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What is an image schema? Looking for an answer in Latvian and Mandarin Chinese

Kas ir tēlu shēma? Meklējot atbildi latviešu un ķīniešu valodā

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Image schema is one of the key notions in the discussions of the semantics of spatial adpositions. The diversity of related topics and the abundance of literature on these conceptual primitives makes the concept *image schema* difficult to grasp. The aim of this article is to clarify this notion by explicating on some important aspects of the schematization and representation of spatial scenes using the CONTAINMENT schema as an example. The article also demonstrates that the cross-linguistic comparison of an image schema is an effective method employed to better understand the universal cognitive processes underlying language use.

The article contains a comparison of the spatial functional units that express the CONTAINMENT schema in Latvian and Mandarin Chinese, a discussion of the blurriness of the boundary between the concepts *containment* and *support* and their relation to the concept *location*. The relationship between image schemas and semantic frames, the factors that influence schematization and the phenomenon of parallel usage of locative units are discussed too. Image schema transformations are characterized as the mechanism of extending the meanings of spatial phrases.

Keywords: conceptual primitive; CONTAINMENT schema; SUPPORT schema; parallel usage; frame semantics; factors of schematization.

Introduction

Spatial units have never been a neglected research topic in neither Latvian norChinese linguistics. For the Latvian language, the most significant recent publications on prepositions include a profound analysis of the historical development of the prepositional system by Daina Nītiņa (1978, 2007, 31–99; 2013, 619–640) and a detailed overview of the use of prepositions by Dzintra Paegle (2003, 180–207). The application of the cognitivist methodology to studying Latvian prepositions is still a novel approach, with the first paper on the subject being Linda Apse's (2011) doctoral dissertation. Also, the locative case is usually grouped together with other cases in descriptions of Latvian grammar (Paegle 2003, 37–82; Kalnača 2013, 60–73; Nītiņa, Grigorjevs 2013, 343–435),

and analysing the locative case together with prepositions as semantically equal units is a novelty.

In China, the field of cognitive semantics is attracting many researchers' attention. For instance, Qiu Bing (2008), Chu Zexiang (2010), Yuan Yulin (2010), Chen Changlai (2014) have analysed the evolution and modern use of spatial constructions applying some elements of the cognitivist methodology. Qi Huyang (2014) has profoundly studied the representation of the spatial domain by Chinese function words. Nevertheless, to understand what spatial phrases can tell us about human cognition and the processes that ensure the development of abstract thought from everyday physical activities, more research is required in both China and Latvia. The first step of such research would be the collection of representative linguistic data, and the theory of image schemas seems to provide the essential guidelines for the selection process.

The **image schema theory** emerged in the context of "[t]he total absence of an adequate study of imagination" that would explore "the central role of human imagination in all meaning, understanding, and reasoning" (Johnson 1987, ix). The formation of such context was due to the dominant role of the Objectivist orientation in the Western philosophical and cultural tradition. Objectivism views that concepts and their interrelations exist in the world independently of human understanding and that concepts directly map onto objects, properties, and relations regardless the context (ibid, x).

"This received Objectivist view of meaning and rationality has been seriously questioned both on logical grounds and on grounds of a wide-range collection of empirical studies" (ibid, xi). The Experientialist studies "point to one fundamental moral: *any adequate account of meaning and rationality must give a central place to embodied and imaginative structures of understanding by which we grasp our world*" (ibid, xiii, Johnson's italics). Image schemas are among these structures (ibid, xi).

Two of the most frequently used examples in the image schema discourse are the CONTAINMENT or CONTAINER schema and the SUPPORT or SURFACE schema. It is common for the discussions of these schemas to mention locative expressions containing the prepositions *in* for the former and *on* for the latter, which can be misleading for those readers who are just developing their understanding of the relations between the body, cognition and language. Indeed, these prepositions can represent these schemas, but the relationship between the two is more complex than mere mapping. Also, image schemas are constituted by a wide range of constructions, not just the prepositional ones, therefore, when *in* and *on* are labelled as instances of schema activation it should be remembered that they only represent fragments of the schemas.

These fragments are complex entities, though. By studying them, one can unearth such facts about language and cognition that would be left undiscovered had such notion as *image schema* not been introduced. This is especially evident in terms of cross-linguistic analysis, since the comparison of the data from several languages increases the number of facets analysed in each language. Because of the complexity of the notion, it is necessary to understand what image schemas are before undertaking the analysis of locatives.

1. Image schemas as patterns of experience

The means of expressing spatial relations have always attracted linguists' attention. Locative expressions provide an effective ground for studying the connections between the amodal symbol systems (linguistic representations) and perceptual or sensorimotor systems (Lipinski, Spencer, Samuelson 2010, 102) in knowledge acquisition and reasoning. The knowledge of relations is just as important as the knowledge of objects, and space may be the place where relational knowledge emerges (Gasser, Colunga, Smith 2000, 214; Smith, Samuelson 2010, 188).

Spatial language has been studied from different perspectives; the one taken in this article reflects the framework set by Ronald Langacker (1987, 2009, 2014), Leonard Talmy (2005, 2012), Mark Johnson (1987, 2005), George Lakoff (1987), Jean Mandler (1992, 2005). This approach focuses on two fundamental processes that characterize cognition and language acquisition – schematization and categorisation (Langacker 2014, 79). Both are necessary strategies of surviving in the surrounding reality: on the one hand, they help save energy consumed by the brain, on the other hand, they ensure successful communication.

The research on spatial terms undertaken by Langacker (1987) and Talmy (2012) has demonstrated that locative expressions can be analysed as schematic representations of spatial scenes, abstracted to the level of primitive schemas, such as paths, bounded regions, contact, forces of various kinds etc. Developing the idea of schematization, Johnson (1987) and Lakoff (1987) have proposed their theory of image schemas. These schemas arise from "recurrent everyday bodily experiences such as the early childhood experience of putting things into containers and taking them out" (Dodge, Lakoff 2005, 58). The term *image schema*, with emphasis on the word *image*, was coined "primarily to emphasize the bodily, sensory-motor nature of various structures of our conceptualization and reasoning" (Johnson 2005, 18).

Thus, "image schemas are the recurring patterns of our sensorimotor experience by means of which we can make sense of that experience and reason about it, and that can also be recruited to structure abstract concepts and to carry out inferences about abstract domains of thought" (Johnson 2005, 18–19). The patterns or classes of experience start developing independently of language, prior to language learning, while children perform actions or observe others acting. As a result, children start learning language with some concepts being ready by that time (Dodge, Lakoff 2005, 60; Mandler 1992; 2005; Mandler, Pagán Cánovas 2014, 513). As more facets of experience develop, the concepts reflecting a small number of physical relations become more general and extend to cover a wider range of relations, with further extension towards more and more abstract relations (Gasser, Colunga, Smith 2000, 193–200).

In other words, by living through very basic experience, such as locations of objects, we form subconscious knowledge that structures our individual conceptual systems. This knowledge also shapes the conceptual system of the language in general. Image schemas as conceptual primitives are the mechanism that enables such structuring.

2. Image schemas as conceptual primitives

Closely related to the term *image schema* is that of *primitive*, a term that can cause some confusion. Spatial schemas associated with spatial units possess *trajector/figure* and *landmark/ground* specifications (Lakoff 1987, 419–420) and consist of fundamental spatial elements (Talmy 2005, 202–203), e. g., a point, a line, a plane, a boundary, an interior, parallelity, verticality, contact, etc. Such elements, "the first conceptual building blocks", are sometimes called *spatial primitives* (Mandler, Pagán Cánovas 2014, 510). The experience with the spatial primitives results in the formation of classes of experience or image schemas that are characterized by specific structural elements, e. g., an interior, a boundary and an exterior for the CONTAINER schema (Lakoff 1987, 272). These elements demonstrate gestalt integrity only when joined, that is why image schemas are irreducible into yet simpler gestalts. Schemas are *primitive* in the sense of being unitary (Johnson 1987, 44; Kimmel 2005, 289). Image schemas are *conceptual primitives* because they are "foundational", that is, "used to form accessible concepts" represented by language (Mandler 1992; 591).

Claude Vandeloise uses the term *primitive* in the context of *complex primitives* – units that are comparable to image schemas and, as some researchers believe, even more suitable for linguistic analysis (Correa-Beningfield, Kristiansen, Navarro-Ferrando, Vandeloise 2005, 343; Vandeloise 2006, 149). "Complex primitives are *primitives* because they are pre-linguistic concepts and they are *complex* because .. several characteristics acting like *family resemblance features* are necessary in order to describe them" (Vandeloise 2006, 149, his italics). In this approach, the emphasis is on the functions of spatial primitives rather than on their spatial characteristics, and the descriptions of complex primitives in the form of open lists of propositions are argued to be more specific and cover more sense distinctions than image schemas (Correa-Beningfield, Kristiansen, Navarro-Ferrando, Vandeloise 2005, 352).

However, in terms of mental representations as concentrations of characteristic features of concepts, not in terms of diagrams in the literature on cognitivism, there is no principal difference between lists of propositions, such as "*b* surrounds *a*" and "*b* protects *a*" (Correa-Beningfield, Kristiansen, Navarro-Ferrando, Vandeloise 2005, 351) and lists of spatial constituents such as an interior, an exterior and a boundary (Lakoff 1987, 272). Both are the forms of expression of each other and complement each other. Even if labelled as "container/content" and "bearer/burden" (Vandeloise 2006, 150), the relationships can be visualized and therefore mentally represented as images. Surely, such representations will be subjective and not shared by everyone, but so are the lists of propositions whose content may differ from speaker to speaker. Thus, the author of this article considers the term *image schema* for conceptual primitives appropriate.

3. The concept of containment in Latvian and Mandarin Chinese

The focus on image schemas helps sort linguistic data into highly abstract categories that can be compared cross-linguistically. Besides, pursuing a complex description of a conceptual category justifies juxtaposing different types of linguistic units, such as prepositions and the locative case in Latvian or localizers[1] and place words in Chinese. For instance, the following spatial units represent the CONTAINMENT schema in the two languages.

3.1. Latvian

The locative case is highly versatile. Its senses range from the prototypical containment – inner location (1a) to the containment in which the concept of the box is more abstract (1b, 1c, 1d). The equivalents of the locative case in other languages can be expressed by different units, such as *in*, *on* or *at*, or without specifying the geometrical aspects as Chinese place words do (see Section 4).

(1) a. *Kastē* *tiek ievietotas 20 tenisa bumbas*.
box.LOC.SG
'20 tennis balls are placed in the box.'[2] (LW2014[3])

(1) b. *Krokets* [..] *ir aizraujoša spēle laika pavadīšanai*
dārzā, *pļavā* *vai* *pludmalē*.
garden.LOC.SG meadow.LOC.SG or beach.LOC.SG
'Croquet [..] is an exciting game for spending time in the garden, meadow or at the beach.' (LW2014)

(1) c. *Pagaidi! Tev vajag cepuri* *galvā*.
head.LOC.SG
'Wait! You need a hat on your head.' (LW2014)

(1) d. *Reiz man nācās sagaidīt Jauno gadu* *Ziemeļpolā*.
North Pole.LOC.SG
'Once I had to celebrate the New Year at the North Pole.' (LW2014)

The preposition *iekš* 'in' is equivalent to the locative case, but it is not used in the standard language unless its use is justified by the semantic or grammatical

[1] A localizer (方位词*fangweici*) is a spatial postposition. It is the semantic equivalent of the Latvian spatial preposition. The syntactic equivalent of the Latvian spatial preposition is the circumposition '在 *zai* 'being at' .. localizer'. It consists of the preposition 在 *zai* 'being at' which functions to indicate that the phrase is locative and the localizer that expresses specific orientation (Nikolajeva 2015). This article discusses the semantics of locative phrases, hence, the focus is exclusively upon localizers.

[2] The Latvian and Chinese examples contained in this article are translated into English by the author of the article.

[3] LW2014 is an abbreviation for "Latvian Web (lvTenTen14)" throughout this article. The corpus consists of texts collected from the Internet in 2014 and contains 530 367 474 words (LW2014).

necessity. For instance, it can sometimes be used with indeclinable nouns or as a stylistic device to imitate old-fashioned language use (Nītiņa 1978, 87; 2007, 75, 85). According to the corpus data, this preposition is present in informal texts before the names of websites or other names written in other languages, before abbreviations or numeric expressions to which the locative case ending cannot be added (2a, 2b).

(2) a. *Par dažādiem XSS piemēriem var palasīties iekš http://ha.ckers.org/xss.html.*
in.PREP http://ha.ckers.org/xss.html
'You can read about different examples of XSS on http://ha.ckers.org/xss.html.' (LW2014)

(2) b. *Tā tiks "uzņemta" pēc "Avatara" tehnoloģijām, iekš 3D.*
in.PREP 3D
'It will be "filmed" using the technologies of "The Avatar", in 3D.' (LW2014)

3.2. Mandarin Chinese

The localizer 里 *li* 'in' has originated from the noun 里 *li* 'the inside or the lining of a garment', opposite to 表 *biao* 'the outside of a garment' (Qiu 2008, 158). In the course of grammaticalization, as the result of semantic bleaching, 里 *li* has become a marker of inner location whose opposite is 外 *wai* 'outside'. The localizer 里 *li* 'in' expresses the presence of the boundary between the interior and exterior, "emphasizes innerness" (Chen 2014, 427). It is the most common term for expressing inner location and it is widely used in both formal and informal contexts (3).

(3) 他…进屋后发现小梦并不 在 房间 里。
ta [..] *jin wu hou faxian Xiao Meng bing bu zai fangjian li*
being-at.PREP room in.LOCZ
'Having entered the room [..] he discovered that Little Meng was not in the room.' (CW2017[4])

The localizer 内 *nei* 'in' has developed from the noun that meant 'inner side, inside', opposite to 外 *wai* 'the outer area, outside' (Qiu 2008, 155). In comparison with 里 *li* 'in', this localizer puts a stronger emphasis on the presence of boundaries, the location within boundaries, and it is more typical of the formal register than 里 *li* 'in' (Zhao, Liu 2013, 240) (4).

(4) 在 景区 内， 游客可以乘海上游艇…
zai jingqu nei *youke keyi cheng haishang youting*
being-at.PREP scenic area in.LOCZ
'In the scenic area, visitors can enjoy yacht rides…' (CW2017)

The localizer 中 *zhong* 'in' has evolved from the noun 中 *zhong* 'centre'. Unlike the two previous ones, this localizer deemphasizes the presence of

[4] CW2017 is an abbreviation for "Chinese Web (zhTenTen17) Simplified" throughout this article. The corpus consists of texts written in Simplified Chinese that were collected from the Internet in 2017. The corpus contains 13 531 331 169 words (CW2017).

boundaries and is generally used for the locations in shapeless, amorphous Ground objects (5). The other two localizers are not usually used in this sense. In the formal register, this localizer often replaces 里 *li* ‘in’ (Chen 2014, 425–427).

(5) HEDP 在 水 中 能离解成五个正负离子。
HEDP zai shui zhong neng lijie cheng wu ge zheng fu lizi
being-at.PREP water in.LOCZ
’In water, HEDP splits into five positive and negative ions.’ (CW2017)

Overall, Latvian and Chinese are similar in having chosen to represent the CONTAINMENT schema by locative functional units, whose usage coincides at least in expressing the prototypical containment inside a three-dimensional ground object. However, the Chinese expressions can be more specific in terms of the level of formality and in describing geometrical features, e. g., objects with or without clearly specified boundaries. Other, more specific properties of the CONTAINMENT schema in the two languages are yet to be understood.

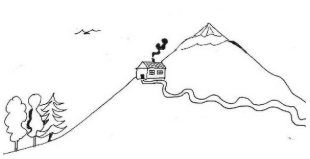
4. The CONTAINMENT schema vs the SUPPORT schema

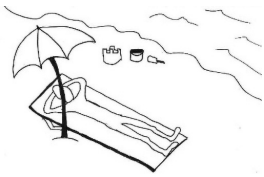
Being a native speaker of Russian, the author assumes that the prototypical sense of *on* is the location of the figure on the surface of the ground, e. g., *on the desk*, and the best example of *in* is the location of the figure inside a three-dimensional ground, e. g., *in the box*. However, the prototypical senses may vary across languages, even across speakers. With a large amount of cross-linguistic mismatch in the usage of *in* and *on*, much more substantial than in the usage of other spatial units, it becomes obvious that the distinction between containment and support is relative and the use of *in* and *on* is not solely motivated by the spatial parameters of the scenes.

Two-dimensional objects also have boundaries; therefore, they have the interior and exterior, but they are surfaces. For such scenes, one can choose which aspect will be the anchor of schematization – shape (*on*) or the property of having limits (*in*), as in *on the field* and *in the field* accordingly. The decision on which aspect to focus can also be determined by the semantic frame of the expression (discussed in Section 7).

More abstractly, one can think of any object as an area that is specified and delineated from the rest of space by the noun that names it. Then *in* expresses the location within the boundaries of this hypothetical area. This explains the extensive use of the locative case in Latvian (6a, 7a, 8a). The equivalent Chinese expressions show a different approach in representing physical features: the ground object is schematized as an area on the surface of the planet and the figure is on its surface, therefore, 上 *shang* ‘on’ is used (6b, 7b, 8b).

(6)[5] (7) (8)





(6) a. *māja* *kalnā*
house mountain.LOC.SG
'the house on the mountain'

(6) b. 山 上 的房子
shan shang de fangzi
mountain on.LOCZ ATTRIB house
'the house on the mountain'

(7) a. *cilvēks* *pludmalē*
person beach.LOC.SG
'the person at the beach'

(7) b. 沙滩上 的人
shatan shang de ren
beach on.LOCZ ATTRIB person
'the person at the beach'

(8) a. *kuģis* *jūrā*
ship sea.LOC.SG
'the ship at sea'

(8) b. 海上 的船
hai shang de chuan
sea on.LOCZ ATTRIB ship
'the ship at sea'

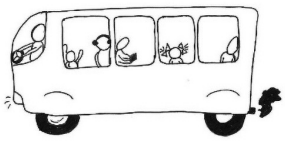
Apart from physical shape, objects can have other properties, including that of being designed for performing certain functions. The possession of such properties can be indicated by spatial expressions too, in the cases when *in* and *on* have additional meanings apart from the spatial ones. Languages may not coincide in the distribution of the functional senses over the spatial terms.

For instance, the normally used Chinese expression of the location on the bus or any other means of transport, especially with reference to commuting, is with 上 *shang* 'on' (9b). This localizer stands for the SUPPORT schema: a surface holds and carries objects. The schema has been extended to the situations of carrying objects (passengers) inside the ground (a bus), not on its upper surface, thus foregrounding purpose and downplaying geometry. Sometimes, if one needs to emphasize the location inside a vehicle that is perceived as a mere container rather than a means of transport, 里 *li* 'in' is used (9c).

Such functional distinction is not marked in Latvian when referring to public transport, but there are other contexts where the distinction is marked, with no corresponding marking in Chinese. For example, purpose rather than geometry can be brought into focus by the locative case that indicates that the hat is worn to protect from cold (10a). Here, it is the spatial expression of CONTAINMENT that expresses specific functional aspects of the relationship. Geometry is emphasized using the preposition *uz* 'on' that means that a hat, or any other object, is simply placed on one's head, not worn (11a).

[5] Illustrations kindly provided by Mg. philol. Liene Millere.

(9)



(9) a. *cilvēki* *autobusā*
people bus.LOC.SG
'people in/on the bus'

(9) b. 公交车上 的人
gongjiaoche shang *de ren*
bus on.LOCZ ATTRIB people
'people on the bus'

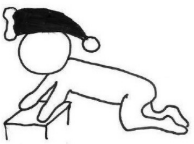
(9) c. 公交车里 的人
gongjiaoche li *de ren*
bus in.LOCZ ATTRIB people
'people in the bus' (inner location emphasized)

(10)

(10) a. *cepure* *galvā*
hat head.LOC.SG
'the hat on the head'

(10) b. 头上 的帽子
tou shang *de maozi*
head on.LOCZ ATTRIB hat
'the hat on the head'

(11)



(11) a. *cepure* *uz galvas*
hat on.PREP head
'the hat on the head'

(11) b. 头上 的帽子
tou shang *de maozi*
head on.LOCZ ATTRIB hat
'the hat on the head'

The decision about using *in* or *on* can be purely subjective or guided by the linguistic community's conventions. Schematizing a relationship either as CONTAINMENT or as SUPPORT takes the physical features of the ground as the starting point, but the cross-linguistic variations in examples 6–8 and the intra-linguistic variations in 9–11 show that conceptualizing objects as ones with certain shapes is not always vitally important. Moreover, a language can possess specific units of describing spatial relationships without specifying whether the ground objects are surfaces or containers.

In Mandarin Chinese, the localizers 里 *li* 'in' and 上 *shang* 'on' are not usually used with the nouns labelled as *place words* (处所词 *chusuoci*). These can be defined as a subclass of nouns with inherent spatial semantics, mainly:

- geographic names (中国 *Zhongguo* 'China', 北京 *Beijing* 'Beijing'),
- names of public institutions (外交部 *Waijiaobu* 'Ministry of Foreign Affairs', 警察局 *jingchaju* 'police station'),
- names of areas (乡下 *xiangxia* 'countryside', 海边 *haibian* 'seaside', 南部 *nanbu* 'south', 前方 *qianfang* 'front') (Nikolajeva 2015, 160).

The schema that underlies the expressions with place words is more general than CONTAINMENT/CONTAINER or SUPPORT/SURFACE; it can be labelled as LOCATION/PLACE.

However, in certain conditions place words may be used with the localizers 里 *li* 'in' or 上 *shang* 'on'. That is why Chu suggests representing all nouns as a continuum, with place words that are not used with localizers and the nouns that do require localizers at the opposite extremes and all other nouns in between – sometimes they take a localizer, sometimes they do not (Chu 2010, 90). For

instance, when the ground is identified as a public institution, the localizer 里 *li* 'in' is not necessary since there is no need to focus on the spatial characteristics of the ground (12a). If the institution is specifically understood as the premises it possesses, the emphasis is shifted onto the physical parameters of the relationship and the localizer 里 *li* 'in' can be used (12b). Even the expressions with the names of geographic areas can use localizers to emphasize the territories within their administrative borders (13a vs 13b).

(12) a. 因工负伤， 在 医院 治疗时自己花了两万余元医疗费。
yin gong fushang, zai yiyuan zhiliao shi ziji hua le liang wan yu yuan yiliaofei
being-at.PREP hospital
'Because of a professional trauma, I spent more than 20,000 RMB on medication while being treated in the hospital.' (CW2017)

(12) b. 在 医院 里 待了1月左右后来就出院啦。
zai yiyuan li *dai le 1 yue zuoyou houlai jiu chuyuan la*
being-at.PREP hospital in.LOCZ
'I had spent about one month in the hospital, then I was discharged.' (CW2017)

(13) a. 第七届亚欧首脑会议 在 北京 开幕。
di qi jie Ya Ou Shounao Huiyi zai Beijing kaimu
being-at.PREP Beijing
'The 7th Asia-Europe Meeting is opening in Beijing.' (CW2017)

(13) b. 不符合 [..] 标准的 [..] 车辆从7月1日起禁止
bu fuhe [..] biaozhun de [..] qiche cong 7 yue 1 ri qi jinzhi
在 北京 内 行驶
zai Beijing nei xingshi
being-at.PREP Beijing in.LOCZ
'The vehicles not meeting the [..] level are banned from driving in Beijing since July 1.' (CW2017)

The examples discussed in this section show how locative phrases express the nuances of meanings. Sometimes speakers loosen the control over such subtleties and do not differentiate their use of locatives, which results in the term *tendency* being more descriptive in the context of spatial phrases than *rule* or *norm*.

5. The parallel usage of spatial units

Learning a language by language use refers to extracting linguistic schemas or patterns from the language one is exposed to (Langacker 1987, 65–66; Langacker 2009, 2). One's use of spatial terms is influenced by the frequency and quality of one's exposure to these terms. Sometimes, the speaker's exhaustion or other physiological conditions, or the lack of knowledge of the conventions of a specific language may cause his / her inability to process spatial scenes according to conventions. This creates inconsistency in the usage of locatives.

Parallel usage in the sense implied by the author of this article is a wider notion than *synonymy*. Synonyms are equally conventional; in case of parallelism, some units can be used quite widely but not be considered standard. For instance,

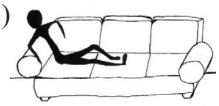
the transition from the *parallel* usage to the *synonymic* usage is referred to in Nītiņa's monography: while some expressions are "normally viewed as synonymous" (14a, 14b), for some phrases, "it looks like we have to admit that alongside the aprepositional usage with the locative case '*visā pasaulē* ['in the whole world'] etc. the constructions with the preposition *uz* ['on'], eg, *uz visas pasaules nav otras tādas zemes* ['on the whole world there is no such land'] [..] have become a property of the standard language" (Nītiņa 1978, 176)[6].

(14) a. *putns sēž uz zara*
bird sit on.PREP branch
'a bird is sitting on a branch'

b. *putns sēž zarā*
bird sit branch.LOC.SG
'a bird is sitting on a branch'.

The relationships between the parallel expressions are an interesting object of research to better understand the mechanisms of spatial cognition and probably come up with certain predictions about the changes in the conventions of the spatial language. For instance, it would be interesting to know if parallelism is generated by a community, in the sense that each individual speaker tends to consistently use one unit he/she prefers but different speakers prefer different units, or if parallelism is typical of one speaker's language use. These findings would show the relative significance of preserving clear boundaries between concepts for language users, as well as shed some light on the issue of reaching both the speaker and the listener's target of the ease of cognitive processing.

With language use being a competition between several forms of expression, we can compare what is and is not expressed in different languages, and thus see the relations among concepts and clusters of concepts. For example, in both Latvian and Chinese, it appears that the concepts of inner location (*in*) and upper location (*on*) sometimes overlap, which is signalled by the presence of parallel variants (15, 16, 17). In each of these examples, there is one variant of the spatial construction that is generally used, and another one that is not rare either, even though it may be considered ungrammatical. Also, in Chinese, besides deciding upon the use of 上 *shang* 'on' vs 里 *li* 'in', the speakers have to choose whether to express the fact of being located or emphasize the physical properties of the location – to go localizer-free or to use localizers in case of place words (13a, 13b).

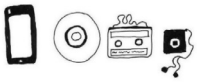
(15) 

cilvēks uz dīvāna / cilvēks dīvānā
person on.PREP sofa / person sofa.LOC.SG
'a person on the sofa'
Mandarin Chinese equivalent: 上 *shang* 'on'

(16) 

informācija ekrānā / informācija uz ekrāna
information screen.LOC.SG / information on.PREP screen
'the information on the screen'
Mandarin Chinese equivalent: 上 *shang* 'on'

[6] „parasti sinonīmiski"; „[l]aikam gan jāatzīst, ka paralēli bezprievārdiskiem savienojumiem ar lokatīvu *visā pasaulē* utt. konstrukcijas ar prievārdu *uz*, piem., *uz visas pasaules nav otras tādas zemes* u. c. ... tomēr ir kļuvušas par literārās valodas piederumu" (Nītiņa 1978, 176).

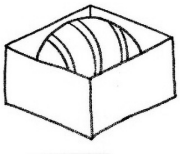
(17) 

CD，磁带，手机，MP3播放器 里 / 上 的音乐
CD cidai shouji MP3 bofanqi li / shang de yinyue
CD, cassette, mobile phone, MP3 player in / on.LOCZ ATTRIB music
'the music on the CD/cassette/mobile phone/MP3 player'
Latvian equivalent: the locative case

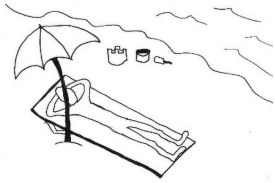
One scene can activate several image schemas, which may cause inconsistency in the use of spatial terms. Examples 15–17 illustrate the dynamic character of schematization and cognition. Generally, it seems that the usage variations are not unmotivated, so they have the potential of becoming conventional, and probably they are in certain linguistic communities.

6. Image schema transformations

Each spatial unit labels a category of image schema *transformations* – modifications of basic, prototypical schemas due to changes in spatial scenes (Lakoff 1987, 425; Talmy 2005, 200). Schema transformations are the mechanism of extending the meanings of locatives. This mechanism saves cognitive and linguistic resources and allows applying a limited set of linguistic units to an unlimited number of scenes.

(18) 

(18) a. *bumba kastē*
ball box.LOC.SG
'a ball in the box'
(18) b. 盒子里的球
hezi li de qiu
box in.LOCZ ATTRIB ball
'a ball in the box'

(19) 

(19) a. *cilvēks pludmalē*
person beach.LOC.SG
'a person on the beach'
(19) b. 沙滩上 的人
shatan shang de ren
beach on.LOCZ ATTRIB person
'a person on the beach'

(20) 

(20) a. *māja kalnā*
house mountain.LOC.SG
'the house on the mountain'
(20) b. 山上 的房子
shan shang de fangzi
mountain on.LOCZ ATTRIB house
'the house on the mountain'

Chinese expressions (18)b, (19)b, (20)b result from anchoring the schemas directly in the physical parameters of the scenes. (18)b reflects the prototypical CONTAINMENT schema, with the figure inside the ground. In (19)b and (20)b, the figure is on the surface of the ground, both phrases reflect the transformations of the prototypical SUPPORT schema by increasing its scale. The prototypical schema seems to involve such ground objects as a desk, a palm of the hand or a floor, anything that we use daily for holding objects and that is much smaller than a beach or a mountain.

Latvian demonstrates a different approach to schema transformations in these examples. All three scenes are schematized as CONTAINMENT, but they do differ

in the degree of prototypicality. (18)a reflects prototypical containment. In (19)a and (20)a, the prototypical concept of containment is extended to objects that do not look like containers but can function as containers because of their identities as areas, sections of space.

7. Image schemas and frames

The character of a language – its grammar, conceptual structure, the actual expressions used to describe the phenomena in the world – is conditioned by the reality in which this language exists. The decisions about what to include into a language are motivated by the needs of the community that uses this language. Agreeing to the assumption that "the search for relevance is a basic feature of human cognition" (Wilson, Sperber 2004, 608), one can assume that languages as means of communication are relevance driven.

Spatial terms do not only function to describe the physical parameters of the scenes. To increase *relevance* – obtaining the greatest positive cognitive effect at the lowest processing effort (ibid, 609) – locative phrases may also perform pragmatic functions and facilitate communication by creating shortcuts to specific *frames.* As described by Charles Fillmore (2011, 119), frames are systems of interrelated and interdependent concepts that structure general experience and help speakers orient faster in the content being discussed.

Unlike image schemas that are the patterns of bodily experience that underlie concept formation, frames are "fairly large slice[s] of the surrounding culture" (ibid, 119), the structures of general knowledge. Both image schemas and frames function simultaneously at different levels, with frames being the contexts for the activation of specific image schemas.

Each concept that represents a frame evokes other concepts belonging to the frame (ibid. 113). Spatial units as verbal representations of spatial concepts can represent specific frames. For pragmatic considerations, a language may develop several variants of describing a spatial configuration so that each variant relates to a certain frame. For instance, for the speakers of Chinese, the localizer 上 *shang* 'on' activates the TRANSPORTATION frame with all its components – the *vehicle* (the ground), the *passenger* (the figure), *commuting* (the function of the relationship), while the localizer 里 *li* 'in' does not: it merely describes the location inside a vehicle (9b, 9c).

Languages do not always coincide in selecting which spatial terms activate which frame. For example, Latvian does not mark the distinction between TRANSPORTATION and INNER LOCATION and uses the locative case in both frames (9a). The distribution of pragmatic functions over the use of spatial terms is language-dependent and is an interesting object of research that might show whether assigning locative expressions to specific frames is arbitrary or motivated by the overall conceptual system of a language.

Apart from the geometry of the spatial configuration, other variables that determine the choice of the spatial unit are the non-spatial features of the figure and ground, such as their identities, functions, as well as the purposes of the relationships (Carlson 2000, 115; Gasser, Colunga, Smith 2000, 197–198). Returning to (9)b and (9)c, the active TRANSPORTATION frame presupposes certain variables, any

of which can evoke the SUPPORT schema and motivate the selection of 上 *shang* 'on': *the vehicle* as the identity of the ground, *the passenger* as the identity of the figure, *commuting* as the function of the relationship.

Another pragmatic aspect of the use of locatives is the choice of a spatial unit for a certain format of language – written or spoken, and for a certain register – formal or informal. For example, the localizer 中 *zhong* 'in' is typically used in formal written Chinese (Chen 2014, 427). In Latvian, the choice of an aprepositional phrase or a phrase with a preposition can be motivated by a specific genre or register (Nītiņa 1978, 221–223, 2007, 93–97).

Conclusions

In this article, it has been discussed that, on the one hand, an image schema is an inaccessible bodily concept that facilitates language acquisition. On the other hand, an image schema is a label of a category of concepts in linguistic analysis, a metaphor that unifies discrete constructions and characterizes them as a group. The link between the physical and abstract aspects of the notion 'image schema' lies in the speaker's need to express oneself, to communicate with others. Language acquisition begins with the need to express the concepts extracted from the simplest forms of daily experience. As the experience expands onto non-physical, abstract levels, the need to express a wider range of notions makes one form new concepts. They are expressed in the most economical way – by extending the meanings of the available linguistic units, e. g., the existing adpositions or cases. Consequently, linguists reveal the categories of expressions united by the same linguistic unit and study them as clues to the initial pre-verbal concepts.

While being beneficial for linguistic research, the image schema theory still has issues to resolve. Paradoxically, image schemas structure language acquisition, but, at the same time, they are derived from language as well as from sensorimotor experience. Image schema "acquisition is *mediated through language itself*" (Kimmel 2005, 299, his italics) since language, linguistic labels are part of experience. Cognitive linguistics treats language as "an instance of general cognitive ability" (Croft, Cruse 2004, 45) that facilitates language acquisition, as it is stated in another fundamental postulate of cognitive linguistics: "knowledge of language emerges from language use" (Croft, Cruse 2004, 1). The knowledge of language is grounded in image-schematic concepts. One of the ways to resolve the paradox of image schemas' being "*both* presupposed and acquired, and *both* basic and derived" (Clausner 2005, 107, his italics) would be to advance the theory by a deeper empirical research on the "requisite elements of image schema theory: experience, brain/body, dynamic cognitive structure, construal, and culture" (ibid.).

Although one can eventually conclude that there is a matching between an expression and an image schema, such as *in the bus* – CONTAINMENT, *on the bus* – SUPPORT, the mapping process is much more complex than just attaching tags to the phrases. Simply stating that a preposition represents an image schema is meaningless. What is expected from linguistic analysis is the understanding of the properties of an image schema in one language and the equivalents of these properties in another language. This presupposes a description of what is expressed in language and what could be expressed but is not; the latter becomes obvious

exactly because of the cross-linguistic character of analysis. Cross-linguistic comparison also considers the factors that influence the selection of certain linguistic items and thus shows which aspects of reality are important for concept formation and how universal this importance is.

Leaving aside the ambitious task of explaining the origins of meaning and reasoning, the findings made available by the research on image schemas are valuable resources for performing practical tasks, such as teaching and learning languages, applying language in the field of psychology and sociology, developing artificial intelligence technologies etc.

Abbreviations

ATTRIB	attributive
LOC	locative
LOCZ	localizer
PREP	preposition
SG	singular

Sources

1. Latvian Web 2014 (lvTenTen14). *Latvian text corpus*. Available at: https://www.sketchengine.eu/lvtenten-latvian-corpus/
2. Chinese Web 2017 (zhTenTen17) Simplified. *Chinese text corpus*. Available at: https://www.sketchengine.eu/zhtenten-chinese-corpus/

References

1. Apse, Linda. 2011. *Semantics of Latvian spatial prepositions and aspects of their lexicalization.* Doctoral dissertation. Riga: University of Latvia.
2. Carlson, Laura A. 2000. Object use and object location: the effect of function on spatial relations. *Cognitive interfaces. Constraints on linking cognitive information*. Zee, Emile van der, Nikanne, Urpo (eds.). Oxford / New York: Oxford University Press, 94–115.
3. Chen Changlai. 2014. *Hanyu jieci kuangjia yanjiu.* [Research on prepositional phrases in Mandarin Chinese.] Beijing: The Commercial Press.
4. Chu, Zexiang. 2010. *Hanyu kongjian duanyu yanjiu.* [Research on spatial phrases in Mandarin Chinese.] Beijing: Peking University Press.
5. Clausner, Timothy C. 2005. Image schema paradoxes: implications for cognitive semantics. *From perception to meaning: image schemas in cognitive linguistics*. Hampe, Beate. (ed.). Berlin / New York: Mouton de Gruyter, 93–110.
6. Correa-Beningfield, Margarita, Kristiansen, Gitte, Navarro-Ferrando, Ignasi, Vandeloise, Claude. 2005. Image schemas vs. complex primitives in cross-cultural spatial cognition. *From perception to meaning: image schemas in cognitive linguistics*. Hampe, Beate. (ed.). Berlin / New York: Mouton de Gruyter, 343–366.
7. Croft, William, Cruse, Alan D. 2004. *Cognitive linguistics*. Cambridge: Cambridge University Press.
8. Dodge, Ellen, Lakoff, George. 2005. Image schemas: from linguistic analysis to neural grounding. *From perception to meaning: image schemas in cognitive linguistics*. Hampe, Beate (ed.). Berlin / New York: Mouton de Gruyter, 57–91.

9. Fillmore, Charles J. 2011. Frame semantics. *Cognitive linguistics: critical concepts in linguistics.* 1. *Categorization, meaning and language use*. Goldberg, Adele E. (ed.). Oxon: Routledge, 113–139. [1st ed. Seoul: Hanshin Publishing Co., 1982.]
10. Gasser, Michael, Colunga, Eliana, Smith, Linda B. 2000. Developing relations. *Cognitive interfaces. Constraints on linking cognitive information*. Zee, Emile van der, Nikanne, Urpo (eds.). Oxford / New York: Oxford University Press, 185–214.
11. Johnson, Mark. 1987. *The body in the mind. The bodily basis of meaning, imagination, and reason*. Chicago / London: The University of Chicago Press.
12. Johnson, Mark. 2005. The philosophical significance of image schemas. *From perception to meaning: image schemas in cognitive linguistics*. Hampe, Beate (ed.). Berlin / New York: Mouton de Gruyter, 15–33.
13. Kalnača, Andra. 2013. Morfoloģija. *Latviešu valoda*. Veisbergs, Andrejs (red.). Rīga: LU Akadēmiskais apgāds, 45–108.
14. Kimmel, Michael. 2005. Culture regained: situated and compound image schemas. *From perception to meaning: image schemas in cognitive linguistics*. Hampe, Beate. (ed.). Berlin / New York: Mouton de Gruyter, 285–311.
15. Lakoff, George. 1987. *Women, fire, and dangerous things. What categories reveal about the mind*. Chicago / London: The University of Chicago Press.
16. Langacker, Ronald W. 1987. *Foundations of cognitive grammar*. 1. *Theoretical prerequicites*. Stanford: Stanford University Press.
17. Langacker, Ronald W. 2009. *Investigations in cognitive grammar*. Berlin / New York: Mouton de Gruyter.
18. Langacker, Ronald W. 2014. Cognitive grammar. *Renzhi yu yuyong. Cognition and pragmatics*. Sandra, Dominiek, Östman, Jan-Ola, Vershueren, Jef (eds.). Shanghai: Shanghai Foreign Language Education Press, 78–85. [1st ed. Amsterdam / Philadelphia: John Benjamins Publishing Company, 2009.]
19. Lipinski, John, Spencer, John P., Samuelson, Larissa K. 2010. It's in the eye of the beholder: spatial language and spatial memory use the same perceptual reference frames. *The spatial foundations of language and cognition*. Mix, Kelly S., Smith, Linda B., Gasser, Michael (eds.). Oxford: Oxford University Press, 102–131.
20. Mandler, Jean M. 1992. How to build a baby: II. Conceptual primitives. *Psychological review.* 99 (4), 587–604.
21. Mandler, Jean M. 2005. How to build a baby: III. Image schemas and the transition to verbal thought. *From perception to meaning: image schemas in cognitive linguistics*. Hampe, Beate. (ed.). Berlin / New York: Mouton de Gruyter, 137–163.
22. Mandler, Jean M., Pagán Cánovas, Cristóbal. 2014. On defining image schemas. *Language and cognition.* 6 (4), 510–532.
23. Nikolajeva, Marija. 2015. Constituents of spatial adpositional phrases in Latvian and Mandarin Chinese. *Valoda: nozīme un forma.* 6. *Valodas sistēma un lietojums*. Kalnača, Andra (red.). Rīga: LU Akadēmiskais apgāds, 155–173.
24. Nītiņa, Daina. 1978. *Prievārdu sistēma latviešu rakstu valodā*. Rīga: Zinātne.
25. Nītiņa, Daina. 2007. Prepozīcija (prievārds). *Latviešu literārās valodas morfoloģiskās sistēmas attīstība: nelokāmās vārdšķiras.* Pokrotniece, Kornēlija (red.). Rīga: LU Latviešu valodas institūts, 31–99.
26. Nītiņa, Daina. 2013. Prievārds (Prepozīcija). *Latviešu valodas gramatika*. Nītiņa, Daina, Grigorjevs, Juris (red.). Rīga: LU Latviešu valodas institūts, 619–640.
27. Nītiņa, Daina, Grigorjevs, Juris (red.). 2013. *Latviešu valodas gramatika*. Rīga: LU Latviešu valodas institūts.

28. Paegle, Dzintra. 2003. *Latviešu literārās valodas morfoloģija*. 1. Rīga: Zinātne.
29. Qi, Huyang. 2014. *Xiandai hanyu xianshi kongjian de renzhi yanjiu.* [Cognitive research on the physical space in modern Mandarin Chinese.] Beijing: The Commercial Press.
30. Qiu, Bin. 2008. *Hanyu fangweileici xiangguan wenti yanjiu.* [Research on the issues associated with orientation words in Mandarin Chinese.] Shanghai: Shanghai Century Publishing Company.
31. Smith, Linda B., Samuelson, Larissa K. 2010. Objects in space and mind. From reaching to words. *The spatial foundations of language and cognition*. Mix, Kelly S., Smith, Linda B., Gasser, Michael (eds.). Oxford: Oxford University Press, 188–207.
32. Talmy, Leonard. 2005. The fundamental system of spatial schemas in language. *From perception to meaning: image schemas in cognitive linguistics*. Hampe, Beate (ed.). Berlin / New York: Mouton de Gruyter, 199–234.
33. Talmy, Leonard. 2012. *Toward a cognitive semantics (volume 1): concept structuring systems*. Beijing: Foreign Language Teaching and Research Press. [1st ed. Cambridge, MA: Massachusetts Institute of Technology Press, 2000.]
34. Vandeloise, Claude. 2006. Are there spatial prepositions? *Space in languages. Linguistic systems and cognitive categories*. Hickmann, Maya, Robert, Stephane (eds.) Amsterdam / Philadelphia: John Benjamins Publishing Company, 139–154.
35. Wilson, Deirdre, Sperber, Dan. 2004. Relevance theory. *The handbook of pragmatics*. Horn, Laurence R., Ward, Gregory (eds.). Malden / Oxford / Carlton: Blackwell Publishing. 607–632.
36. Zhao Xin, Liu Ruoyun. 2013. *Shiyong hanyu jinyi xuci cidian.* [Practical dictionary of synonymous functional words in modern Mandarin Chinese.] Beijing: Peking University Press.
37. Yuan, Yulin. 2010. *Hanyu cilei de renzhi yanjiu he mohu huafen.* [Cognitive research and fuzzy classification of word classes in Mandarin Chinese.] Shanghai: Shanghai Educational Publishing House.

Kopsavilkums

Tēlu shēma ir viens no pamatjēdzieniem telpisko adpozīciju semantikas aprakstos. Ar šo jēdzienu saistītās literatūras un apspriežamu tematu daudzveidības dēļ koncepts *tēlu shēma* nav viegli saprotams. Šajā rakstā mēģināts izskaidrot, kas ir tēlu shēma, iztirzājot dažus svarīgus telpisko ainu shematizēšanas un izteikšanas aspektus, kā piemēru izmantojot TRAUKA shēmu. Rakstā arī tiek demonstrēts, ka tēlu shēmu salīdzināšana dažādās valodās ir efektīva metode, kura lietojama, lai labāk izprastu universālus kognitīvos procesus, kas ir valodas lietojuma pamatā.

Rakstā salīdzinātas latviešu un ķīniešu valodas telpiskās funkcionālās vienības, kas izsaka TRAUKA shēmu, kā arī parādīta robežu neskaidrība starp konceptiem *trauks* un *virsma* un to saistība ar konceptu *atrašanās vieta*. Tiek aplūkots sakars starp tēlu shēmām un semantiskajiem ietvariem, minēti faktori, kas ietekmē shematizēšanu, kā arī aplūkots telpisko vienību paralēls lietojums. Tēlu shēmu transformācijas tiek raksturotas kā telpisku vienību nozīmju paplašināšanas mehānisms.

Atslēgvārdi: konceptuālais primitīvs; TRAUKA shēma; VIRSMAS shēma; paralēls lietojums; ietvaru semantika; shematizēšanas faktori.