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The expression of path in three satellite-framed languages. A cognitive study of Polish, Russian, and English*

Cross-linguistic studies of the lexicalization of motion tend to contrast satellite- with verb-framed languages (e.g. Slobin 1996; 2004; Cardini 2008; Özçalışkan & Slobin 2003; Kopecka 2004; Fargard et al. 2013, etc.) and concentrate less frequently on intra-typological analyses (but cf. e.g. Filipović 2007; Hasko 2010; Ibarretxe-Antuñano 2009; Ibarretxe-Antuñano & Hijazo-Gascón 2012). Even fewer studies contrast genetically related languages (but cf. e.g. Łozińska 2018). The main aim of this study was to establish the path-saliency cline of three satellite-framed languages: Polish, Russian, and English. The analysis was based on elicited data. The overall patterns of expressing the path of motion in the three languages were shown to be caused by their belonging to the same typological category. The differences could be attributed, to a large extent, to differences in the morphological structures and in the lexical repertoires of motion-coding expressions available to the speakers of the three languages. However, the analysis of descriptions of three specific spatial situations (i.e. vertical, boundary-crossing, and deictic relations) pointed to other factors that may influence path coding in the three languages. Thus, despite the satellite-verb character of the languages examined and the morpho-syntactic differences between them, all our participants, who were native speakers of the three languages examined, tended to code vertical relations by means of path verbs. The number of tokens of path verbs used to code this particular spatial relation was found to be higher than the number of tokens of path verbs used to code deictic or boundary-crossing motion.

Key words: lexicalization of motion event; path; motion verb; verbal prefix; Polish; Russian; English.

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1. Introduction

Talmy (2000b) divides languages into satellite- and verb-framed. In the two typological categories, the components of a motion event are mapped differently onto the morphosyntactic structures available in various languages for the coding of motion events. Simplifying things for expository purposes, languages are usually assigned to one of the two categories based on the part of morphosyntactic structure where the path of motion is most frequently coded in unmarked situations. Verb-framed languages characteristically map the path information onto the main verb. In satellite-framed languages, the verb typically encodes the manner of motion while the path is rendered in directional particles referred to as “satellites”.

Talmy’s typology has inspired a number of cross-linguistic studies on the lexicalization of motion events. Most of them contrast languages representing satellite- vs. verb-framed types since the differences between the two groups are expected to be the most significant (e.g. Slobin 1996; 2004; Cardini 2008; Özçalışkan & Slobin 2003; Kopecka 2004; Fargard et al. 2013). Fewer studies seem to be concerned with intra-typological comparisons of motion lexicalization (some notable exceptions include e.g. Filipović 2007; Hasko 2010; Ibarretxe-Antuñano 2009; Ibarretxe-Antuñano & Hijazo-Gascón 2012; Łozińska 2018).

In the present study, the focus is on the expression of path. Path is the core component of a motion event and it must be coded in the description of motion events in all languages. Previous research has shown that the patterns of coding this particular component of motion events vary across languages (e.g. Ibarretxe-Antuñano 2009) and that they depend on the lexical and morpho-syntactic characteristics of a language (e.g. Filipović 2007). What is more, monolingual speakers of two out of three languages under study (i.e. English and Polish) have been shown to exhibit attention biases under the influence of the path saliency of their native language (Czechowska & Ewert 2011).

Concerning the saliency of manner, Slobin (2004) found in his study based on elicited data that English participants used 30%, and Russian participants used 100% motion verbs conflating the manner component, which suggests that Russian is a more manner-salient language. The same results suggest then that Russian is also less path-salient than English.

Concerning the saliency of path, Ibarretxe-Antuñano & Hijazo-Gascón (2012), for instance, propose placing languages on a cline of path saliency. In an earlier study, Ibarretxe-Antuñano (2009) examined twenty-one languages and positioned them on a path-saliency cline. High-path salient languages, where speakers



frequently code detailed path of motion information (commonly with a higher degree of granularity), were proposed to occupy one end of the cline. On the other end of the cline, Ibarretxe-Antuñano positioned low-path salient languages, where path is not so readily coded. According to the results reported in that study, English is more path-salient than Polish. It should be noted, however, that this path-saliency cline was created on the basis of elicited descriptions of only one scene, which involved downward motion.

Following Slobin (2004) and Ibarretxe-Antuñano (2009), our first hypothesis is that English will turn out to be more path-salient than Russian and Polish (H1).

In the case of Polish and Russian, differences are not only intra-typological but also intra-genetic. Some studies have shown that different levels of path saliency may be observed among languages from the same genetic group; e.g. for Romance languages (Ibarretxe-Antuñano & Hijazo-Gascón 2012) or for Germanic languages (Ragnarsdóttir & Strömquist 2004). Our second hypothesis is, therefore, that due to its genetic affinity to Russian, Polish will be closer to Russian than to English on the path-saliency cline, however, since differences have been observed within the groups of Romance and Germanic languages, there may still be important differences in the lexicalization patterns between Polish and Russian (H2).

Filipović (2007: 3) notes that “different interaction patterns of language-specific systems of lexical semantics, syntax, and morphology may coerce speakers of a particular language into referring to some aspects of events more often than speakers of some other languages”. On this basis, we put forward the third hypothesis that, depending on the type of a motion event (e.g. vertical, boundary-crossing, or deictic relation), speakers of each of the studied languages will differ in the ways they code path information and these differences will be caused by the language-specific lexical resources and the morpho-syntactic features of these languages (H3).

Before the main body of research is presented, let us briefly discuss the intricacies of each language as far as the ways of rendering spatial information by means of verbs and satellites to the verbs are concerned. We focus on three selected spatial situations: vertical motion, boundary-crossing, and deixis.

2. Path rendering in Polish, Russian and English

Languages differ as far as the canonical segmentation of paths, and the ease of building complex paths – those involving several path segments – is concerned



(Slobin 2004). In other words, speakers of different languages may code the path of motion with varying degrees of ease, which contributes considerably to the path saliency of a particular language. As far as surface elements expressing the path of motion are concerned, the major difference between the Slavic languages under study and English is that English lacks verbal prefixes, which are systematically used to code spatial relations in the two Slavic languages.

In Polish and Russian, prefixes are satellites to verbs. Talmy (1985: 102) defines satellites as “certain immediate constituents of a verb root other than inflections, auxiliaries, or nominal arguments”. Path information in Polish and Russian is typically rendered by prefixes (satellites) and prepositional phrases. The most common prefix-prepositional combinations in Russian are illustrated in (1).

- (1) F... ←v- v+ACC> ‘into’
F... ← vy- iz + GEN> ‘out of’
F... ←pere- čerez + ACC> ‘across’
F... ←pod- pod + ACC> ‘to under’
F... ←pod- k + DAT> ‘up to’
F... ←ob- ob + ACC> ‘to against’
F... ←ot- ot + GEN> ‘of a ways from’
F... ←na- na + ACC> ‘onto’
F... ←s- s + GEN> ‘off of’
F... ←pro- mimo + GEN> ‘past’
F... ←za- za + ACC> ‘to behind/ beyond’
F... ←pri- k + DAT> ‘into arrival at’
F... ←do- do + GEN> ‘all the way to’
F... ←iz- iz + GEN> ‘(issuing) forth from’

(after Talmy 2000b: 105-106)

The most characteristic positional property of a satellite is that when the Ground nominal is omitted, prepositions will disappear, but the satellite will remain. Thus, in English, the set of satellites does not fully coincide with the set of prepositions. Some forms function only as satellites (e.g. *together*, *apart*, *away*, or *back*) while others are only prepositions never functioning as satellites (e.g. *of*, *at*, *from*, or *toward*) (Talmy 2000b: 107).

The existence of verbal prefixes in Polish and Russian entails another difference in how the two Slavic languages and English render path information. While normally only one prefix can accompany a verb, prepositional phrases may be stacked to express a complex path consisting of several segments. In Polish and Russian, however, complex paths are typically expressed by a series of prefixed verbs, each



followed by a prepositional phrase. This means that the use of a verbal prefix limits the amount of path information to be included in the prepositional phrases. This claim is supported by Lewandowski & Mateu's (2016: 203) study of translated texts, which confirms that in Germanic languages, several path segments may be used with a single verb stem while in Polish, each bounded Path segment typically corresponds to a separate prefixed verb. This is illustrated in (2a,b) where an English sentence (2a) with only two motion verbs has been translated into Polish with four manner verbs (2b).

- (2) a. *There is in the Midlands a single-line tramway system which boldly **leaves** the country town and **plunges** off into the black, industrial countryside, uphill and down dale, through the long, ugly villages of workmen's houses, over canals and railways, past churches perched high and nobly over the smoke and shadows, through stark, grimy cold little market-places, tilting away in a rush past cinemas and shops down to the hollow where the collieries are ... (D.H. Lawrence, *Tickets, Please* after Slobin 2008: 207).*
- b. *Ze stolicy jednego z hrabstw w środkowej Anglii **wybiega** jednotorowa linia tramwajowa i **rzuca się** z impetem w czarną przemysłową okolicę, to **pędząc** pod górę, to **sunąc** w dolinę. W oknach wozów migają brzydkie osiedla robotnicze zagłębia, kanały, wstęgi kolei żelaznej, wyniosłe kościoły, górujące nad dymem i mrokiem, małe, bardzo brudne miasteczka, kina, sklepy, kopalnie i wioski ... (D.H. Lawrence, *Bilety, proszę!*, translation: Janina Sujkowska after Łozińska 2018: 8)*

Thus, Polish and Russian impose stricter constraints than English on how much path information can be combined with a single verb. These constraints are morpho-syntactic since the path information carried by the prefix limits the range of prepositional phrases that can accompany the verb. Sentence (3) shows that in English it is possible to render complex paths by a string of satellites. In Polish or Russian, this spatial information would have to be expressed by a series of prefixed verbs.

- (3) *Come right back down out from up in there!* (Talmy 1985: 102)

One final aspect of the expression of motion in Polish and Russian that needs to be explained for its bearing on our analysis is the difference between Polish and Russian determinate and indeterminate motion verbs.

Determinate motion verbs, besides coding the manner of motion, also denote a highly schematic path. Indeterminate verbs of motion express solely the manner.

Table 1. Polish and Russian determinate and indeterminate motion verbs (after Łozińska 2018: 54)

Determinate verb		Indeterminate verb		English translation
Polish	Russian	Polish	Russian	
<i>iść</i>	<i>idti</i>	<i>chodzić</i>	<i>hodit</i>	‘to walk’
<i>jechać</i>	<i>jehat’</i>	<i>jeździć</i>	<i>jezdit’</i>	‘to drive’
<i>biec</i>	<i>bežat’</i>	<i>biegać</i>	<i>biegat’</i>	‘to run’
<i>lecieć</i>	<i>letet’</i>	<i>latać</i>	<i>letat’</i>	‘to fly’
<i>plynąć</i>	<i>plyt’</i>	<i>pływać</i>	<i>plavat’</i>	‘to swim’
<i>pełznąć</i>	<i>polzti’</i>	<i>pełzać</i>	<i>polzat’</i>	‘to creep’
<i>leźć</i>	<i>lezt’</i>	<i>łazić</i>	<i>lazit’</i>	[Pl]‘to creep’, [Ru] ‘to creep (up)’
<i>gnać</i>	<i>gnat’</i>	<i>gonić</i>	<i>gonjat’</i>	‘to speed’

The distinction between determinate and indeterminate motion verbs is made in previous research on the lexicalization of motion in Polish and Russian (e.g. Pavlenko 2010 for Russian; Kagan 2007; Hasko 2010; Sikora 2013; Łozińska 2018 for Polish). Table 1 above presents examples of indeterminate and determinate verb forms in Russian and Polish.

Let us now discuss briefly the morpho-syntactic characteristics of, and the lexical items used in, the coding of three specific motion situations in the languages under study.

2.1. Vertical motion

Movement along the vertical axis has not been the subject of extensive linguistic research so far. Since vertical motion is non-canonical for animate entities, it is perhaps unsurprising that it is not coded as frequently as horizontal motion. Research by Naigles et al. (1998) suggests, however, that the coding of vertical motion differs from the coding of horizontal motion in verb-framed languages. More specifically, using a data elicitation task, Naigles et al. (1998) report that 100% of tokens of the Spanish prepositions *a*, *de* and *para* describing boundary-crossing horizontal events were accompanied by path verbs (which is predictable for verb-framed languages), while for the vertical boundary events, 97% responses with these prepositions occurred with manner verbs. The peculiar coding of vertical motion has also been noted in satellite-framed languages. In her description of the Serbo-Croatian path verbs used for rendering motion along the vertical scale, Filipović (2007: 129) concluded that “the vertical scale of prefixed manner of motion verbs is much less developed than the horizontal”.



As for Polish and Russian, a number of prefix-verb combinations that express paths, especially vertical paths of motion, feature path prefixes and bound verb roots which are no longer semantically transparent (for a discussion of the diachronic development of path verbs from “merged” prefix-verb combinations in Indo-European languages cf. Verkerk 2014; 2015). However, there are also motion verbs combining bound roots predominantly denoting upward or downward motion with directional prefixes. For instance, in Polish these are imperfective roots like *-pinać* in *wspinać się* ‘climb’, where the bound verb root and the prefix *ws-* both encode vertical motion. Incidentally, the perfective equivalent of the verb is *piąć*, as in *wspiąć się*, where *piąć* is a free root, as in *Kot pnie się po drzewie* ‘A cat is climbing a tree’. Thus, in the case of the verb *wspiąć* ‘to climb’ both the prefix *ws-* and the verb root *piąć się* code the semantic component of path. To compare, in the case of the Russian verb *podnimat’(sja)* ‘to rise’, the directional prefix carries the path information while the meaning of the root is no longer transparent. Incidentally, there are a number of other verbs featuring the *-nimat’/-niat’* root and prefixes specifying the direction of motion, (e.g. *Podnimite ruki* ‘Put (your) hands up’, *Snjal s kryši* ‘(He) took (something) off the roof’, *Vynimaju pistolet* ‘(I) pull out a gun’).

According to Dressler (1985), the semantic transparency of a form is a matter of degree and ranges from semantically transparent to semantically opaque. This means that at least in some of the prefix-verbs combinations, the degree of semantic transparency is sufficient to allow us to treat the (bound) verb root as path- or manner-denoting and to include the prefix-verb unit in our analysis.

2.2. Boundary-crossing

One of the primary functions of Polish verbal prefixes is to indicate perfectivity (e.g. Dąbrowska 1996). Perfective verbs profile actions that have clear boundaries (i.e. the beginning and the end) in the same way as solid objects have inherent shape and edges (Langacker 1987; Janda 2004). Perfective motion verbs most commonly denote crossing the boundary of a Ground object.

To mark boundary-crossing situations, Polish and Russian speakers use verbal prefixes combined with prepositional phrases, as for example in the phrase *wyjść z domu* ‘out-walk from house’ or *wejść do domu* ‘in-walk to house’. In the case of crossing the boundary of a container, the prefixes *wy-* [Pl] / *vy-* [Ru] are used for coding leaving a container, and the prefixes *w-* [Pl] / *v-* [Ru] for coding entering a container. The English language has in its lexical repertoire the path verbs *to exit* and *to enter*, which respectively mark these relations. Moreover, English speakers



may use dynamic prepositions *out of* and *into*, which encode leaving or entering a container. However, some other English prepositions may be ambiguous. For instance, Filipović (2007: 23) notes that the English sentence *The bottle floated under the bridge* may be interpreted as either boundary-crossing (i.e. getting under the bridge) or non-boundary-crossing (i.e. the whole motion happens beneath the boundaries of the bridge). By the same token, when the preposition *to* is used with a motion verb, as in *They are walking to the zoo*, it is not certain whether boundary-crossing is involved or not. In other words, the preposition *to* does not allow for the understanding of whether the Figure has actually gone through the zoo gate. We may conclude then that, in fact, only the direction of motion is marked and not boundary crossing.

2.3. Deixis

According to Lyons (1977: 637) deixis is “the location and identification of persons, objects, events, processes and activities being talked about or referred to, in relation to the spatiotemporal context created and sustained by the act of utterance and the participation in it”. In English, the verbs which inherently mark deictic relations are *to come* and *to go* (Radden 1996). Talmy (1985: 135) also considers the verbs *to come* and *to go* as incorporating deixis in their roots. However, there is no agreement on this point. In various studies of motion lexicalization, the verb *to go* is treated either as a path verb or as a path-neutral verb. Beavers et al. (2010: 350) state that “deictic path verbs such as *come* and *go* are no less path verbs than *enter* and *exit*”, while others (e.g. Cardini 2008; Ewert & Krzebietke 2015) exclude the verb *to go* from the category of path verbs since it is frequently used by native speakers as a general motion verb.

As Lyons (1981:17) notes, to account for the deictic uses of linguistic expressions, it is necessary to know the interactional situation in which the utterance is produced. Thus, not all uses of the English verbs *come* and *go* code deictic relations, which is why only selected uses of this verb will fall within the scope of the analysis (cf. Section 3.4).

In Polish and Russian, the prefixes *przy-* [Pl], *pri-* [Ru] and *po-* [Pl], *po-* [Ru] typically mark deictic relations. However, as noted in previous research of elicited data in Slavic languages (e.g. Shull 2003; Łozińska 2018), the prefix *po-* in some Slavic languages (e.g. Polish, Russian, and Czech) may also denote either initiating a new trajectory, resuming motion after a fall, or even a change of the terrain surrounding the moving Figure.



3. Method

The present study is based on the data obtained in an elicitation task. This type of data is assumed to be close to everyday and colloquial speech, which is considered to be particularly valuable for addressing this topic. According to Talmy (1985), typological differences and preferences of any language for either type of linguistic coding of motion are revealed in the most characteristic expression of motion. By “characteristic”, Talmy means that: “(i.) It is colloquial in style, rather than literary, stilted, etc. (ii.) It is frequent in occurrence in speech, rather than only occasional. (iii.) It is pervasive, rather than limited, that is, a wide range of semantic notions are expressed in this type” (Talmy 1985: 62).

Our study follows the general spirit of usage-based cognitive linguistics, which considers grammar as grounded in and built up from actual instances of language use (Barlow & Kemmer 2000). In usage based linguistics, type and token frequency play an important role in building the dynamic inventory of symbolic constructions that constitute language, and both type and token frequency have been used in studies of motion lexicalization. Some (cross-linguistic) studies relied on the token frequencies of path and manner verbs (e.g. Özçalışkan 2005). Others, like Cardini (2008) additionally looked at their type frequency. Another variable that has been successfully used to evaluate path saliency is the number of path elements added to the verb (Ibarretxe-Antuñano 2009). In this study, we first analyzed the type and token frequency of motion verbs alone, since verb roots have been the basis for categorizing languages as verb- or satellite-framed in Talmy’s typology. Thus, the main part of our analysis involves analyzing the type-frequency and the token-frequency of motion verbs in our dataset, viz. those verbs whose roots were identified as expressing either the path or the manner of motion. We will use the term “the primary corpus of data” to refer to the full set of such motion verbs obtained in our elicitation task.

In the second part of the study, we used a different measure of path-saliency, viz. following Slobin (1996) and Ibarretxe-Antuñano (2009), we (also) looked at the frequency of additional path complements accompanying verb roots. We carried out a more detailed analysis of three selected motion situations to obtain a finer-grained picture of the relative distribution of path elements across various path-coding elements, viz. the verb roots, the prefixes, and the prepositional phrases. Since in this part of the analysis, we also studied the expression of path in elements other than verb roots, the relevant dataset was different from the primary corpus of data. It included all clauses used by our participants to describe the three selected motion situations and will be referred to as “the secondary corpus of data”.



3.1. *Participants*

Our data were elicited from native speakers of three languages: Polish, Russian, and English. Each group included 20 participants. They were of both sexes, aged between 20 and 22 (Polish: N = 20; mean age 21; 18 females and 2 males; Russian: N = 20, mean age 21.5; 17 females and 3 males; English: N = 20, mean age 22; 15 females and 5 males). All participants in the Polish and Russian group and a great majority of the English participants (apart from three) were university students. The Russian participants were students at the university in Kaliningrad, the Polish attended the university in Olsztyn, and the English participants were students of London University. Although the groups were monolingual and the elicited language was their native language, we should note that the Polish and Russian participants had learnt English at school.

3.2. *Procedure*

The Polish and Russian participants were all interviewed in a group while the English were interviewed individually by an associate resident in the UK. Before the participants watched a series of short video clips, they were asked in their native language to “Describe what happens” in the clips. After each clip a dark screen appeared for a minute. At this time the participants gave their responses in writing.

3.3. *Stimuli*

The elicitation tool included eight video clips (ranging in length from 6s to 30s) excerpted from Polish cartoons. The videos featured instances of common dynamic motion events involving translational motion, whereby “translational motion” is defined as the one “in which the location of the figure changes in the time period under consideration” (Talmy 2000b: 25). The clips presented various types of Figures (human beings and animals), types of manner of motion (e.g. walking, running), types of paths (vertical and horizontal motion, motion into and out of a container, deixis), and types of Ground (place, object, person). The stimuli were designed in this way to obtain data rich in information about the types of paths and manners of motion performed by diverse Figures. Although the expression of path is the focus of the present study, it was important to provide the participants with stimuli rich in manner of motion information so as to obtain unbiased data.

In order to check the influence of morphosyntactic characteristics of the studied languages on their lexicalization patterns, we focused on translational motion situa-



tions involving three types of paths, namely vertical motion, boundary-crossing, and deixis. Out of the eight specific motion situations presented in the video clips, only the situations under i, ii, and iv below were later used in the separate analyses of each type of motion situation. These most clearly represent the three types of motion situations we are interested in (vertical motion, boundary crossing, and deixis) and they can more or less predictably be expected to elicit descriptions of precisely these three types of motion situations. The video clips featured the following motion situations:

- i. A man and a dog move up a ladder.
- ii. Two firemen move into a barrel.
- iii. A dog moves out of a kennel.
- iv. A boy and a dog move away from the camera viewpoint towards a zoo gate.
- v. A duck moves towards a group of other birds and moves into a through with water.
- vi. A dog moves on a roller skate and falls down.
- vii. A fox moves into its burrow.
- viii. A fireman holding a boy in his arms moves down (after a jump from a burning house) and lands on the blanket.

As already noted, a spatial situation may be construed and classified differently by different participants. For example, jumping out of a window may be understood as a description of downward motion or boundary-crossing. Talmy (2000a: 227) stresses that different schemas can be applied to the same physical configuration, highlighting some characteristics and backgrounding others. Thus, the motion of a Figure is open to alternative schematizations.

Sentences in (4) and (5) illustrate differences in the construals of the same specific motion situation by two participants. While the participant in (4) focused on horizontal motion at the beginning of the scene and the final point of motion, when the Figure is on top of the ladder, the participant who produced example (5) only described vertical movement, namely climbing the ladder.

- (4) Reksio biegnie, podąża
 Reksio run.3SG.PRES follow.3SG.PRES
 za strażakiem, znajduje się na drabinie.[PI]
 behind firefighter.INSTR is REFL on ladder. LOC
 ‘Reksio is running, following a firefighter, he is on the ladder.’



- (5) Reksio wspina się po drabinie, raczej
Reksio climb.3SG.PRES REFL along ladder.LOC rather
biegnie po drabinie.[PI]
run.3SG.PRES along ladder.LOC
'Reksio is climbing a ladder, or rather running up the ladder.'

Thus, although we were very meticulous about designing our stimuli, it was impossible to predict with absolute certainty the nature of our participants' construals of the presented motion situations.

3.4. Coding criteria for the selected motion verbs

To make the cross-linguistic comparison possible, we had to adopt specific criteria for the selection of motion verbs. As for our main analysis, it was necessary that the roots of the verbs selected express a change in the Figure's location in space. Therefore, the full set of verbs that constitute the primary corpus for our main analysis (cf. Tables 2, 3, and 4) consists of motion verbs, understood here as those motion verbs whose roots code the path and/or the manner of motion. We left out of the main study verbs which only acquire the semantic component of translational motion through the prefix or prepositional phrase. For instance, the posture verb *siąść* 'to sit' denotes translational motion only when prefixed, e.g. in *przysiąść się do kogoś* 'to come and take a seat next to someone'.

A question that arose in coding the elicited Polish and Russian motion verbs as manner or path verbs was how to classify verbs that arose diachronically from prefix-verb combinations that are no longer completely morphotactically and morphosemantically transparent (cf. Section 2.1). Since, according to Verkerk (2015: 82), the formation of path verbs through modern preverb-verb combinations is still productive in all Balto-Slavic languages, the degree of semantic transparency of the verb root in the prefix-verb combinations may vary. Given our restriction stated earlier, viz. that our main analysis would only include verbs whose roots more or less transparently code translational motion, we included in our database only sufficiently transparent verb roots that expressed either the path or the manner of motion, or – as is the case with the verb *(ws)pinać / piąć się* 'to climb' [PI] – both manner and path. The latter verb was counted twice, once as a path verb and then also as a manner verb since the verb root denotes upward motion by using limbs. Verb roots in the prefix-verb combinations that did not carry information about the path or manner of motion, or did not express motion at all, were excluded from the analysis. This concerns two Polish reflexive verbs, *udawać się / udać się* 'to



move to' and *dostawać się* / *dostać się* 'to get into' and a few Russian verbs, namely *vzberat'(sja)* / *vzobrat'(sja)* 'to move up', *zabirat'(sja)* / *zabrat'(sja)* 'to move up', *napravljat'(sja)* / *napravit'(sja)* 'to direct oneself', *otpravljat'(sja)* / *otpravljat'(sja)* 'to start moving somewhere', and *podnimat'(sja)* 'to move up'. In these instances, the prefixes carry information about the path and, since the verb roots do not express motion at all, it was impossible to classify the verbs as coding either path or manner. It should be noted here that the decision to exclude these verbs from the analysis, rather than to treat them as path verbs on account of their prefixal path semantics, reduced the overall type frequency of path verbs in our elicited data in the two languages. However, this did not have a profound effect on the overall token frequency of path and manner verbs in the elicited data of either of the two languages; apart from the excluded Russian verb *podnimat'(sja)* / *podnjat'(sja)* 'to move up' [Ru], which occurred fairly frequently (N=7), the other verbs concerned were attested only once or twice.

Further, in the case of Polish and Russian, all prefixed verbs sharing the same root were counted as instances of the same verb type, as were the determinate and indeterminate verbs (cf. Section 2) denoting the same manner of motion (e.g. *iść* 'to move on foot' and *chodzić* 'to move on foot').

All motion verbs in the elicited descriptions of motion situations that met the above criteria were selected for the main analysis ("eligible verbs"). As a result, a corpus of eligible motion verbs was created for each language. Incidentally, the same method of studying lexicalization patterns has been used by Cardini (2008), Özçalışkan (2005), and Kopecka (2009; 2010). Next, all eligible motion verbs were coded as either path or manner verbs. As suggested earlier, where verbs expressed both path and manner information (e.g. *piąć się* 'to climb' [Pl], *karabkat'(sja)* 'to climb' [Ru], *climb* [Eng]), they were included in both categories.

The problematic English verb *to go* was coded as a deictic verb only in the data obtained from depictions of the Figures' motion away from the camera viewpoint (Situation 4). In that particular situation, the verb was clearly used deictically. The remaining uses of this very frequent verb (as exemplified, for instance, in 6) were excluded from the analysis, since in most instances of elicited motion descriptions *go* was found to only express the Figure's motion, with no path or manner specifications. Therefore, including such instances among tokens of path verbs would unduly inflate the path saliency of English (cf. also Section 2.3).

- (6) *A naughty duck chased away other ducks who were having a drink at a water trough and **went** for a swim in it.*



4. Results

4.1. *Quantitative analysis*

Table 2 provides the type- and token frequencies of all elicited eligible motion verbs expressing path, and all elicited eligible motion verbs expressing manner in each language separately, as well as the total type- and token-frequency of all eligible motion verbs. It should be noted that verbs such as *to climb*, which code both path and manner, were counted twice and were included in both categories (in the following tables marked with letters P+M).

Table 2. Type- and token frequencies of all elicited eligible motion verbs

Language	Eligible path verbs				Eligible manner verbs				All eligible motion verbs	
	TypF	%	TokF	%	TypF	%	TokF	%	TypF	TokF
Polish	8	32%	34	21%	17	68%	125	79%	25	159
Russian	5	25%	27	19%	15	75%	116	81%	20	143
English	15	38%	62	41%	24	62%	89	59%	39	151

Since our primary focus in the main analysis is limited to eligible **path** verbs (whether or not manner is co-coded), we present below token frequency data for all eligible Polish, Russian, and English path verbs (cf. Tables 3, 4, and 5). The raw (token) frequency indicates the total number of occurrences of each eligible path verb type attested across all video clip descriptions. The percentages next to the raw token frequencies indicate the proportions of each eligible path verb in the overall token frequency of all eligible motion verbs. Recall that “eligible motion verbs” include both path and manner coding verb roots in our primary corpus of data (cf. also Figures 1 and 2).



Table 3. Polish path verbs: token frequencies (TokF) of each eligible path verb and their proportions in the overall TokF of all eligible motion verbs (N=159)

	Polish path verb	TokF of path verb	% of all tokens of eligible motion verbs
1	<i>(ws)pinać się/ piąć się</i> 'to climb' (M+P) ^a	11	7%
2	<i>padać/ paść</i> 'to fall' (P)	7	4%
3	<i>uciekać/ uciec</i> 'to escape' (P)	6	4%
4	<i>przewracać się/ przewrócić się</i> 'to fall' (P)	5	3%
5	<i>ruszać/ ruszyć</i> 'to start moving' (P)	2	1%
6	<i>(s)kręcać/ (s)kręcić</i> 'to turn' (P)	1	<1%
7	<i>obalać się/ obalić się</i> 'to fall down' (P)	1	<1%
8	<i>cofać się/ cofnąć się</i> 'to move back' (P)	1	<1%
TOTAL		34	21.38%

^a In Tables 3, 4 and 5, the abbreviations P and M stand for path and manner components coded in the verb root. Note that manner components only occur in combination with the path, since this list was meant to present verbs coding path primarily (and manner, if at all, only additionally).

Table 4. Russian path verbs: token frequencies (TokF) of each eligible path verb and their proportions in the overall TokF of all eligible motion verbs (N=143)

	Russian path verb	TokF of path verb	% of all tokens of eligible motion verbs
1.	<i>padat'/(u)past'</i> 'to fall' (P),	14	10%
2.	<i>lazit'/ lezt'</i> 'to climb'(P+M),	10	8%
3.	<i>vozvrašat'(sja)/ vernút'(sja)</i> 'to return' (P),	1	<1%
4.	<i>sovat'(sja)/ sunut'(sja)</i> 'to slide in' (P),	1	<1%
5.	<i>karabkat'(sja)</i> 'to climb with difficulty using limbs' (P+M).	1	<1%
TOTAL		27	18.88%



Table 5. English path verbs: token frequencies (TokF) of each eligible path verb and their proportions in the overall TokF of all eligible motion verbs (N=151)

	English path verb	TokF of path verb	% of all tokens of eligible motion verbs
1.	<i>follow</i> (P)	13	9%
2.	<i>climb</i> (P+M)	9	6%
3.	<i>come</i> (P)	9	6%
4.	<i>go</i> (P)	8	5%
5.	<i>fall</i> (P)	8	5%
6.	<i>enter</i> (P)	2	2%
7.	<i>land</i> (P+M)	2	1%
8.	<i>stampede</i> (P+M)	2	1%
9.	<i>scramble</i> (P+M)	2	1%
10.	<i>tumble</i> (P+M)	2	1%
11.	<i>arrive</i> (P)	1	<1%
12.	<i>clamber</i> (P+M)	1	<1%
13.	<i>leave</i> (P)	1	<1%
14.	<i>swoop</i> (P)	1	<1%
15.	<i>turn</i> (P)	1	<1%
TOTAL		62	41.05%

To appreciate the relevance of this data, we now zoom out to present, in Figures 1 and 2, percentages representing the proportion of all eligible path verbs and of all eligible manner verbs in the total frequency of all eligible motion verbs in elicited descriptions of the eight videos. Figure 1 shows the proportion of all tokens of verbs with the root expressing manner and all tokens of verbs with the root expressing the path of motion in the overall token frequency of all eligible motion verbs. Figure 2 presents the proportion of all types of verbs with the root expressing manner and the proportion of all types of verbs with the root expressing the path of motion in the overall type frequency of all eligible motion verbs.

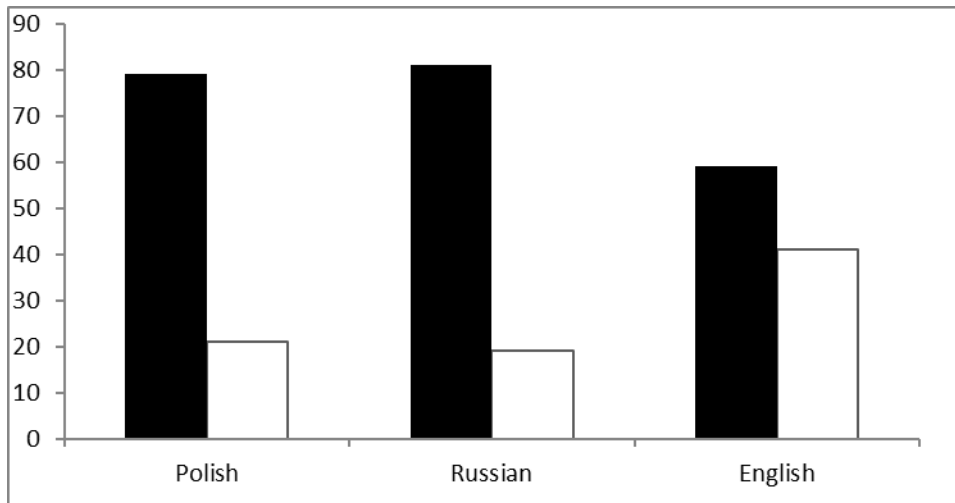


Figure 1. Proportion of all manner verb roots (black bars) and all path verb roots (white bars) in the overall TokF of all eligible motion verbs in the primary corpus.

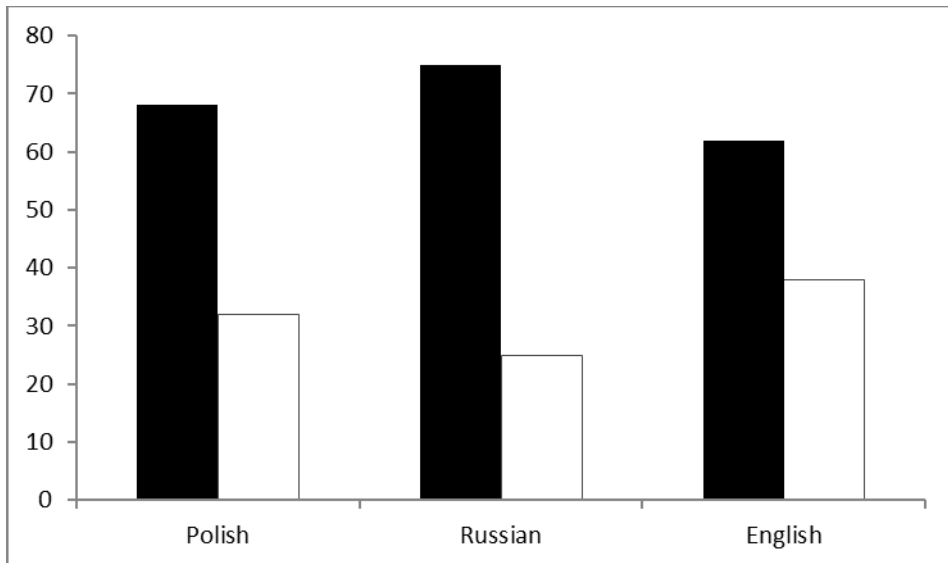


Figure 2. Proportion of all manner verb roots (black bars) and path verb roots (white bars) in the overall type frequency (TypF) of all eligible motion verbs in the primary corpus.

Concerning the data in Figure 1, we established that there were significant differences between the three languages in the token frequencies of path and manner verbs ($\chi^2=22.4$, $df=2$, $p<0.001$). A comparison of Polish and Russian alone did not return a statistically significant difference ($\chi^2=0.29$, $df=1$, $p>0.005$). However, English proved to be significantly different in terms of path and manner saliency both from Polish ($\chi^2=14.0$; $df=1$ $p<0.001$) and from Russian ($\chi^2=17.1$, $df=1$, $p<0.001$). Thus, the token frequencies presented in Figure 1 confirm our first hypothesis stating that English is the most path salient of the three languages under study. These results also support our second hypothesis that Polish and Russian are closer to each other on the path saliency cline than either one is to English.

As for the type analysis (cf. Figure 2), the number of eligible motion verb types was low, which is why the differences between the languages were not found to be statistically significant (Yates' $\chi^2=0.57$, $df=2$, $p>0.005$). The English participants used a relatively larger number of manner verb types, which may be due to the existence in the English lexicon of many different manner verbs denoting various ways of moving. The number of English motion verbs listed by Levin (1993: 263–270) is astonishingly large, and certain manner categories distinguished by the author seem to be non-existent in Polish or Russian. For example, in these two languages, vehicle names or the sound of motion are virtually never coded in the motion verb. In contrast, Levin lists as many as 39 English verbs based on vehicle names (e.g. *balloon*, *bicycle*, *bike*, *boat*, *bobsled*, *bus*), for which Polish and Russian have a limited number of hyperonyms non-specific for the vehicle type, e.g. *latać* [Pl], *letat'* [Ru] 'move in a plane' or *jeździć* [Pl]/ *ezdit'* [Ru] 'to move in a wheeled vehicle'. However, this vast repertoire of English manner-of-motion verbs does not seem to correlate with the frequency of their use, as can be gleaned from the token-frequency data presented in Figure 1. Manner verbs appear to be used relatively infrequently, so much so that speakers of the two Slavic languages may even appear to be relying more frequently on manner verbs in describing motion situations.

Let us now move to the description of the lexicalization patterns of the three types of motion situations to assess the influence of lexical resources as well as morpho-syntactic features of a language on its path saliency. Out of the eight specific motion situations presented in the video clips, the descriptions of three video clips were selected for a closer inspection, namely video clip No. 1 (a man and a dog move up a ladder), video clip No. 2 (two firemen move into a barrel), and video clip No. 4 (a boy and a dog move away from the camera viewpoint towards a zoo gate). The three clips represent, respectively, vertical motion, motion into a container, and deictic motion away from the speaker.



In Tables 6, 7, and 8 below we show whether the descriptions of each type of motion situation coded the path information in the verb, in the verbal prefix, or in the prepositional phrase.

The unit of analysis here is a clause, which describes a motion situation but does not necessarily involve a motion verb. All clauses used by participants for rendering the three spatial relations were taken into consideration (secondary corpus data). This approach allowed us to reflect on the ways of expressing the path of motion not only by means of verbs, but also by means of verbal prefixes and prepositional phrases. Cf. (7), where motion is coded only by means of the dynamic preposition *do* ‘into’, which denotes the Figure’s movement into a container.

- (7) (...) oni chowają się do beczki. [PI]
 (...) they hide.3PL.PRES REFL to barrel. GEN
 ‘They are hiding into the barrel’

It is sometimes possible for one clause to code the path of motion in several lexical items. For example, in (8) the path of motion is expressed by means of a prefix and a prepositional phrase.

- (8) (...) oni wskakują do beczki. [PI]
 (...) they in.jump.3PL.PRES into barrel. GEN
 ‘They are jumping into the barrel.’

Since in one Polish or Russian clause there are three possible ways of expressing the path (the verb root, the prefix, and the prepositional phrase), and two in English (the verb root, and the prepositional phrase), the mean ratios presented in Tables 6, 7 and 8 do not add up to 1. The numbers in the tables were obtained by dividing the number of instances of specific path elements (eligible path verbs, prefixes, or prepositions) by the number of all clauses produced by the respondents to describe a given situation.

The results presented in Tables 6, 7, and 8 are each based on the descriptions of only one video clip, and due to the scarcity of data and zero ratios could not be statistically interpreted. However, the data do point to what extent the lexicalization patterns may depend on the lexical resources and morpho-syntactic characteristics of a language.

Table 6 presents data about the coding of the upward path in the descriptions of the situation involving two animate Figures moving up the ladder (Situation i).



Table 6. Mean number of the semantic components of path per clause describing upward motion

path information rendered by means of	Polish	Russian	English
verb	0.50	0.14	0.63
verbal prefix	0.84	0.51	n/a
prepositional phrase	0.68	0.83	0.84

The results show a discrepancy in the patterns of lexicalization of upward motion between the two Slavic languages and English. In English, upward motion was more frequently lexicalized by verb roots with the semantic component of path (e.g. *to climb*, *to clamber*) than in Polish and Russian. It should be noted that in Polish the only verb that was noted in the category of verbs conflating the path of motion was the verb *piąć się*, whose verb root includes both the manner of motion and the upward path component. In Russian, the most frequent verbs used for the description of this situation were *podnimat'(sja)* 'to move up', and *vzbirat'(sja)* 'to move up' and *zabirat'sja / zabrat'sja* 'to move up'. The formal link between the prefix and the verb root is still recognizable and it is actually the prefix that carries the path information not the verb root. Instances of expressing the path by means of such verbs were included in the prefix category. The 0.14 ratio in the Russian verb category reflects the use of such verbs as *karabkat'(sja)*, which code (upward) path and manner of motion (the use of limbs). Thus, as Table 6 shows, in the case of upward motion, the two Slavic languages code the path mostly in the verbal prefixes, while English relies far more often on path verbs in this respect. Table 7 illustrates the way of rendering path in the descriptions of the situation involving two animate Figures moving into a barrel (Situation ii).

Table 7. Mean number of the semantic components of path per clause describing motion into a container

path information rendered by means of	Polish	Russian	English
verb	0.30	0.13	0
verbal prefix	0.53	0.07	n/a
prepositional phrase	0.84	1	0.88

Path verbs were scarce in the descriptions of entering a container in Polish and Russian data. Such verbs were only used where the described motion was construed as vertical one by Polish participants (e.g. *wpaść do beczki* 'to fall into a barrel').

Although the morpho-syntactic structures of Polish and Russian are similar, this particular situation of entering a container is rendered differently in one respect.



While the Polish and English participants lexicalized boundary-crossing outside the verb (by means of the prefix *v-* and dynamic preposition *into*, respectively), the Russian participants did not use prefixed verbs; they relied only on unprefixed motion verbs and prepositional phrases.

Finally, Table 8 shows how the existence of certain items in the lexical inventory (i.e. the verbs *to come* and *to go*) and the morphosyntactic intricacies of a language (the peculiar character of the *po-* prefix discussed in Section 2.3) may influence the overall path saliency of a language. The video clip concerned presented two animate Figures moving away from the camera viewpoint, becoming ever smaller and ultimately vanishing into the zoo gate (Situation iv).

Table 8. Mean number of the semantic components of path per clause describing deictic motion

path information rendered by means of	Polish	Russian	English
verb	0	0	0.34
verbal prefix	0.52	0.43	n/a
prepositional phrase	0	0	0

Table 8 shows that path expression in the verb was only attested in the English data. This is caused by the availability of the English deictic verb *to go*, which enabled the English participants to rely on this path verb extensively to code the path information. Polish and Russian speakers relied on the prefixes. The zero ratios of Polish and Russian path verbs used in our data for describing the deictic motion reflect the lack of deictic verbs in these two languages. No prepositional phrases were included in the table since the ones that were used expressed the relation between the Figure and the Ground (e.g. *to the zoo*) and did not convey deictic information.

Our analysis of the three specific motion situations has only partially confirmed the third hypothesis. First of all, although the studied languages differ in the ways of expressing motion, the vertical relation of upward motion in English data was rendered mainly by path verbs, and in Polish by the verb *piąć się* ‘to climb’. In the Russian data, we found no verb roots coding upward motion exclusively. However, there were verbs that code motion up together with manner, for instance the verb *karabkat’(sja)*, which codes motion up by using limbs.

What is more, in the Russian data, motion into a container was coded without the use of linguistic means accessible to the speakers of this language, i.e. without verbal prefixes marking boundary-crossing. When describing this relation, the Russian participants used unprefixed motion verbs (e.g. *prygnuli v bočku* ‘(they



jumped in barrel’) , which made the Russian data similar to the English in this respect. This peculiar character of rendering the relation of entering a container in Russian needs to be examined further and the conclusions need to be based on a larger corpus of data.

Finally, the influence of the lexical repertoire of a given language on the lexicalization pattern was clearly in evidence in the specific ways of coding deictic motion. The existence of the verb *to go* enabled the English participants to code this relation in the verb. The Polish and the Russian participants, in turn, coded this relation by relying predominantly on verbal prefixes.

4.2. Qualitative analysis

4.2.1. Lexicalization of vertical motion

The most frequent path verbs used for coding involuntary downward motion under gravity (Situation vi) were *padać* (4%) [Pl], *padat’* (10%) [Ru], *to fall* (5%) [Eng] as illustrated in sentences (9–11).

(9) *Reksio jeździ na wrotce i upada.* [Pl]
Reksio ride.3SG.PRES on rollerskate.LOC and fall.3SG.PRES
‘Reksio rides on a rollerskate and falls down.’

(10) *Sobaka kataetsja na rolukah i padaet.* [Ru]
Dog ride.3SG.PRES on roller-skates.LOC and fall.3SG.PRES
‘The dog is going on roller skates and falls.’

(11) *Dog trundles on the roller-skate and falls off.* [Eng]

Similarly, in English, motion up was also frequently coded by motion verbs with the semantic component of path (as in 12), while Polish and Russian participants used mainly prefixes for this purpose. The only exception was the frequently used Polish verb *piąć się* ‘to climb’, but this verb was also often additionally prefixed by *ws-*, which codes upward movement cf. (13).

(12) *Fireman tries to climb a wall.* [Eng]

(13) *Uciekający strażak musiał się wspiąć na ściankę,*
escaping firefighter must. 3SG.PST REFL climb.INF on wall.ACC [Pl]
‘An escaping fireman had to climb a wall (...)’

Let us note that motion up is frequently associated with the Figure’s effort to overcome the pull of gravity and this effort is frequently reflected in linguistic cod-



ing. Both *piąć się* ‘to climb’ [Pl] or *to climb* code the element of effort, or engagement of the body parts associated with upward motion.

Obviously, in satellite-framed languages vertical motion is most frequently lexicalized by means of manner verbs. As for coding voluntary downward motion, which may be due to the effect of gravity, speakers of all three languages tended to use manner verbs, while the downward path was lexicalized outside the verb or only inferred, as illustrated in sentences (14–16).

(14) *Strażak trzymający chłopca wyskoczył przez*
 firefighter keeping boy.GEN out-jump.3SG.PST through
okno z płonącego domu (...) [Pl]
 window from burning house.GEN
 ‘A fireman holding a boy jumped through the window from the burning house (...)’

(15) *Pożarnik spasaet rebenka, prygaja s okna*
 firefighter rescue.3SG.PRES child.ACC jumping from window.GEN
na rastjanutuju tkan’ vniz. [Ru]
 on spread cloth.ACC down
 ‘A firefighter rescues a child jumping down from the window in the spread cloth.’

(16) *A fireman jumped out of the window to save a boy from a burning house.*
 [Eng]

Nevertheless, it is the lexicalization of motion along the vertical axis that seems to deviate from the characteristic satellite-frame pattern, especially in English.

4.2.2. *Lexicalization of motion into a container*

The short video clips shown to the participants presented a number of spatial situations of the Figure entering or leaving various containers such as a barrel or a henhouse. However, obviously not all of them were coded as entering or leaving a container since some descriptions concentrated on other physical configurations. For example, the motion situation of firefighters entering a barrel was frequently described as hiding or avoiding a crash with a running dog. In Polish and Russian, one of the inferences of the prefixes *w-/v-* is leaving the region of interactive focus (Lindner 1983), which means that by encoding motion, the participants lexicalize the moving Figures as becoming invisible to the conceptualizer. In English, this particular spatial situation is most commonly rendered by the preposition *into* or



the path verb *enter*.

The typical sentences describing the spatial situation of entering a container in the three languages are illustrated in (17–19).

- (17) (...) *zaczął zbliżyć się w kierunku dwóch*
begin3SG.PST approach.INF REFL in direction two
strażaków, którzy wskoczyli do beczki (...) [Pl]
firefighters.GEN who in-jump to barrel.GEN
'(...) began to approach two firefighters, who jumped into a barrel (...)'
- (18) (...) *na drodze pojawili' dwa policyjskich, które*
on road.LOC appear.3PL.PST two policemen who
ispugalis', oni прыгнули в бочку. [Ru]
frighten REFL they jump.3PL.PST in barrel
'On the road two policemen appeared who got frightened and jumped in a barrel'
- (19) *Dog on bottle rocket going towards men who jumped in barrels to avoid dog. [Eng]*

4.2.3. Lexicalization of deictic motion

One of the video clips presented motion of the Figure away from the camera view-point (Situation iv). Let us have a look at the typical ways of describing the scene. Sentences (20–22) exemplify the lexicalization of deictic motion in the three languages.

- (20) *Pies poszedł do zoo z chłopcem. [Pl]*
dog away-walk.3SG.PST to zoo.GEN with boy.INSTR
'The dog went to the zoo with the boy.'
- (21) *Pes s mal'čikom-blondinom pošel v zoopark. [Ru]*
dog with boy.INST blond away-walk.3SG.PRES in zoo.GEN
'The dog with a boy - the blonde went to the zoo.'
- (22) *Reksio and his owner went to the zoo. [Eng]*

The existence of deictic verbs enabled the English speakers to express deictic motion in the verb while the Polish and Russian speakers had the *po-* prefix at their disposal.



It should also be stressed here that the semantics of *po-* prefixed verbs in Polish and in Russian (similarly to the English path verb *to go*) cannot be limited to deixis. As far as the Slavic languages are concerned, *po-* verbs are frequently used without the deictic component. On many occasions *po-* prefixed verbs code solely initiating a new trajectory or resuming motion after a break (e.g., after a fall). In such uses of the prefix, profiling the initial part of the trajectory, is the primary sense of the prefix, which is devoid of the deictic information, as confirmed by the example from the Russian data below.

- (23) *Ne vpolne udačno, no važno, čto vstal*
 not entirely successfully but important that stand.3SG.PRES
I poehal dal'se. [Ru]
 and away-ride.3SG.PST further
 'Not entirely successfully, but it is important that (he) stood up and went further.'

The comparison of marking deictic motion in English and in the two Slavic languages is complicated due to yet another factor. Besides the fact that in Polish or Russian there are no deictic verbs, the prefix *po-* in both languages cannot be used with motion verbs in the present tense in order to mark inchoative motion (cf. Nesset 2008). In such cases, an unprefixated motion verb must be used. In turn, when an unprefixated verb appears, the deictic information is missing, which is exemplified in sentences (24–25).

- (24) *Idzie z chłopcem do zoo.* [Pl]
 walk.3SG.PRES with boy.INSTR to zoo.GEN
 'He is going with the boy to the zoo'
- (25) *Ŝenok s mal'čikom idut v zoopark.* [Ru]
 puppy with boy.INSTR walk.3PL.PRES in zoo.GEN
 'A puppy with a boy are going to the zoo'

The same tendency for starting narratives with unprefixated determinate verbs of motion by Russian and Czech speakers was noticed by Shull (2003: 91), who states that the participants of these two Slavic languages at the beginning of their narrations make "a generalized statement of what is happening at the moment without initially treating the motion as defining a specific trajectory in relation to a source or goal".

Adlative motion (i.e. towards the speaker) is another instance of deictic motion. In English there is the verb *to come*, which is used for coding this relation. Nevertheless, in the elicited data the verb *to come* was most commonly used to mark the



configuration when the moving Figure, as a result of leaving a container, became visible to the conceptualizer, as in (26–27).

(26) *Dog comes out of kennel yawning then goes for a walk.* [Eng]

(27) *A dog comes out of his kennel, yawns, stretches and goes for a walk.*
[Eng]

Polish and Russian equivalents of these sentences include invariably the prefixes *wy-/vy-*, which typically code motion out of a container. Thus, as argued elsewhere (Łozińska 2018), one of the most common inferences of these prefixes is the Figure's coming within the conceptualizer's region of interactive focus (Lindner 1983).

The inference of the prefixes *przy-/pri-* and of the verb *to come* connected with the Figure's entering the conceptualizer's interactive focus becomes clear when we compare the sentences in (28) and (29). In (28), the Polish verb *pojawić się* 'to appear' is used in the same context as the motion verb in (29) and basically carries the same meaning.

(28) *Dwie kaczki piją wodę z poidła,*
two ducks drink.3PL.PRES water.ACC from trough
pojawiła się inna kaczka, przegoniła kaczki aby
appear.3SG.PST REFL other duck, away-chase.3SG.PST geese to
zażyć kąpieli w poidle. [Pl]
have.INF bath.GEN in trough.LOC
'Two ducks are drinking water from a drinking-trough, another duck appears and chases ducks to swim in the drinking-trough.'

(29) *Przyszedł gąsior i przegonił inne gęsi (...)* [Pl]
to-come.3SG.PST gander and away-chase.3SG.PST other geese (...)
'A gander came and chased the geese away.'

The equivalence of the *przy-/pri-* prefixed verbs and the English verb *to come* with the verb *pojawić się* 'to appear' is supported in the respective elicitation data.

5. Conclusions

The findings of the present experimental study indicate that, although manner expression was more type and token-frequent in all three languages that path-expression, English turned out to be more path salient than Russian and Polish. This conclusion has been made on the basis of the token analysis of our elicited da-



ta. The type analysis of the same data also points to the larger proportion of path verbs in English (38%) when compared with Polish (32%), and Russian (25%). However, due to the small sample of types of eligible verbs, the results of the type analysis were not found to be statistically significant.

Similar levels of path saliency in the Polish and Russian data may be due to the genetic relatedness of these two languages. However, although speakers of these two languages have comparable means of expressing motion, our comparison of the descriptions of three specific motion situations revealed additional factors that influence the ways path is rendered. For example, vertical motion, especially involuntary downward motion, as expressed by *padać* [Pl], *padat'* [Ru], *to fall* [Eng], tended to be expressed by path verbs more frequently than the overall preferences of expressing motion in each of these languages would suggest.

What is more, the present study has revealed some interesting contrasts between the three languages studied in the lexicalization of boundary crossing. Future research concentrating specifically on this relation could reveal whether the differences we observed are systematic or incidental.

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DER AUSDRUCK DES PFADS IN DREI SATELLITE-FRAMED LANGUAGES. EINE KOGNITIVE STUDIE DES POLNISCHEN, RUSSISCHEN UND ENGLISCHEN

Das Hauptziel dieser Studie ist die Ermittlung der Grammatikalisierung des Pfad-Hervorragens in drei Satellite-Framed Languages: Polnisch, Russisch und Englisch. Die Analyse basierte auf hervorgerufenen Daten. Es wurde gezeigt, dass die allgemeinen Muster für den Ausdruck des Pfads der Bewegung in den drei Sprachen durch ihre Zugehörigkeit zur selben typologischen Kategorie begründet werden. Die Unterschiede können den Unterschieden in den morphologischen Strukturen und den lexikalischen Repertoires von Bewegungs-kodierenden Ausdrücken zugeordnet werden, die den Sprechern der drei Sprachen zur Verfügung stehen. Die Analyse der Beschreibungen von drei räumlichen Situationen (d. h. vertikale, grenzüberschreitende und deiktische Beziehungen) deutete jedoch auf andere Faktoren, die die Pfadkodierung in den drei Sprachen beeinflussen können. Somit tendierten – trotz des Satelliten-Verb-Charakters der drei untersuchten Sprachen und der morpho-syntaktischen Unterschiede zwischen ihnen – alle unsere Teilnehmer zur Kodierung vertikaler Beziehungen mithilfe von Pfadverben. Die Anzahl der Zeichen von Pfadverben, die zur Kodierung dieser speziellen räumlichen Beziehung verwendet wurde,



erwies sich als höher als die Anzahl der Zeichen von Pfadverben, die zur Kodierung von deiktischen oder grenzüberschreitenden Bewegungen verwendet wurden.

Schlüsselwörter: Lexikalisierung von Bewegungsereignissen; Pfad; Bewegungsverb; Ver-
bpräfix; Polnisch; Russisch; Englisch.