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FICTIVE MOTION: A COGNITIVE LINGUISTICS APPROACH

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Sentences like *the road runs along the valley* or *the tattoo runs along the spine* are used by speakers in everyday language. Even though these sentences contain verbs of motion, actual motion does not take place. Cognitive linguists claim that such sentences imply a sense of motion and term it – *fictive motion* (Talmy), *abstract motion* (Langacker) or *subjective motion* (Matsumoto). In some cases, fictive motion is believed to involve simulated motion, when the reader simulates motion along a portion of the road, in others, simulated visual scanning – the language user (if no travelable path is present) visually scans the trajectory. This article presents an overview of opinions and experiments concerning this phenomenon. The cognitive treatment of fictive motion rightly points to the connection between experience and linguistic meaning.

Keywords: *fictive motion, conceptualization, conceptualizer, fictive motion constructions / construal.*

MIȘCAREA PRIN PRISMA LINGVISTICII COGNITIVE – MIȘCAREA FICTIVĂ

Enunțurile *Drumul se întinde de-a lungul câmpului* sau *Tatuajul rulează de-a lungul coloanei vertebrale* sunt adesea folosite de vorbitori în viața de zi cu zi. Chiar dacă aceste enunțuri conțin verbe de mișcare, mișcarea de facto sau vreo schimbare de stare nu are loc. Lingviștii cognitivi susțin că exemplele date totuși exprimă un fel de mișcare implicită și numesc acest fenomen *mișcare fictivă* (Talmy), *abstractă* (Langacker) sau *subiectivă* (Matsumoto). În unele cazuri se consideră că mișcarea fictivă implică simularea mișcării, în altele – scanearea vizuală simulată. Acest fel de mișcare stimulată mental de-a lungul unui traseu sau a unei configurații lineare motivează folosirea anumitor clase de verbe de mișcare în mod figurat. Acest articol are drept scop prezentarea succintă a ceea ce lingviștii cognitivi numesc mișcare fictivă, clasificarea, motivarea și conceptualizarea ei. Este o sinteză de opinii și experimente efectuate de numeroși cercetători pe marginea acestui subiect.

Cuvinte-cheie: *mișcare fictivă, conceptualizare, conceptualizator, traseu fictiv construal / construcție de mișcare fictivă.*

Introduction

Motion has always been important for the human being; it helped us distinguish between moving and non-moving entities, between the moving speed and the environment in which the motion takes place by changing its position or direction. Motion verbs such as *go* and *run* are pervasive. Ontologically primary and reflective of one of the most fundamental human activities, motion verbs exist in all languages and show similar patterns of semantic extension cross-linguistically. When used literally, a motion verb describes how a physical entity changes from one place in space to another place in space. Implicit in the event is the passage of time and the continuation of movement from a starting point to an end point.

People regularly use language about motion to describe static situations in everyday conversations. Surprisingly, this is common practice when people are describing stationary representations. For example, when talking about roads they say *Road A runs along the coastline*, when talking about mountains they say *The mountain range goes from Canada to Mexico* and even when talking about tattoos, people use expressions such as *The tattoo runs along the spine.* These constructions are present in many languages as seen in the studies conducted by a great number of linguists in cognitive linguistics.

In 1980's constructions as mentioned above were of interest to cognitive linguists because they appealed to the idea that meaning is conceptualization. In particular, Leonard Talmy and Ronald Langacker argued that these constructions invoked an implicit, fleeting sense of motion even though no motion was explicitly expressed. Various names were attributed to this interesting linguistic phenomenon: Langacker called it *abstract motion* (1986), Talmy referred to it as *fictive motion* (1996). Yo Matsumoto called this fleeting sense of motion *subjective motion* to emphasize its subjective nature (1996).

Cognitive linguistic models of fictive motion

To start with we would like to put Langacker's notion of *abstract motion* in a nutshell. He begins his analyses by distinguishing between two basic classes of verbs, depending on whether they profile a perfective

or an imperfective process. Perfective verbs are those that take the progressive, but normally do not appear in simple present tense; imperfectives do occur in the simple present but resist the progressive. In perfective, the component states constitute a bounded series and involve some changes through time. By contrast, imperfectives are not specifically bounded and all the component states are construed as being identical. In this regard Langacker says that: "a motion verb can be regarded as a sort of perfective process in which each component state specifies the relation between the mover and his immediate location" [2, p.549-462]. This definition highlights what all verbs of physical motion have in common. However there are motion verbs such as *go* and *run* which are highly pervasive. When used literally they describe how a physical entity changes from one place to another place in space, *Lucas is going to school* or *The dog is running outside*. (features an animate or mobile noun phrase referent (Luca, dog), but, the verb *go* can be used in instances when it does not refer to spatial domains.

Eg: b) *Peter went through the alphabet in 5- 7 seconds;*

c) *The milk is about to go sour.*

The first thought is to treat the examples above as instances of space metaphors. However to describe a metaphor we must in any case characterize both the sources and the target domains, together with the mapping between them [1p. 36-61]. One way or another we must attribute to *go* a conventionally-established range of values that indicate change in non-spatial domains. In these cases the spatial path is not construed in particular, but is simply viewed as an "ordered sequence of entities within the relevant domain, so that the mover is capable of interacting with each of these entities individually" for eg.: in *b*, letters are the entities and Peter interacts with a given letter by reciting it; in *c*, the entities are points along a scale for evaluating freshness, and the milk interacts with such an entity by being fresh or sour to a specific degree. What Langacker did is "characterize a schematic concept of ***abstract motion*** where the mover (Peter) or abstract mover (milk) is making contact with an ordered series of points in time" [2, p.207-210].

Langacker also uses the term "subjective motion" when referring to sentences in which verbs of motion are used but there nothing seems to move or change.

For e.g.: d) *The roof slopes steeply upward*. e) *The roof slopes steeply downward*. f) *The hill gently goes up from the bank of the river*. g) *The hill gently goes down to the bank of the river*.

Though no movement takes place in these examples, they intuitively incorporate a sense of directionality and semantic contrast because they imply opposite directions. This is another example where "semantic contrast does not reside in the conceptual content of the expressions, but rather in how that content in assessed". Langacker assumes that "the conception of such a configuration requires a certain span of processing time for its full activation, rather than springing instantaneously into full-blown existence So the conception grows progressively more complex with the passage of processing time, until the full configuration is simultaneously active" [3, p.108-110]. As the mover (roof) "grows" upwards or downwards from its starting point, its leading edge can be thought as moving through space changing through processing time. What motivates the use of motion verbs in fictive motion is a subjective counterpart of actual motion that emerges conceptually from mental scanning along a particular spatial path. The profiled relationship, namely the spatial configuration of the path, is portrayed as being stable through time. Langacker terms this more holistic mode of building up *gestalts* manipulabe in memory as simultaneously available wholes as *summary scanning* [3, p.111-112].

Another linguist, namely Leonard Talmy, claims the idea that cognitive processes motivate linguistic forms. As well as Langacker, Talmy takes into account such constructions as *The mountain range goes from Mexico to Canada*, where the mountain range evokes a sense or a conceptualization of something moving from south to north. Despite the absence of actual movement such sentence has been claimed to involve *fictive motion*, an implicit mental simulation of movement. (The motion in this case is not "factive" -a term applied by Talmy to more palpable visual representations, it is "fictive" – term applied to less palpable representations) [8, p.98-101]. An individual "sees" the factive representation (the mountain range), but only "senses" its fictive representation (the movement). "Of these two representations, the *fictive* representation – the one that is assessed and experienced as less veridical- consists of the literal reference of the words, which directly depict the mountain range as moving. The *factive* representation – the one assessed and experienced as more veridical, consists of our belief that the mountain range is stationary". What is worth mentioning is the fact the Talmy and other cognitive linguists do not maintain that fictive motion involves vivid imagery whereby the conceptualizer "sees" himself or herself moving point by point along the figure in the scene being described. Instead they take the motion to be relatively fleeting and tacit.

In his work "Towards a cognitive semantics" vol. I, Talmy points out that in the framework of general fictivity, the discrepant representations frequently differ with respect to a single aspect representing opposite poles of one dimension. One such dimension is *change*, which in the physical domain of space-time results in the more specific dimension of *motion*. Depending on the particular case, the more veridical representation is stationariness while the less veridical representation is motion which results in fictive motion. From this perspective, fictive motion in language includes "the linguistic pattern in which the literal meaning of a sentence ascribes motion to a referent that one otherwise normally believes to be stationary" [8, p.101]. This general stipulation encompasses a number of relatively distinct categories of fictive motion, including:

• emanation, which is essentially the fictive motion of an intangible entity emerging from a source. This category comprises a number of relatively distinct types, including orientation paths, namely "a continuous linear intangible entity emerging from the front of some object and moving steadily away from it" [8, p.106]; radiation paths, i.e. "radiation emanating continuously from an energy source and moving steadily away from it" [8, p.111]; shadow paths, namely "the linguistic conceptualization . . . that the shadow of some object visible on some surface has actively moved from that object to that surface" [8, p.114]; and sensory paths, i.e. "the conceptualization of two entities, the Experiencer and the Experienced, and of something intangible moving in a straight path between the two entities in one direction or the other" [8, p.115];

• pattern paths, which involve the fictive conceptualization of some configuration as moving through space. "The literal sense of a sentence depicts the motion of some arrangement of physical substance along a particular path, while we factively believe that this substance is either stationary or moves in some other way than along the depicted path." [8, p.129];

• frame-relative motion, in which the factively stationary surroundings are fictively depicted as moving;

• advent paths, which include depictions of a stationary object's location in terms of its arrival or manifestation at the site it occupies. The two main subtypes include site arrival, i.e. the fictive motion of the object to its site; and site manifestation, namely the fictive change (Section 2.1) in the sense of the object' manifestation at its site;

• access paths, which are depictions of a stationary object's location in terms of a path that some other entity might follow to the point of encounter with the object. The representation of the object as stationary, without any entity traversing the depicted path, is factive. What is fictive is the representation of some entity traversing the depicted path;

• coextension paths, which are depictions of the form, orientation, or location of a spatially extended object in terms of a path over the object's extent [8, p.135-138].

This study focuses specifically on the last category, which, as noted by Talmy "can serve as an orientation to fictive motion in general" [8, p.103].

Talmy points out that coextension paths are illustrated by sentences like *The road goes from the North to the South* or *The mountain range lies between France and Spain*. What is factive in coextension paths is the representation of the object as stationary with the absence of any entity traversing the depicted path. What is fictive is the representation of the object as moving along or over the configuration in space.

Moreover, Talmy distinguishes between *constructional fictive motion*, which refers to linguistic forms and constructions whose basic reference is to motion, from *experienced fictive motion*, which refers to the degree to which such expressions evoke an actual sense or conceptualization of motion. He emphasizes that the latter differs substantially from one person to another. "Where an experience of motion does occur, there appears an additional range of differences as to what is conceptualized as moving. This conceptualization can vary across individuals and types of fictive motion. Even the same individual may deal with the same example of fictive motion differently on different occasions" [8, p.102-104].

Many linguistic observations lend support to the idea that fictive motion involves simulation of motion or visual scanning. Fictive motion sentences frequently incorporate words and phrases that communicate physical movement, for instance, duration, such as for 10 minutes in *The road runs along the coast for 10 minutes*, and direction, such as north in *The road runs north*. They also occur with manner verbs that communicate how fast or slow motion literally is, such as *race* in *The highway races past the city*, or *crawl* in *The road crawls through the city*. These sentences also express unidirectional extension from one part of a scene to another, as in *A scar extends from his knee to his ankle* or *The garden hose runs from the faucet to the flowerbed*.

In her article *The conceptual motivation of fictive motion,* Teenie Matlock defines the structure of a fictive motion expression which has the following constituents:

– A subject noun phrase (the scar, road, hose etc.);
– A motion verb (run, crawl, race etc.);
– Either a prepositional phrase (along the coast) or a direct object (the city etc.)

The subject noun phrase represents the trajector which in the examples mentioned above is a path or a linear entity such as the road, highway. The trajectory is essential in a fictive motion construction because "its construal shapes the overall meaning and structure of the construction", including what is generally considered semantically and grammatically acceptable to English speakers [5, p.226].

Another cognitive linguist Yo Matsumoto points out some intriguing characteristics of fictive motion expressions from the perspective of a cross-linguistic comparison between English and Japanese. He makes a distinction between travelable paths, paths that can be traveled by people, e.g. *roads, paths*, etc., and non-travelable paths, paths including objects that do not normally act as media of human motion, e.g. *wires, fences*, etc. Matsumoto reports that, while English easily expresses both these types, in Japanese some non-travelable entities, such as walls and fences, cannot be described with fictive motion. Some other non-travelable entities, such as borders and wires, take a restricted set of motion verbs [7, p.213-217]. This can be motivated by the fact that in Japanese certain motion verbs cannot be used to describe movement of a path that does not involve a perceptuo-motor basis. Ana Rojo and Javier Valenzuela have investigated the psycholinguistic reflection of two linguistic distinctions that occupy a prominent place in the literature of FM. One experiment involves a self-packed reading task in which the subjects of FM expressions are either "travelable" or "non-travelable". The results showed that sentences with non-travelable subjects took longer to read than those with travelable subjects. Another experiment conducted by these two researchers, investigated the types of manner information that can be included in a verb describing a fictive motion scene. The results showed that the participants took longer to read sentences with non-path related manner verbs (eg. snake, zigzag, fall, roam etc.) than with manner related ones (eg. hurry, roll, trot, crawl) [10, p.6-11].

In some cases, fictive motion is believed to involve simulated motion, and in others, simulated visual scanning. In *The highway runs through the valley* the reader simulates motion along some portion of an imagined highway. In *The fence goes from the gate to the barn in the backyard* no travelable path is featured (no road, no highway), and in this case, the language user visually scans the trajectory (fence). Accordingly, Matsumoto distinguishes two types of fictive motion expressions:

Type I is associated with an actual experience of motion of the person uttering the sentence. Matsumoto 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".

Type II includes sentences in which the motion is arbitrary in the sense that it does not occur at any specific time. In particular, in the absence of an explicit animate agent, the listener adopts the role of agent and "moves" along a path. In addition, fictive motion is believed to mirror actual motion or actual visual scanning, proceeding along a trajectory and requiring time to get from one point to another. Its purpose is to compute information about the configuration of the entity expressed by the subject noun-phrase relative to other entities in the scene [7, p.202-205].

Teenie Matlock in her work *The Conceptual Motivation of Fictive Motion* sustains the idea that to process a FM-construction the conceptualizer performs a continuous series of transformations so that one configuration in a construal is transformed into another. This allows the conceptualizer to simulate a representation of the trajector in real time. The speaker/hearer sequentially scans along the trajector to obtain a coherent understanding of the scene [5, p.229].

Moreover a FM-construction is fine when it reflects a reasonable amount of time, for ex. *The road runs along the coast for 2 hours* or *The road runs along the coast for 2 seconds*. The first sentence gives the conceptualizer the possibility to scan along the coastline; in contrast, the second example does not reflect a reasonable amount of time. She argues that the objects depicted with fictive motion must be sufficiently long to dynamically construe over time for the mental scanning to occur. Matlock distinguishes two types of FM-constructions:

Type I – those with paths ordinarily associated with motion, tolerate manner verbs, such as *crawl, race* etc.

Type II – includes those FM-constructions with a trajectory with no association with motion such as table etc., do not allow motion verbs [5, p.231-232].

Based on these observations as well as many others made by cognitive linguists, it seems reasonable to at least entertain the idea that our ability to simulate fictive motion motivates the use and behavior of FM-constructions, including what is generally seen as being linguistically acceptable.

Narrative understanding tasks

The experiments reported in "How real is fictive motion?" by Matlock (2004) explored fictive motion comprehension. In her unpublished doctoral dissertation Matlock provides a set of plausible evidence proving that there is no accident that fictive motion occurs with motion verbs. Understanding both literal uses of motion verbs and figurative uses of motion verbs requires simulating motion or simulating visual scanning.

The participants involved in the experiment were university undergraduates with reported native or near native proficiency, were expected to read passages about motion through a special environment (e.g. a man driving through a desert), and then to quickly decide ("yes" or "no" response) whether a fictive motion target sentence (e.g. *Road 49 crosses the desert*) was related to what they had read. This required people to think about the motion they read about, and to re-experience how it unfolded along a path. Responses were measured milliseconds and analyzed across participants and items.

In one experiment, people read passages that differed on velocity of travel. In some passages, the protagonist moved slowly, and in others, fast (e.g., driving 25 versus 100 miles an hour across a desert). People read a slow fast travel passage, and decided whether a subsequent fictive motion sentence was related. In brief, the time it took people to make the decision about the target sentence varied according to travel velocity. On average people were quicker to make decisions about fictive motion target sentences after reading about fast travel than slow travel [4, p.15-29].

In another experiment conducted by Matlock people read passages that differed on whether protagonists traveled short or long distances (e.g., 10 versus 100 miles), and then decided whether fictive motion target sentences were related. People made quicker decisions after reading about short distance travel than long distance travel on average. In yet another experiment, people read about travel through cluttered or uncluttered terrains (e.g., bumpy versus smooth). Their responses to fictive motion target sentences were quicker after reading about terrains that were uncluttered than those that were cluttered.

Together, the experiments showed that people were quicker to process fictive motion sentences in the context of travel with short distances (versus long), fast travel velocity (versus slow), and uncluttered terrains (versus cluttered). Control studies were also conducted using the same passages and target sentences that lacked fictive motion, such as Road 49 is in the desert, and no reliable processing differences emerged. Based on these results, it was concluded that processing fictive motion sentences included some degree of mentally simulated motion. Still, the need for more experimental semantics work was needed to gain a clear understanding of the dynamics of fictive motion in everyday language and thought [6, p.3-5].

Eye movement studies

In another experiment participants viewed scenes on a computer screen while listening to descriptions of those scenes. Each scene was a line drawing with both vertical and a horizontal path or object (e.g., a line of trees running vertically, and a road running horizontally). Some sentences included fictive motion, and others did not, for instance, The cord runs along the wall and The cord is on the wall. While people viewed pictures and listened to sentences, their eye movements were tracked and recorded by an eye-tracking camera. This approach allowed the researchers to pinpoint where and how people directed their visual attention across while processing linguistic information. The results showed that people spent more time viewing the region associated with the relevant path or linear abject while listening to sentences with fictive motion. For example, they spent more time looking at the region of the scene that displayed a cord (than other parts of the scene) while listening to *The cord runs along the wall* than they did while listening to *The cord is on the wall*.

A follow-up used similar visual and verbal stimuli. People listened to sentence that did or did not include fictive motion, such as *The road runs through the valley* or *The road is in the valley*, after listening to a one-sentence terrain description, such as The valley is covered with dust or The valley is covered with ruts. In each case, the terrain description contained information that implied easy or difficult movement (e.g., dust versus ruts). Next, they viewed a scene (e.g., a valley). In this experiment, terrain information differentially influenced eye movement patterns with sentences with fictive motion, but not sentences without fictive motion. More visual attention was directed to paths or linear objects (e.g., roads) after listening to information about difficult terrains (e.g., ruts in a valley) than after listening to information about easy terrains (e.g., dust in a valley).

These eye-tracking studies provided evidence to support the hypothesis that fictive motion included mentally simulated motion. Especially compelling was the second experiment, where terrain information differentially influenced visual attention to the TR with fictive motion sentences only. These findings resonate to how we experience motion in the world; terrain affects how quickly and fluidly we move, demonstrating that processing FM evokes a mental representation of motion [6 p.5-7].

Drawing studies

Drawing studies have also examined the conceptual structure of fictive motion sentences. In one experiment conducted by Matlock, people produced simple line drawing to depict their understanding of sentences that did not include fictive motion, for instance, *The highway is next to the coast.* In this experiment, all Trajectors (TR) were inherently long, traversable paths, such as highways, and bike paths. In general, people drew relatively longer TRs in depictions of fictive motion sentences than in depictions of non-fictive motion sentences.

In a second drawing experiment, people drew pictures of sentences that included TRs that could be construed as either short or long, such as tattoos, as in *The tattoo runs along his spine*, or *The tattoo is next to his spine*. None of these TRs were traversable. Once again, people drew relatively longer TRs in depictions of sentences that included fictive motion than in depictions of sentences that did not. The results were in line with the idea that fictive motion processing involves mentally simulated motion [11, p.67-85].

The experiments were conducted to investigate whether mental simulation underlies the comprehension of fictive motion language. The present results show that language about motion is not separated from thought about motion and that understanding motion verbs involves imagined bodily motion.

Conclusion

To conclude we may say that *fictive motion* is a way to impose motion on what is otherwise a static scene. It enables the language user to compute information about the layout of a scene, for instance a mountain range stretching from south to north. The conceptual work on abstract motion revealed many valuable insights about the semantic structure of linguistic forms common in many languages. Some of the work provided rich taxonomies about types of abstract motion, other works were comparative, for example, contrasting English and Japanese. Some works argued that abstract motion was grounded in metaphorical knowledge anchored in motion and space. Taking into account the enormous work done by scientists concerning the behavior of fictive motion constructions and the experimental work on fictive motion itself (conducted by T. Matlock and others) we can conclude with a reasonable degree of confidence that Fictive Motion-constructions are motivated by our cognitive ability to mentally simulate motion along a path and by the natural urge to talk about where objects are located and where we are going in the world. In addition, FM-constructions are motivated by the need to move in the world, to survive. Nonetheless, the early study on abstract motion laid the theoretical ground necessary for experimental investigations conducted in years to come.

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