiology:

(39) *Antanas nors ir mokėsi viena klase **žemiau** Igno, bet už pastarąjį buvo dvejis metais vyresnis.*

“Despite studying one year **below** Ignas, Antanas was two years older than him.”

(40) (...) *kiekvienas turi ką nors, stovintį tiek aukščiau, tiek ir **žemiau** savęs.*

“(...) everyone has somebody who is both above and **below** them.”

The interpretation of these utterances is not that F is located physically lower than G, but that it is in an inferior situation relative to the speaker. The role of physically and culturally grounded spatial orientations, including up and down, in forming emotional and other concepts is pointed out by Lakoff & Johnson (1980) and Kövecses (2010), who claim that although metaphor that structures our way of thinking is a conceptual phenomenon, we have access to it through the language we use. For instance, examples 39 and 40 are the linguistic expressions of the orientational metaphors LESS IS DOWN and LOW STATUS IS DOWN. Also, consider how the orientational metaphor BAD IS DOWN, which is characterized by a downward orientation, explains the use of **žemiau** in the following utterances:

(41) Žukauskas mano dalykėlį *“Jaunuosiuose”* laiko **žemiau** literatūros.

“Žukauskas considers my short text in the journal *Jaunieji* **below** literature.”

(42) (...) *ką Živilė darė, Danai atrodė prasta, negabu, kvaila, žemiau* kritikos.

“(...) everything what Živilė was doing Dana thought was bad, stupid, **below** criticism.”

(43) (...) *prasadėti su manimi – žemiau* jos orumo.

“(...) to start an affair with me – **below** her dignity.”

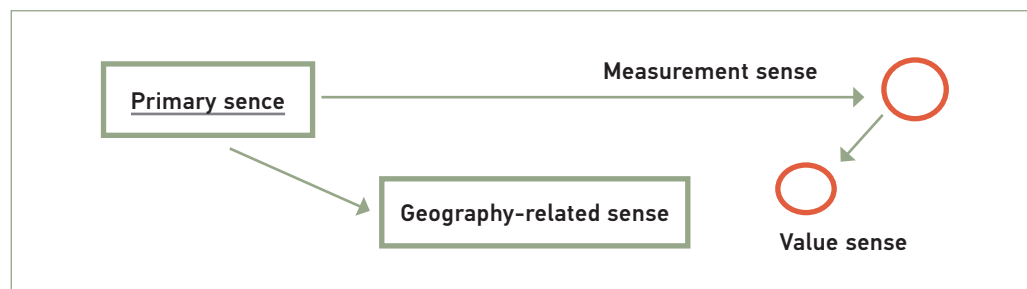
However, even in such metaphorical extensions, the element of distance from some reference entity in the abstract domain may be emphasized, e.g.:

(44) (...) *jei aprašyčiau siaubą, vis tiek knyga būtų 410 metrų žemiau* tiesos.

“(...) even if I managed to describe the horror, the book would be 410 metres **below** the truth.”

The figurative meaning of such expressions has become so established in the speech community, i.e. conventionalized, that its metaphorical force is no longer obvious for every language user. Relations of the value sense with the primary sense via the sense of measurement can be proved by the use of distance words (*410 metrų/metres* in the example above).

Figure 3 summarizes all the four senses of **žemiau** and shows their systematic relationships. Apparently, extension from the proto-scene, which refers to the primary sense of the Lithuanian preposition, to the second concrete sense, which entails geographic descriptions (see the two rectangles in Figure 3), is determined by an implicit change in the axis, from vertical to horizontal, rather than by different types of Fs. Gs in both senses refer to concrete objects, both animate or inanimate. However, extension from concrete to more abstract senses of **žemiau** (see the two circles in Figure 3) seems to be determined by the features of G, which is abstract rather than concrete. Fs in such utterances are also more likely to be abstract, although concrete entities, including human beings, are not excluded, either. The measurement sense is directly related to the primary sense, and acts as a derivational basis for the value sense. Thus, what we now consider to be distinct senses of **žemiau** are in fact derived from and related to the primary sense and become part of the semantic network of the Lithuanian preposition through routinization and entrenchment of meaning. The investigation demonstrates that the established senses only partially overlap with the ones given in dictionary entries. Moreover, it gives a broader picture of the prepositional meaning, for the present discussion also involves the abstract senses of **žemiau** and their ties with concrete senses, which is not tackled in the earlier cognitive linguistic studies. It would thus be important to compile dictionaries relying on the corpus-driven approach to semantic studies. Research on other Lithuanian prepositions in a cognitive vein would also be beneficial, as it leads to a more fine-grained description of prepositional meaning.



Conclusions

Fig. 3
Semantic network of
žemiau

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Data Sources

1. CCLL – *Corpus of the Contemporary Lithuanian Language* (Dabartinės lietuvių kalbos tekstynas) [online]. Available at: <http://tekstynas.vdu.lt/tekstynas/>
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Santrauka

Ieva Stasiūnaitė. Dėl lietuvių kalbos prielinksnio *žemiau* (*below*) motyvuotosios polisemijos

Kognityvinio požiūrio į kalbą besilaikantys mokslininkai teigia, kad prielinksnio reikšmės yra susijusios ir sudaro vientisą tinklą. Tačiau šis požiūris mažai taikytas lietuvių kalbos duomenims tirti. Todėl šiame straipsnyje siekiama parodyti, kaip pasitelkti kognityvinės lingvistikos principus nagrinėjant lietuvių k. prielinksnio *žemiau* polisemiją, t.y. (1) nustatant šio prielinksnio reikšmes bei (2) parodant jų sąsajas. Surinkta 261 konkordansų eilutė su pasirinktu prielinksniu iš grožinės literatūros registro iš Dabartinės lietuvių kalbos tekstyno; taikyti bendrieji kognityvinės lingvistikos principai (Talmy, 1983), principinės polisemijos modelis (Tyler & Evans, 2003) ir konceptualiosios metaforos teorija (Lakoff & Johnson, 1980). Tyrimo rezultatai rodo, kad konkrečios ir abstrakčios *žemiau* reikšmės skiriamos pagal figūros ir/ arba fono tipus bei jų geometrinius, funkcinius ir kitus ryšius, be to, jos tiesiogiai ir/ arba netiesiogiai siejasi su pirmine reikšme, kuri nustatoma atsižvelgiant į proto-erdvinės figūros ir fono konfigūraciją. Išskirtos tokios prielinksnio reikšmės: pirminė, geografinė, matavimo ir vertės, kurios tik iš dalies sutampa su pateiktosiomis leksikografiniuose aprašuose. Šiais rezultatais galima būtų pasinaudoti plėtojant prielinksnių semantinius tyrimus Lietuvoje, rašant žodynus bei mokant(is) kalbos.

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