Atemporality of Coextension Paths

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Abstract

This study demonstrates a peripheral role of time conceived as an object of perception in mental processing of fictive motion expressions. More specifically, this study focuses on a specific category of fictive motion used for representation of static spatial configurations, which is referred to as coextension paths. Frequencies of language patterns found in the BNC indicate that at the conceptual level coextension paths tend to be processed as atemporal expressions of spatial extension. An apparent absence of temporality in coextension paths can be attributed to the basic conceptual difference between static physical objects and force-dynamic events. Since space is fundamentally static and globally accessible in nature, language users are inclined to express fictive motion without reference to the temporal axis. The results indicate that there exist two cognitive modes of processing coextension path expressions.

Keywords

Fictive motion, coextension paths, space, time, empirical linguistics

Fictive motion

A number of cognitive linguistic studies discuss a particular use of motion verbs in sentences such as:

(1) The road goes downhill steeply into the valley.

(2) This wire fence goes all the way down to the wall.

These examples, found in the BNC, demonstrate that the meaning of motion verbs can be semantically extended to express spatial relations that do not involve motion per se, nor change of state. Figurative representations of motion attributed to immobile material states, objects, or abstract concepts are regarded as fictive motion (Langacker 1986, 2005, 2008a; Talmy 1996, 2000a: Ch. 2). Fictive motion embraces a wide range of linguistic expressions in which actual physical motion is backgrounded, and another information is foregrounded to convey a metaphorical image.

The above sentences (1) and (2) illustrate a specific category of fictive motion used in representations of static spatial relations, which is labeled by Talmy (2000a: Ch. 2) as coextension paths. "A coextension path is a depiction of the form, orientation, or location of a spatially extended object in terms of a path over the
object's extent" (Talmy 2000a: 138). The object is stationary and there is no entity traversing the depicted path, however it is represented as moving along or over its spatial configuration, as in the above examples.

Matsumoto (1996) points out some intriguing characteristics of fictive motion expressions of this type from the perspective of a cross-linguistic comparison between English and Japanese. He makes a distinction between travelable paths, i.e. paths that can be traveled by people, e.g. roads, paths, etc., as in (1); and non-travelable paths, i.e. paths embracing objects that do not normally act as media of human motion, e.g. walls, wires, fences, etc., as in (2). Matsumoto (1996: 213–217) reports that while English expresses both these types, in Japanese some non-travelable entities, such as walls and fences, cannot be described with fictive motion expressions. Some other non-travelable entities, such as borders and wires, take a restricted set of motion verbs. This is motivated by the fact that certain Japanese motion verbs cannot be used to describe movement of a path that does not involve a sensorimotor basis. Rojo and Valenzuela (2009: Exp. 1) do not observe this distinction to occur as vividly in Spanish, but detect that it takes longer for Spanish speakers to process fictive motion expressions with non-travelable entities than those with travelable ones.

Langacker (1986, 2005, 2008a, 2008b) argues that fictive motion reflects subjective imaginative mental constructions used to discuss actual existence of objects in real-life situations. It involves mental scanning, i.e. a partial reactivation of the original experience conceptualized along the imagined trajectory. Depending on the particular situational context, it can either be imperfective, as in (3a), or perfective, as in (3b):

(3)

a. The narrow path climbs steeply up to the fell.

b. The narrow path is climbing steeply up to the fell.

The perfective use in (3a) can be attributed to a global view in which the entire configuration of the path is apprehended as a single gestalt, while the imperfective use in (3b) can be attributed to a local view, which indicates that the path changes position vis-à-vis the terrain as the conceptualizer experiences a specific stretch of the path (Langacker 2008b: 69–70).

Along these lines, Matsumoto (1996: 204) distinguishes two types of fictive motion expressions. Type I includes sentences in which the motion is arbitrary in the sense that it does not occur at any specific time. Type II is associated with an actual experience of motion of the person uttering the sentence. However, Matsumoto (1996: 205) adds that "perspective mode and scope of attention are not necessarily correlated with the distinction between the motion of a particular entity at a particular time and the motion of an arbitrary entity that can be evoked at any time".
Cognitive linguistic models of fictive motion

Talmy (1996; 2000a: Ch. 2) notes that explanation of fictive motion in terms of metonymy would be inadequate, since numerous cases of non-travelable paths cannot be associated with motion, e.g. fences as in (2) do not move. He considers fictive motion as non-veridical and attributes the discrepancy between static and dynamic interpretations of fictive motion expressions to the distinction between fictive and factive modes of cognition (Talmy 2000a: 100–104). The former is more perceptually salient but less veridical, while the latter is more veridical but less perceptually salient. Thus, the "ception" - a neologism Talmy coins to refer both to perception and conception - of fictive mode requires perceptual veridicality to be to be overridden, which occurs naturally due to a preference for dynamism in linguistic, perceptual, and conceptual semantics.

According to Langacker (2008a: 529), both expressions of actual and fictive motion involve scanning along a path. As shown in Figure 1a, in actual motion we conceptualize events by tracking the mover's progress along a spatial path. An inherent aspect of this conception of actual motion is that the conceptualizer, i.e. the language user who makes a conceptualization, performs sequential scanning along the same path which the mover traverses physically. In processing time (T), the mover is successively conceptualized as occupying a series of locations that collectively constitute the path. Since movement happens in conceived time (t), time is inherently involved in perception of any event (see Radvansky and Zacks 2011). The event is apprehended by the conceptualizer by mentally accessing the successive locations in the same order that the mover reaches them. Therefore, the dynamic conception of a path is immanent in the conception of actual motion.

![Fig. 1. Image schemas of conceptualization of actual and fictive motion events](image)

Langacker (2008a: 529) argues that basically the same mental operations are applied to a static scene in fictive motion. As shown in Figure 1b, conceptualization of fictive motion occurs in a manner generally parallel to conceptualization of an actual motion event. The analog of the mover is a spatially extended object, e.g. a road, fence, scar, etc. Instead of tracking an object's movement, the conceptualizer scans mentally along the path, by which he/she invokes the constitutive locations to build up to a full conception of the object's spatial configuration. The conceived
time \((t)\) has no significant role in the expression's objective content (OC), because the object occupies all spatial locations on a path simultaneously.

Langacker (2008a: 83, 111–112) proposes to term this more holistic mode of building up *gestalts* manipulable as simultaneously available wholes as *summary scanning*. He adds that mental scanning proceeds in a particular direction: the hill can either *rise from* the bank of a river or *fall* to it. However, the direction does not arise from a difference in conceptual content, but rather form the order in which the spatial configuration of an object is build up by *mental summation*.

Jackendoff (2002: 362) questions whether any sort of motion scanning is involved in processing fictive motion sentences. He notes that although the sense of an observer scanning the extended object has some intuitive appeal, it does not account for the difference in inference patterns used in formal decomposition of state-functions. Jackendoff (1983: 173; 2002: 360–362) argues that conceptualization of fictive motion expressions is associated with static representations of Paths, which designate directions, shapes, orientations, etc. Paths themselves are atemporal and can appear as arguments of state-functions. From this perspective coextension path expressions should be viewed as instances of the state variant of GO-function\(^4\), namely *non-temporal extension*, in which all points of the object's spatial configuration are activated simultaneously (see also Iwata 1996 for a detailed analysis of motion/extent as two semantic variants of GO-function).

**Fictive motion as a cognitive simulation**

Recognition of mental simulation in the process of language understanding has been gaining an increased attention over the last 15 years.\(^5\) Mental simulation fits into a broader framework of *grounded cognition* (Barsalou, 2008), which proposes that bodily states, situated action, and mental simulations underlie cognitive processing. More specifically, theories of *mental simulation* (Barsalou 1999, 2003; Glenberg 1997; Zwaan 2004) propose that cognition, including language comprehension, involves partial reenactments of sensory-motor states from

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2 Broccias and Hollmann (2007) attacked summary and sequential scanning as a convincing cognitive explanation for structuring of complex scenes by demonstrating that complementation patterns of causatives, e.g. *get*, *make*, do not seem to reconcile with the two scanning modes. In his reply, Langacker (2008c) admitted that more experimental evidence for the two scanning modes would be desired, but found their argumentation to be invalid.

3 See also Langacker 2005: 168; 2012: 212

4 Jackendoff (1983, 2002) suggests two possibilities concerning the relationship between GO and GOEXT. Either they are not distinct functions and the difference depends on whether the GO-function is a feature of an [EVENT] or a [STATE], or alternatively they are distinct functions, but share a common internal structure. Iwata's (1996) analysis provides support for the latter option.

5 See Bergen 2012 for a review
embodied experiences gained earlier. Barsalou (2008: 618) defines mental simulation as "the re-enactment of perceptual, motor and introspective states acquired during experience with the world, body, and mind". We do not have direct access, i.e. are not consciously aware, of the simulation processes that are going on in our brains.

A question if comprehension of fictive motion involves mental simulation was addressed in a series of cognitive studies conducted by Teenie Matlock. She started with online experiments examining how long it takes for participants to make a decision about fictive motion sentences (Matlock 2004a). In the experiments, participants read stories about traveling in physical space, for example, fast versus slow, short versus long distance, and easy versus difficult terrain. Then they had to make a timed decision about fictive motion sentences related to the story. Generally, faster decision times were observed for stories in which travel involved fast rates, short distances, and easy terrains. The results suggest that in understanding fictive motion sentences people mentally simulate various aspects of motion, including speed, distance, and the terrain across which the movement occurs.

Mental simulation of fictive motion was also studied in offline experiments in which participants drew pictures representing their conceptions of fictive motion scenes (Matlock 2006). The experiments were designed as a non-linguistic measure of testing whether mental simulation plays a role in understanding fictive motion expressions. For example, one group of participants was asked to think about and draw non-artistic, free-style representations of sentences depicting scenes described with fictive motion, e.g. "The footpath goes along the creek", while another group of participants thought about and drew representations of the same scenes depicted by sentences without fictive motion, e.g. "The footpath is next to the creek". Overall, testing showed that participants drew more elongated or extended shapes for fictive motion sentences.

In another experiment (Matlock 2006: Study 3) participants drew longer lines for fictive motion sentences with verbs such representing fast manners of movement, e.g. "The road jets through the city", than with slow manners of movement, e.g. "The road creeps through the city". A corresponding trend was observed for actual motion sentences with the same verbs, which indicates that fictive motion construal occurs in a manner similar to actual motion construal. The drawing results provide indirect support for the idea that when conceptualizing static fictive motion scenes people construct a dynamic simulation that mirrors motion depicted by fictive motion expressions.

Further evidence indicating that processing fictive motion sentences includes mentally simulated motion was obtained in eye-movement tracking experiments. In one experiment (Matlock and Richardson 2004), participants viewed simple two-dimensional drawings of static spatial scenes while they heard either fictive or non-fictive motion sentences of equivalent length and meaning, e.g. "The palm trees run
along the highway vs. "The palm trees are next to the highway". Gaze tracking demonstrated that participants spend more time inspecting figures described with fictive motion sentences. In a subsequent study (Richardson and Matlock 2007) participants were presented with pictures and descriptions of easy or difficult terrains, and then fictive motion sentences or non-fictive motion sentences. Inspection times and eye movements scanning along the path increased during fictive motion descriptions when the terrain was first described as difficult as compared to easy. Such effects were not observed for descriptions with non-fictive motion sentences.

Moreover, Matlock, Ramscar and Boroditsky (2005) conducted experiments examining whether abstract conceptions of time and comprehension of fictive motion sentences share a common experiential basis derived from the concrete experience of actual motion in space. The experiments demonstrated that participants tend to take ego-moving or time-moving temporal perspective depending on the content of fictive motion sentences. The results suggest that fictive motion sentences engage structures involved in understanding literal motion, and that these literal aspects of fictive motion influence temporal reasoning.

Taken together, the above discussed evidence collected from decision time latencies, drawing studies, eye-tracking, and the influence on temporal reasoning, suggests that fictive motion processing evokes mental simulations. Using numerous examples Matlock (2004b) argues that verbs of motion manner used in fictive motion expressions are related to the size and shape of the described objects, the direction and ease of motion, as well as the speed at which an imagined traveler moves across the path. She notes that fictive motion typically refers to spatially extended or elongated entities. Sentences such as: "The small round ashtray goes from the cup to the newspaper" sound rather peculiar, because mental scanning is minimal or completely absent in such cases.6

In a recent article Blomberg and Zlatev (2013) argue from a phenomenological perspective that neither account for fictive motion in terms of mental simulation proposed by Matlock, nor cognitive linguistic models proposed by Talmy and Langacker adequately explain the experientialist and linguistic complexity of the phenomenon. They point out that the view of fictive motion as a mental simulation does not make clear what is actually simulated. For example understanding a sentence such as "The highway crawls through the city" (Matlock 2004b: 232) can refer to any of the following four variants:

- the subject's imagined motion through the city along a highway;
- the subject's imagined motion of some external object, such as a car, along a highway;

6 See also Gibbs and Matlock 2008 for a discussion of fictive motion in the framework of embodied simulation
• the motion of something animate such as a snake, which resembles a highway;
• the viewpoint of someone who is visually "scanning" a highway.

Although variants (i–iv) basically correspond to experiences of actual motion, they are in fact distinctly related at least three different features of human consciousness: enactive perception, visual scanning, and imagination, which potentially constitute experiential motivation for such sentences.

Moreover, Blomberg and Zlatev (2013) point out an important aspect of sedimentation of fictive motion expressions through acquisition and social transmission of language. Woelert (2011) following Husserl's (1939/1970) idea, defines sedimentation as a consolidating process of linguistic conceptualization, in the course of which the evident cognitive structures originally given in embodied sense-experience have certain persisting linguistic conceptualizations superimposed on them by language acquisition and cultural transfer. Consequently, they "become more and more an immediately available, unquestioned (and sometimes even unquestionable) element of the language user's conceptual repertoire" (Woelert 2011: 119). Because explanation of fictive motion in terms of mental simulation obscures these aspects, Blomberg and Zlatev (2013) postulate that a full explanation of fictive motion should be grounded in a broader phenomenological-linguistic framework of consciousness-language interactionism, which takes into account a reciprocal relation between pre-linguistic experience and linguistic meaning.

Temporality of fictive motion

Because temporality plays an important role in mental simulations (Zwaan 2009), it can be reasonably presumed to act in conceptions of fictive motion. Matsumoto (1996: 186–187) demonstrates that in sentences such as "The highway runs along the coast for a while" the temporal phrase for a while denotes the duration of the process of motion along the coast, which is directly correlated to the length of the relevant section of the highway in question. He emphasizes that in such sentences temporality cannot be attributed to any particular duration of the state of location, which indicates that conceptualizations of fictive motion cannot be explained without assuming some sort of motion processing.

Matlock (2004a: 1390) argues that fictive motion sentences frequently incorporate words and phrases that communicate physical movement, which can be denoted in terms of duration, such as for 10 minutes in "The road runs along the coast for 10 minutes". Additionally, the natural temporality of physical movement is implied by those fictive motion expressions that include verbs communicating fast or slow manners of motion in their literal uses, e.g. "The freeway races past the city" or "Interstate 5 crawls through Los Angeles" (Matlock 2006: Study 3).
The assumption of temporality of fictive motion expressions is elaborated further in Matlock's (2004b) discussion on the conceptual motivation of fictive motion constructions. She argues that objects depicted by fictive motion expressions must be sufficiently long to dynamically construe over time for the mental scanning to occur. Matlock (2004b: 229) uses examples presented in (4) to argue that sentences such as (4a) are much more natural than (4b), because of the temporality that reflects a substantially longer object involved in sequential scanning along the path.

(4)

a. The road runs along the coast for 2 hours.

b. ? The road runs along the coast for 2 seconds.

However, she adds that sentences like (4b) are reasonably plausible, if the intention of the speaker is to contrast a particularly short part of a road running along the coast with other sections of the same road.

Temporality of coextension paths

The purpose of this research is to observe from an empirical linguistic perspective how the assumption of temporality in fictive motion expressions fits into the reality of linguistic performance. To answer this question this research seeks to find how natural it is to denote an extension of objects in space in spatial vis-à-vis temporal terms with coextension path expressions. This investigation follows an assumption that if cognitive processing of coextension paths resembles processing of actual motion, enunciations of distance in both types of motion expressions should feature a similar proportion of spatial vs. temporal representations. The use of temporality in representations of the motion-framed distance, i.e. representations of a distance that separates one point from another in space in the semantic context of motion events, has been discussed in Waliński, this volume.

Methodology of research

For the purpose of this research the British National Corpus (henceforth, the BNC) has been employed (Aston and Burnard 1998; see www.natcorp.ox.ac.uk for more information). It has an important advantage of being a standard reference corpus (McEnery and Wilson 2001: 32), which has been used by researchers in a variety of contexts, including research on motion events (e.g. Filipović 2007). This research employs a corpus-based cognitive linguistics methodology, which is an approach to language study that brings together a descriptive framework of cognitive linguistics (Croft and Cruse 2004; Evans 2012; Kardela 2006) with a methodological workbench of corpus linguistics. Essentially, corpus-based cognitive linguistics relies on explanatory notions adopted by the cognitive
linguistics framework, but approaches them in such a way that their relevance for a given linguistic phenomenon can be empirically validated in large corpora, frequently with an aid of advanced statistical techniques (Heylen, Tummers, and Geeraerts 2008).\(^7\)

Although the scope of this study is specifically limited to investigating temporality in coextension paths, it draws extensively on Talmy's (2000b: Part 1) framework of *lexicalization patterns* in motion events. Coextension paths are problematic to find in a linguistic corpus because at the syntactic level they are practically indistinguishable from actual motion expressions. For that reason, this research was implemented with a procedure that involves looking for combinations of landmarks that can potentially feature in coextension paths with an ample selection of motion verbs.

Selecting suitable landmarks followed observations that coextension paths typically describe extended or elongated stationary spatial entities (Langacker 2005; Matlock 2004b). Starting with a few prototypical ones, such as "road", "wire", "fence", "coast", etc., the online version of *WordNet* 3.1 (Fellbaum 1998).\(^8\) was consulted to review hyponyms, meronyms, and sister terms in order to identify spatially extended objects potentially fit for descriptions with coextension paths. In the outcome, for the purpose of the present study the following four basic categories of landmarks were selected:

a) *Travelable paths*: "avenue, bridge, flyover, footpath, highway, lane, overpass, passage, path, pavement, railway, road, route, street, thoroughfare, track, trail, tunnel, viaduct, way". These spatial entities are distinguished by Matsumoto (1996) as paths intended for traveling by people.

b) *Travelable environmental entities*: "beach, canyon, cliff, coast, desert, field, forest, glacier, hill, island, land, mountain, plateau, ridge, valley". These typically extended or elongated landmarks can also be traveled, however they were not built intentionally for this purpose.

c) *Non-travelable connectors*: "cable, line, pipe, pipeline, wire". These elongated objects are not normally traveled by people, therefore they are classified by Matsumoto (1996) as *non-travelable paths*. The above list includes objects that are typically used for transmitting energy or transporting substances over long distance.

d) *Non-travelable barriers*: "dam, fence, hedge, wall". These spatially extended entities typically serve as barriers and are not normally used for traveling, but they often stretch over a relatively substantial distance, too.

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7 See Lewandowska-Tomaszczyk and Dziwirek 2009 for reviews and examples of studies
8 See wordnet.princeton.edu for more information
Altogether, 44 landmarks were selected for analysis. The range of objects that can potentially be described with coextension path expressions is practically unlimited. The above list does not include some objects frequently discussed in the literature on fictive motion, e.g. *cord, scar, tattoo*, which due to their relatively short length are less likely to be discussed in temporal terms (see Matlock 2004b: 229).

A list of English verbs of motion was taken from Levin (1993: Ch. 51). For the purpose of the present study the following categories of verbs were selected for investigation:

- **Verbs of inherently directed motion**: "advance, arrive, ascend, climb, come, cross, depart, descend, enter, escape, exit, fall, flee, go, leave, plunge, recede, return, rise, tumble".
- **Verbs of motion manner**:
  - a) *Roll verbs*: "bounce, drift, drop, float, glide, move, roll, slide, swing, coil, revolve, rotate, spin, turn, twirl, twist, whirl, wind".
  - b) *Run verbs*: "amble, backpack, bolt, [bounce], bound, bowl, canter, carom, cavort, charge, clamber, [climb], clump, coast, crawl, creep, dart, dash, dodder, [drift], file, flit, [float], fly, frolic, gallop, gambol, [glide], goose-step, hasten, hike, hobble, hop, hurry, hurtle, inch, jog, journey, jump, leap, limp, lollop, lope, lumber, lurch, march, meander, mince, mosey, nip, pad, parade, perambulate, plod, prance, promenade, prowl, race, ramble, roam, [roll], romp, rove, run, rush, sashay, saunter, scamper, scoot, scrap, scramble, scud, scurry, scutter, scuttle, shamble, shuffle, sidle, skedaddle, skip, skitter, skulk, sleepwalk, [slide], slink, slither, slog, slouch, sneak, somersault, speed, stagger, stomp, stray, streak, stride, stroll, strut, stumble, stump, swagger, sweep, swim, tack, tear, tiptoe, toddler, totter, traipse, tramp, travel, trek, troop, trot, trudge, trundle, vault, waddle, wade, walk, wander, whiz, zigzag, zoom".
- **Chase verbs**: "chase, follow, pursue, shadow, tail, track, trail".
- **Accompany verbs**: "accompany, conduct, escort, guide, lead, shepherd".

Altogether, 170 different motion verbs were selected for investigation (duplicates between categories are listed above in square brackets). Although some of them, e.g. *backpack* or *sleepwalk*, are perhaps less likely to appear in coextension path expressions, a discussion to what extent each of these verbs is conceptually fit for fictive motion exceeds the scope of this study. Enumerating all verbs that can potentially feature in this context is impossible, if only for the creativity of linguistic expression. Although the above list is not exhaustive, it seems to be adequate for the purpose of examining temporality of coextension paths.

The search for coextension paths in the BNC was implemented by looking for combinations of the above listed landmarks with third-person singular simple present and past forms of the above listed motion verbs. It gives 14,960 different combinations (44 landmarks x 340 verb forms), which when implemented in
corpus queries identifies 2206 sentences incorporating such landmark + verb combination in the BNC. However, since this study aims more specifically to identify examples of coextension paths denoting spatial configuration in terms of either absolute duration, e.g. "The road runs along the coast for 10 minutes" or absolute spatial distance, e.g. "The road runs along the coast for 10 kilometers", a unit of space/time measurement was additionally incorporated in the following lexical pattern implemented in the investigation:

\[
\text{LANDMARK (noun sing.) + MOTION VERB (3rd person sing. present|past) + TEMPORAL UNIT or SPATIAL UNIT; SLOP=5, PRESERVE ORDER=YES}
\]

Units of time measurement selected for analysis involve those that are typically used to express duration, i.e. moments, seconds, minutes, hours, and days, including common abbreviations. Units of spatial distance measurement selected for investigation involve both metric and imperial units used in the UK, also in their American variants of spelling, i.e. kilometer (kilometre), meter (metre), mile, and yard, together with their abbreviations.

Because one cannot expect lexical items from the above linguistic pattern to always follow directly one after another in linguistic performance, searching was implemented with *proximity queries* (Bernard and Griffin 2009). They allow for searches with a *slop* factor, which specifies how far apart lexical items included in a query can be from one another to be still returned as a result to the query. The slop factor can be used in combination with a binary (yes/no) *preserve order* option, which indicates whether the original order of query terms should be preserved in results. To afford for occurrence of additional modifiers between query terms in the above pattern, searching was implemented in a relaxed manner with the *slop* value of 5, but the *preserve order* option set to "yes" in order to prevent coincidental hits.

This study investigates coextension path expressions that denote *absolute distance* expressed in spatial or temporal units. The use of relative linguistic means for structuring spatial relations in coextension paths exceeds the scope of this study.\(^9\) The corpus is examined with queries based on simple regular expression syntax, which enables anyone interested in attesting or expanding this study to probe the data under the same research conditions.\(^{10}\)

**Atemporality of coextension paths in the BNC**

Corpus queries based on the above pattern found altogether 104 sentences matching the query terms in the BNC. However, an implementation of proximity queries

\(^9\) See Filipović 2007 for a broader discussion of spatial and temporal features in linguistic representation of motion events

\(^{10}\) See Waliński 2013 for a full listing of queries employed for this research accompanied by corresponding concordances retrieved from the BNC
with a large slop value of 5 is not without consequences. As it increases the number of returned sentences, at the same time it decreases the precision of results (see Pęzik 2011). For that reason, the resulting set had to be reviewed to eliminate sentences sharing the defined sequence/proximity of lexical items by sheer coincidence. In the outcome, 42 sentences were recognized as examples of coextension path expressions denoting absolute distance. The results found for selected categories of verbs of motion are presented in Table 1.

Table 1. Coextension paths denoted in either spatial or temporal terms found in the BNC

<table>
<thead>
<tr>
<th>Category of verbs</th>
<th>Coextension path denoted in spatial terms</th>
<th>Coextension path denoted in temporal terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inherently directed motion verbs</td>
<td>21</td>
<td>0</td>
</tr>
<tr>
<td>Roll verbs</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Run verbs</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>Chase verbs</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Accompany verbs</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>42</strong></td>
<td><strong>0</strong></td>
</tr>
</tbody>
</table>

As shown in Table 1, all examples of coextension paths identified in the BNC are denoted in spatial terms. It is noteworthy that coextension path expressions denoted in spatial terms were found for each selected category of verbs, but no examples of coextension paths denoted in temporal terms were found in the corpus. It must be emphasized that it does not mean that they are non-existent in English, or even in the BNC. It just states that they could not be identified with the above described procedure.

The results indicate that we cannot assume on the basis of linguistic intuition that coextension path expressions frequently incorporate phrasing that communicates physical movement in terms of duration (Matlock 2004a, 2004b; Matsumoto 1996). The evident absence of temporal representations in coextension paths identified with the above discussed procedure suggests that in natural linguistic performance they tend to be rather infrequent. This is particularly conspicuous when the absence of temporality in coextension paths is compared to a high proportion of temporal representations found in the same corpus for the motion-framed distance.11

11 See Waliński, this volume
Conceptual motivation of atemporality in coextension paths

The results of this research demonstrate the peripheral role of the conceived time in mental processing of coextension path expressions (Langacker 2005; 2008a: 79, 529). Obviously, the processing time is still involved, since even atemporal conceptions of static relations in space are conceptualized through mental processing, which requires time to occur in the first place. In more general terms, the findings confirm the non-veridical nature of fictive motion (Talmy 1996; 2000a: Ch. 2), despite involvement of practically identical verbs and syntactic structures as actual motion expressions. Although the surface linguistic structure of fictive motion expressions reflects a cognitive bias towards dynamism, the apparent atemporality of coextension paths in linguistic performance indicates that at the conceptual level they are often processed as figurative representations of non-temporal states of spatial extension (Jackendoff 1983: 173; 2002: 360–362).

The apparent absence of temporality in coextension paths can be attributed to the basic conceptual difference between static physical objects and force-dynamic interactions conceptualized as events (Engberg-Pedersen 1999; Kardela 2007; Langacker 2012). Because all events occur dynamically along the temporal axis as well as along the spatial axis (Radvansky and Zacks 2011), it is natural for temporal representations to frequently figure in linguistic expressions of distance involving actual motion. For the same reason, because static objects in space can exist independently of the temporal axis, it is not overly surprising that temporality does not feature frequently in depictions of spatially extended entities articulated with coextension paths. Since space is fundamentally static and globally accessible in nature (Galton 2011; Langacker 2012), dynamic descriptions of static objects hardly ever require temporal representations.

The basic conceptual difference between fictive and actual motion events can be illustrated with examples in (5). Although all sentences (5a–c) can be regarded as acceptable representations of distance in either spatial or temporal terms, the objectively verifiable frequencies of linguistic patterns found in the BNC indicate that sentences such as (5a), in which fictive motion expresses distance in spatial terms, are much more natural in linguistic performance than ones like (5b), in which fictive motion expresses distance in temporal terms.

(5) a. The road to London runs for 100 miles.
   b. The road to London runs for 2 hours.
   c. It takes 2 hours to get to / to reach London.

12 See also Iwata, 1996
Denoting spatial extension in temporal terms is more natural with structures such as (5c), which are found multiple times in the BNC\textsuperscript{13}. They enable us to mentally substitute the initial "It" with a conception of actual traveling, e.g. by train or by car, which is associated with a dynamic motion event, rather than a static object. In result, coextension path expressions denoting spatial extension in terms of duration are the least preferred form of expressing distance in everyday speech.

**Conclusions**

Although linguistic representations can only serve as an indication of dynamic spatial-temporal relations in the conceptual structure (Langacker 2012), the absence of temporal representations in coextension path expressions found in empirical linguistic data suggests that there exist two cognitive modes of processing fictive motion, which fits into the *overall framework of fictivity* proposed by Talmy (2000a: 99–103). The results obtained in psycholinguistic experiments demonstrate the *fictive mode*, in which processing of fictive motion takes place in a manner to some extent parallel to actual motion. This mode has arguably a greater potential for denoting spatial extension in terms of duration, since it involves an association with physical movement. On the other hand, the atemporality of coextension paths found in language corpora points at the *factive mode*, in which coextension paths are processed as atemporal expressions of spatial extension. The use of temporality in this mode is potentially restricted due to the above discussed conceptual reasons.

However, the link between linguistic structuring and evocation of an actual sense or conceptualization of motion is difficult to draw precisely. As emphasized by Talmy (2000a: 104–105), for the same instance of fictive motion expression some speakers will report a strong semantic evocation of motion, while others will report that there is none at all. Even the same speaker may deal with the same instance differently on different occasions. Moreover, in situations when an experience of motion does occur for a fictive motion expression, there is a range of differences as to its strength and character, its clarity and homogeneity, and what is conceptualized as moving.\textsuperscript{14}

Apart form the above discussed conceptual reasons, the choice of either factive or fictive mode of conceptualization is related to the dynamic potential of the linguistic structure, which may far exceed the scope of a single sentence. It seems that coextension path expressions used in depictions of spatial scenes, which are inherently dynamic and multidimensional, have a greater potential to engage the fictive mode than a simple sentence used every now and then to express a simple

\textsuperscript{13} A simple search in the BNC for “It takes/took <CRD> hours/minutes/days to get/reach” (Slop=1; Preserve Order=YES) identifies 22 valid representations of spatial distance in temporal terms. See Waliński 2013 for a listing.

\textsuperscript{14} See variants listed by Blomberg and Zlatev 2013
relation of distance. Moreover, the factive mode of processing can be attributed to *sedimentation of meaning* (Woelert 2011; Blomberg and Zlatev 2013). Since fictive motion constructions are immediately available means of denoting spatial extension in the conceptual repertoire of language users, in numerous cases coextension paths are likely to be used to describe spatial configurations of objects in automatic parrot fashion dissociated from movement.

**References**


