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CHAPTER 34

Fictive motion and cognitive models: retrospect and prospects

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Abstract: This chapter first provides an overview of traditional work on the Talmyan notion of fictive motion, including experimental research by Matlock and her associates, which it then places within the purview of a broader theory of cognition grounded in recent developments of the Lakoffian notion of 'cognitive model'. This broader approach combines Talmy's work on perception-based construal and recent research on knowledge-based re-construal through metonymy. In it, a fictive motion expression, once elaborated in terms of focal attention, is treated as a metonymic source domain with a motion-based hypothetical target domain constructed through mental simulation. A similar analysis has been proposed for two so-called image-schema transformations: "path focus" to "end-point focus" and "trajectory". The meaning implications of both transformations point to an account of their cognitive grounding and communicative impact in terms of fictive motion and metonymic re-construal. The chapter ends with a reflection on the prospects for future linguistic analysis of this extended account of fictive motion.

Keywords: fictive motion, image-schematic complex, image-schema transformation, linguistic motivation, mental simulation, metonymy

1. Introduction

The notion of *fictive motion* is one of the landmark topics in Talmy's version of Cognitive Semantics (cf. Talmy, 1983, 1996ab, 2000). It consists in applying a

motion verb to a stationary subject (e.g., *The driveway leads into the garage*), which is incongruent with a literal reading of the resulting sentence. For this reason, expressions based on fictive motion are considered figurative, although they are not metaphorical since they do not involve the understanding of one conceptual domain in terms of another. Instead, the "logic" of these expressions seems to hinge on the mind's ability to simulate motion in situations in which we perceptually scan space longitudinally. Because of this, fictive motion was initially proposed as one application, among others, of the psychology of perception to linguistic inquiry. It has also been the object of experimental research into the mental simulation of motion including its connection with the perception of time (e.g., Matlock, 2004ab, 2006, Richardson and Matlock, 2007, Ramscar et al., 2009).

In this context of research, the present chapter offers an overview of the notion of fictive motion with emphasis on its relationship with metaphor and metonymy. This exploration is intended to clarify the boundaries between fictive motion and metaphorical motion while regarding the former as more than a perception-based construal phenomenon. Thus, fictive motion is seen as involving metonymic activity related to the building of motion-based hypothetical scenarios grounded in mental simulation. The kind of analysis outlined here is at home with cognitive-linguistic work on the intrinsic and extrinsic motivation of linguistic phenomena.

The rest of the chapter has the following structure. Section 2, which discusses how linguistic phenomena can be motivated from various cooperating perspectives, illustrates the analytical pathway followed in sections 3 to 5. Section 3 first offers a literature overview of essential aspects of the notion of fictive motion, with emphasis on its relationship with embodied simulation. Then, it contrasts fictive motion with metaphorical motion clarifying the convergences and divergences between the two

notions. Section 4 treats fictive motion from the point of view of re-construal and section 5 addresses motion-based image-schema transformations, as originally discussed by Lakoff (1987) and Johnson (1987), as cases of fictive motion. This section further aligns its analytical observations with those in section 4. Finally, section 6 offers a summary of conclusions and an outline of further research prospects consistent with the overall discussion provided in the present chapter.

2. A brief note on motivation

Cognitive Linguistics seeks to account for linguistic structure and function in terms of cognition (Radden and Panther, 2004; Panther, 2008, 2013). In this regard, it pays special attention to the relationship between language, knowledge organization, and perception. This understanding of linguistic motivation is consistent with –and complementary of– the functional perspective on language, which makes emphasis on the communicative potential of linguistic expressions (cf. Nuyts, 2005). It is this broader view of motivation that will gear our discussion of fictive motion in the direction of relating the cognitive status of this phenomenon to communicative factors. This will require examining the communicative potential of utterances to determine the nature of the conceptual patterns underlying them and to ascertain whether phenomena that appear to be unrelated may converge.

To understand how this approach works and its explanatory power, consider the metaphor *My boss is a pig*, which, from a communicative standpoint, can be taken as a complaint by the speaker on her boss's abusive or immoral behavior (Miró, 2018). The people-pigs metaphor can be used to refer to physical or behavioral attributes that people share with pigs, such as dirtiness (e.g., *My cousin is a pig; he never washes*) or gluttony (e.g., *John is a pig when he eats*). It can also apply to

reason about human character attributes that are not directly shared by pigs. Thus, the boss-pig metaphor can be interpreted as the result of an indirect connection based on effect-cause relations. Pigs are filthy animals that we can find disgusting; likewise, some people may cause similar feelings of disgust in us because of their abusive or immoral behavior. Although the causes are not shared (only people are abusive or immoral, not pigs), there is a similarity of effects (disgust). This convergence licenses the interpretation of the boss-pig metaphor in terms of immorality.

Additionally, we note that the causal relation described above is, in fact, metonymic: the effects (the feelings of disgust) stand for their corresponding causes, the boss's immorality and the pig's dirtiness, which, when mapped, become a case of the otherwise self-standing metaphor IMMORALITY IS FILTH (cf. *He is the dirtiest politician in the entire country*). This metaphor is combined with PEOPLE ARE ANIMALS to produce IMMORAL PEOPLE ARE DIRTY ANIMALS, which is the metaphorical amalgam underlying the expression *My boss is a pig*. That is, it is the EFFECT FOR CAUSE metonymy that acts as a licensing factor.

Interestingly, there is evidence that the metonymy EFFECT FOR CAUSE has a similar role in other analytical situations. A case in point is synesthesia, which can be argued to arise when "effect-cause" relations take place across sensory domains (Ruiz de Mendoza, 2020: 24). For example, in the first canto of Dante's *Divine Comedy*, the "inferno" is described as the region where "the sun is silent". This description binds the sense of sight (the sun) with the sense of hearing (silence) on the grounds of the similarity of effects. Since silence is the absence of sound and darkness is the absence of light, both situations are similar in producing no sensory input. The absence of light stands for a situation in which one cannot see, while the lack of noise stands for a situation in which one cannot hear. These two metonymies allow us to

map the domain of hearing onto the domain of sight, which places this metonymy in a licensing role similar to the one discussed above for the boss-pig metaphor.

This brief example of analysis illustrates how it is possible to produce a motivated account of a phenomenon by finding common cognitive factors among seemingly disparate phenomena such as the resemblance metaphor PEOPLE ARE ANIMALS and some cases of synesthesia. Along similar lines, following up on preliminary work presented in Ruiz de Mendoza (2017a) and Ruiz de Mendoza (2021: 152-157), the present chapter argues for the need to make the study of fictive motion part of a broader analytical framework. In the present proposal, this framework should deal with the relationships between fictive motion and embodied metaphor, metonymy, and image-schematic reasoning. However, before going into the details of this approach, let us review some key aspects of the notion of fictive motion as initially discussed in the literature.

3. Fictive versus metaphorical motion revisited

This section looks at the notion of fictive motion from the point of view of how this phenomenon relates to –but differs from– metaphor, with emphasis on its embodied nature and the kind of mental simulation that it entails. For reasons of convenience, we adopt the perspective on metaphor provided by Conceptual Metaphor Theory (Lakoff and Johnson, 1980; 1999), according to which metaphor involves a mapping (or set of correspondences) from a conceptual domain, called the *source*, to another domain, called the *target*. In the mapping, the source domain is used to reason and talk about the target domain (Lakoff, 1993). For example, in the boss-pig metaphor discussed above, we reason about the effects of the boss's behavior on the speaker by applying the logic of the effects of the pig's dirtiness on people. As for metaphorical

motion, we can reason about ideas in terms of moving objects, as illustrated by expressions like *The idea came to me* and *New ideas come and go*. We become aware of objects once they are accessible to sensory perception. Ideas cannot be perceived in this way, but they can become accessible to mental inspection once they are communicated. This figurative exploitation of motion is contrasted in section 3.3 with the notion of fictive motion. We now start with an overview of Talmy's original proposal (section 3.1) and how it has been made part of the embodied view of language and thought (section 3.2).

3.1. *The original proposal*

The notion of fictive motion is, in a broad sense, a matter of construal, which is to be understood as the ability to view a scene from different perspectives or with differences of focus (see Talmy, 1975, 1978, 1983). For example, although we could logically argue that, if a book is on a desk, then the desk is under the book, this second conceptualization is inconsistent with the fact that we perceive the desk as the background against which the book stands.

Construal is different from *re-construal*, which refers to our ability to shape concepts and talk about them through their relations to other concepts. Metaphor and metonymy are based on re-construal. For example, if we say that there is "chemistry" between two people, we are thinking of the physical attraction between them –which leads them to be physically very close to each other– in terms of invisible (but real) chemical bonds. This is the function of metaphor: to reason about X as if X were Y, where X and Y belong to discrete conceptual domains. In metonymy, on the other hand, one concept affords access to another concept –in a "stands for" relationship– within the same domain. For example, if we say that *The buses are on strike*, the

vehicles stand for their drivers within the domain of control. The vehicles are the controlled entities and the drivers are the controlling entities. While metonymy is often considered a conceptual shortcut in terms of cognitive economy, it is also true that, in supplying a point of access to an implicit target domain (Langacker, 1993; Kövecses and Radden, 1998), it allows us to think of the target from the perspective of the source domain (Ruiz de Mendoza, 2000; Barcelona, 2003).

The essential aspects of fictive motion have been treated by other authors under alternative labels such as *abstract motion* (Langacker, 1987) and *subjective motion* (Matsumoto, 1996a, 1996b). These terms are used to designate the depiction of motion with no physical occurrence, as illustrated by the sentence *This fence goes from the plateau to the valley* (Talmy, 2000: 99). This sentence has two discrepant representations, a factive and a fictive one, which are at opposite poles of the same conceptual pattern. The former representation is based on our knowledge that fences are stationary objects, while the latter presents the fence as if it were moving.

Talmy (2000: 103) argues that fictive motion is to be distinguished from metaphorical motion, which can be exemplified by the sentence *Her mood went from good to bad*. Even though both fictive and metaphorical motion are cases of figurative thinking, the basis for fictive motion, but not for metaphorical motion, is perceptual. Thus, we can say that a stationary object "goes" from one place to another because we scan space with our eyes longitudinally to determine its extension. This creates a subjective impression of motion. By contrast, metaphorical motion consists in using one domain to reason about another separate domain (Lakoff, 1993). In the example above, a change of state (getting into a bad mood) is seen in terms of the logic of a change of location (going from one place to another), an analytical situation which is captured by the label CHANGES OF STATE ARE CHANGES OF LOCATION,

which in turn captures the resultative aspect of CHANGE IS MOTION (Ruiz de Mendoza and Luzondo, 2016).

3.2. *Fictive motion as embodied simulation*

Because of its special perceptual grounding, fictive motion has been the object of some experimental investigation. In this regard, the work of Teenie Matlock and her associates is particularly interesting. For example, Matlock (2004a) presents experimental evidence that fictive motion involves mentally simulated motion. In general, people build mental models that resemble physical space and simulate objects and movements in such models in a way that is analogous to the perception of physical movement. Matlock (2004a) argues that this sort of mental activity also applies to fictive motion processing. The evidence for this comes from several experiments where decision times for fictive motion varied according to movement and travel in the stories that the experimental subjects were given. If the subjects were reading about long-distance travel, the fictive motion decision times were long; if fast, the decision times were fast, etc. But the travel was not real in the target sentences. Matlock and Richardson (2004) provide complementary evidence for the psychological reality of fictive motion based on its influence on eye movement. They note that gaze duration on the entity presented as moving, or *figure* (as is the case of a "road" in *The road runs through the* desert), is longer with fictive motion sentences than with those which involved real motion. Also, a fictive motion input requires the mental simulation of motion along the figure, which is revealed by eye movements mirroring that internal simulation. Later on, Ramscar, Matlock, and Dye (2009) investigated the influence of fictive motion on people's understanding of time. Previous research by Boroditsky and Ramscar (2002) had suggested that thinking

about real motion influenced how people thought about time. Matlock, Ramscar, and Boroditsky (2005) had also provided suggestive evidence that this could also be the case with fictive motion. In a series of experiments, Ramscar, Matlock, and Dye (2009) found that reading fictive motion sentences influenced the experimental subjects' understanding of time even more significantly than real motion tasks (see also Matlock et al., 2011). These findings, taken together, point in the direction of fictive motion being a matter of embodied mental simulation (cf. Gibbs and Colston, 2012: 152).

It should be noted, however, that fictive motion is but one among many other meaning-construction phenomena where embodied mental simulation plays a general relevant role. Bergen (2012), for example, has argued that we understand meaning by simulating in our minds the experience that language describes. Simulation is based on previous experiences of the same or similar events; for example, it takes place when we picture faces of friends and relatives in our minds, or when we imagine sense perceptions (sounds, tastes, smells) and actions. But we also engage in embodied simulation at a deeper level when we recreate sense perceptions and actions which we have not experienced directly. In so doing, we involve the same neural patterns that we use when we are present. These postulates are consistent with some neuroimaging and neurostimulation experiments, which show that the brain areas related to the actions designated by certain linguistic expressions get activated during their interpretation. Activations of this kind can even happen in the case of idiomatic expressions whose target meaning has no clear connection with the actions which they literally designate. This is the case of the expression *kick the bucket* ('die'), whose target meaning is unrelated to the action of kicking, but which anyway engages the

brain areas related to such an action (see Cacciari et al., 2011, cf. Gibbs, 2017: 197, 205).

3.3. *Fictive motion and metaphor*

As mentioned above, fictive motion is defined in contrast to factual and metaphorical motion. Metaphor has been argued to be embodied (i.e., grounded in bodily experience) and, like fictive motion, to involve embodied simulation (cf. Gibbs, 2006, Gibbs and Matlock, 2008, Bergen, 2012). Therefore, it is necessary to discuss how metaphor and fictive motion differ within the context of their embodied nature. To address this issue, this section first discusses embodiment in metaphor, which is later distinguished from embodied simulation in fictive motion.

Gibbs (2006) claims that the understanding of metaphor-based actional descriptions involves people imagining themselves engaged in the described action. This claim is based on psycholinguistic experiments where participants were asked to read a sentence involving the metaphorical use of a physical action verb and then were questioned about their reactions. For example, Gibbs and Matlock (2008) asked university students about their reactions to the invitation *Let us stomp out racism*, as it appeared in a flyer. The participants' reports reflected their imaginative understanding of the action by conceiving racism as if it were a physical object which can hurt others and should, therefore, be eradicated. They imagined themselves involved in physical action against the metaphorical object. These studies are not conclusive, of course. There are some critical assessments (e.g., Casasanto and Gijssels, 2015), but the literature overwhelmingly points in the direction of some stronger or weaker form of embodiment (Bergen, 2012).

There are approaches to metaphor that, if correct, would seem to preclude a pervasive use of "embodied" metaphor. A case in point is *Deliberate Metaphor Theory* (Steen, 2017), which has emphasized the fact that much of our metaphorical use is, from a communicative or discourse perspective, intentionally planned as such. This assumption, however, is problematic from an experimental perspective (see Gibbs 2015ab, 2017). Gibbs (2017: 83) examines the purportedly deliberate metaphor *Juliet is the sun*, which, according to Steen (2008: 222), presents "a blatant falsehood, while drawing attention to the new information presented at the end of the sentence". Deliberate metaphor is a call for hearers to change their perspective on the topic of the sentence (the metaphorical target) by looking at it from the point of view provided by the metaphorical source. By contrast, a metaphor like *We have come a long way*, used to talk about a love relationship, is likely to be non-deliberate, since the speaker does not require hearers to change their perspective on the relationship, but only to reason about it. Very likely too, this metaphor is non-creative or conventional, where creativity should not be confused with deliberateness (a metaphor can be conventional and deliberate).

There is a general incompatibility between the deliberate and embodied views of metaphor based on the fact that the embodiment hypothesis regards metaphor as an unintentional, usually inescapable way of thinking (however, see Cuccio, 2018, and Cuccio and Steen, 2019, for the claim that deliberate metaphor may make use of embodied simulation in working memory). There is still another problem with Steen's analysis. This problem is that deliberateness, which is, in any event, a matter of the subjective and intentional use of paired conceptual and linguistic resources, does not affect the intrinsic nature of the cognitive processes underlying our ability to produce and comprehend metaphor. The clash between Juliet and the sun (i.e., the "blatant

falsehood"), which Steen postulates, is not such. Psycholinguistic evidence on metaphor shows that there is no process of detecting a blatant falsehood that has to be resolved by finding source domain attributes that apply to the target. This more complex processing procedure would take more effort, but this does not seem to be the case in general (Glucksberg, 2003). Metaphoric and literal reading times are equally fast when simple comprehension time is measured, i.e., when requirements that are not specific to the task are leveled out (Gibbs, 1994). In Conceptual Metaphor Theory, the Juliet-sun connection is assumed to require recruiting cause-effect structure about the influence of the sun on people, which includes light (related to knowledge and clarity of understanding), warmth (related to feelings of comfort), and amazement (related to the majesty of the sun). This conceptual structure is used to reason about the kind of impact which Juliet has on her lover. There is no clash between Juliet and the sun, but rather the opposite. There is embodied simulation of the experiences of clarity, comfort, and amazement when we are in the sunshine. These experiences are put into correspondence with comparable experiences of clarity, comfort, and amazement when captivated by a lady like Juliet. The similarity of effects licenses the connection between the causes (Juliet and the sun), as was noted before in our discussion of the pig-boss metaphor and synesthesia.

The kind of embodied experience underlying metaphors like the ones discussed above also holds for metaphorical motion. Metaphorical motion is based on image-schematic thinking (Johnson, 1987, 2005). An image schema is a topological construct based on our primary sensorimotor experience with space. Typical cases of image schema are the notions of container, part-whole structure, and (motion along a) path. Many others have been cited in the literature, some of which are not necessarily tied to direct perceptual experience but to recurring states grounded in space (e.g.,

cycle, process, scale, etc.; Grady, 2005, Peña, 2008). Consider the following examples:

(1) This situation is getting beyond hope.

(2) We are all heading in the same direction.

(3) Getting ahead of others in life is important.

Interpreting examples (1) to (3) requires knowledge about relative positions in longitudinal space. These examples involve the path image schema and a basic understanding of its structure and logic. In (1) we think of an undesired situation as if it were an object traveling along a path with a landmark past which there is no way back. Metaphorically this kind of motion maps onto a situation that is deteriorating to such an extent that it will soon be impossible to reverse. Example (2) is about the role of joint coordinated efforts in making progress. Those cooperating are implicitly seen as occupying physically close relative positions with respect to the destination of motion. On an alternative interpretation, they are seen as sharing the goal of reaching the same destination even if they move at different speeds and occupy physically distant positions. In example (3) we see progress in life in terms of a competition against others. The competition equates success in life to reaching a destination first. These three examples, like others of the same kind, illustrate metaphorical motion, which consists in reasoning about different aspects of progress in life in terms of physical motion along a path towards a destination. This reasoning is based on the fact that we associate changes of state with changes of location in everyday experience, so that any desired state (i.e., a goal) can be treated as the destination of motion. One possible reason for this association is that, when we travel, reaching our

destination is at the same time the goal of our journey. This way of thinking involves the conflation of concepts in our minds, which happens if our embodied experience acts as a licensing factor. Such a conflation underlies the metaphorical re-construal of reality, that is, the understanding of some aspects of situations or events from the point of view of the logic of other situations or events with which they co-occur (Grady and Johnson, 2002).

Fictive motion, on the other hand, has a markedly different cognitive status. Consider the following examples:

(4) The highway crawls through the city (Matlock 2004b: 231).

(5) The table goes from the kitchen to the sliding door (Matlock 2004b: 232).

According to Matlock (2004b), these examples reflect two kinds of fictive motion. In (4) there is an actual path, which is associated with motion (e.g., wheeled vehicles can use it for travel). In (5), by contrast, there is no path nor any association of the explicit elements of the sentence with motion. Matlock further observes that there is a tendency to use manner of motion verbs with the pattern exemplified in (4), but this is not the case with the one in (5). However, there is more to these two fictive motion patterns than noted by Matlock. The mental simulation in (4) requires imaginary motion along a real path, but in (5) both the path and motion are imaginary. The greater specificity of (4) is what allows this sentence to use a less generic motion verb, which would be odd in the more generic conceptualization required in (5). In addition, (4) suggests that the vehicles using the highway, at the time of the fictive motion description, move slowly (‘crawl’), but in (5), even if the visual scanning of the space between the kitchen and the sliding door were a slow one (e.g., by paying

attention to every small detail along the way), it would be impossible to use a verb indicating slow motion (**The table crawls/drags along from the kitchen to the sliding door*). Finally, the pattern in (4) also applies to situations where there is no path, but there is a path-like entity, as in (6), or a set of entities which, in terms of our visual perspective, line up to form a path, as in (7):

(6) The fence goes around the whole yard.

(7) The trees line up along the road.

Given these observations, the two kinds of fictive motion scenarios distinguished above are based on the existence of a previous path or path-like configuration and the mental simulation of such a configuration, to be added to the simulation of motion. Whichever the fictive motion situation, its ultimate goal is descriptive. However, metaphor is interpretive. It requires the re-construal of reality based on the recruiting of experiences into a mental simulation process which is used to reason about some aspects of reality.

4. On the metonymic motivation of fictive motion

Following up on the initial insights provided in Ruiz de Mendoza (2017ab), this section presents fictive motion as a case of what has been termed *semantic underdetermination* in inferential pragmatics. This notion arises from the observation that linguistic expressions do not generally provide us with a full representation of the full range of meaning implications that speakers intend to convey. This has led theorists such as Bach (1994), Sperber and Wilson (1995), and Recanati (2002) to assume that sentences generally need some sort of inferential development.

Sometimes, such development takes the form of simple pragmatic adjustments to world knowledge parameters, previous discourse, and situational conditions. These adjustments are guided by the lexical and constructional nature of the message, as is the case with lexical genericity (*She had her hair done* for 'washed and trimmed'), propositional truisms (*Do you smell when you sweat?* 'smell bad'), and constructionally incomplete expressions (*We are all ready now*, meaning 'ready, e.g., to start the meeting'). On other occasions, heavier inferential activity is required. This is the well-known case of conversational implicature, which may require complex reasoning schemas sometimes in the form of inferential chains (cf. Ruiz de Mendoza and Galera, 2020).

From a cognitive perspective, these adjustments may involve metonymy. For example, the adjustment of generic-level meaning to specific situations (e.g., interpreting *do* as 'washing' and/or 'trimming' in *do someone's hair*) is carried out through the high-level metonymy GENERIC FOR SPECIFIC (cf. Ruiz de Mendoza, 2017b). Through this metonymy, a generic-level meaning configuration (e.g., 'do') stands for a lower-level one (e.g., 'wash', 'trim') within the same domain.

Concerning completion, Talmy's Cognitive Semantics is equipped with the explanatory mechanisms to account for the perceptual (and hence cognitive) motivation for some cases of constructionally incomplete expressions (i.e., those involving a path, a causal chain, a cycle, participant interaction, and interrelationships), under the label *windowing of attention* (Talmy, 1996b, 2000, 2006, 2007). Through this attentional phenomenon, people may place a portion of a coherent situation into the foreground by the explicit mention of that portion, the rest of the situation being backgrounded. For example, the sentence *The crate fell out of the plane through the air into the ocean* provides maximal windowing over the path

of motion. Less complete representations can focus on different portions of the path: initial (*The crate fell out of the plane*), medial (*The crate fell through the air*), or final (*The crate fell into the ocean*) (Talmy, 2000: 266). However, a pending task is to add fictive motion to the list of semantic underdetermination phenomena. Let us see how this can happen and how this approach to fictive motion links up with the rest of the work in perceptual and experiential aspects of meaning within a Lakoffian approach to Cognitive Semantics (Ruiz de Mendoza, 2017a, 2021). In this view, fictive motion, though essentially a matter of perception, is grounded in metonymy-based thinking thus involving re-construal. Consider these sentences:

(8) a. The road goes from the village through the mountain range into the valley.

b. The road goes through the mountain range into the valley.

c. The road goes into the valley.

Following Talmy (2000), these three sentences exemplify different cases of attentional focus (or windows), but they also illustrate two ways of broadening the scope of the mental representation, one of them being metonymic. This can be clarified if we first understand windowing of attention in terms of scope. In this alternate but complementary view, developed by Langacker (1987, 2000, 2008), the formulation in (8a) provides the most complete characterization with "maximal scope" of the envisaged scenario, whereas (8b) and (8c) supply less complete characterizations with "limited immediate scope". The maximal scope is "the full content of a given conceptualization" (Langacker, 2000: 207) or the "full extent of its coverage" (Langacker, 2008: 63). The limited immediate scope is "the portion

directly relevant for a particular purpose" (Langacker, 2008: 63) or, in attentional terms, following Talmy (2000), the area to which we are specifically paying attention. Of course, a richer characterization than (8a) would be possible, with greater focus on other details of the path image schema (e.g., the specification of the route could include information about other elements of the itinerary through the mountain range), but the maximal scope is achieved by full coverage of all structural slots and not by their internal elaboration.

It is important to realize that this kind of analysis of the sentences in (8) is adequate from the point of view of perception: (8b) and (8c), by selecting which part of the envisaged scenario is relevant, supply a vantage point (or a perspective) from which to think about the scenario. But this analysis can also be cast in terms of other cognitive processes which go beyond the domain of perception into that of cognitive models. In the specific case of creating windows of attention through linguistic mechanisms, the conceptual material which has been left out of the expression can be accessed through what Ruiz de Mendoza (2000) has termed *domain expansion*. In its most recent formulation, domain expansion is defined as a basic cognitive operation that develops a conceptual characterization into a more comprehensive one that satisfies cognitive and communicative needs (Ruiz de Mendoza, 2014). For examples like (8b) and (8c), this more comprehensive characterization can be obtained either through the elaboration of elements or through an increase in coverage. Obviously, (8a) designates the full extent of coverage. However, this coverage applies only in so far as the path image schema is concerned, but not in terms of fictive motion, which, as discussed before, calls upon a more complex scenario containing simulated motion along that path. This means that (8a) affords access to this fictive motion content thus expanding on the coverage provided by the sentence when only considered in terms of

the structure of the path image schema. The paraphrase in (8a') captures the relevant elements resulting from this process:

(8a') If I traveled (all the way) along that road, I would go from the village through the mountain range into the valley.

This paraphrase is worded from the speaker's perspective, but it could take a second or a third person's perspective without any significant change in what pertains to the generic-level nature of motion. It is worth noting that the less complete examples (8b) and (8c) involve a double domain expansion process, the second one of which is metonymic. Initially, they expand into a full representation based on maximal scope, as linguistically captured in (8a), and then, on a second step, required by their fictive motion nature, they expand into a representation along the lines of the formulation in (8a'). These other paraphrases apply to examples (4), (5), (6), and (7):

(4') If there were traffic on the highway, it would go slowly through the city.

(5') If I walked from one end of the table to the other, I would go from the kitchen to the sliding door.

(6') If I walked from one end of the fence to the other, I would go around the whole yard.

(7') If I traveled from one tree to another, then to another, and so on, in so doing I would be tracing a path parallel to the road.

Each paraphrase makes explicit the simulation of motion required by the path and manner requirements of its corresponding source sentence, which contains the

conceptual material to be elaborated metonymically. Also, each of the expressions providing such source material contains a metonymic trigger based on the incompatibility between the path or path-like entity and the motion predicate. We have similar triggers in other kinds of metonymy:

(9) The sax did not come to yesterday's rehearsal.

(10) He needed to go to the airport, so he stopped a taxi.

(11) I'd need an umbrella. It's raining a lot now.

Example (9) contains a typical case of lexical metonymy, where the instrument (the sax) stands for the person that plays the instrument (the sax player). Examples like (10), which is a case of pragmatic implicature, have been studied in terms of metonymy by such scholars as Lakoff (1987) and Gibbs (1999). In (10) stopping a taxi is a prerequisite to be able to take the taxi to get to the airport. Hence, 'stopping a taxi' becomes the metonymic source of 'getting to the airport by taking a taxi', which is the target meaning obtained through domain expansion. Finally, (11) is an example of illocutionary metonymy. This is an interesting and ultimately somewhat complex phenomenon, initially studied by Panther and Thornburg (1998), and developed by these authors (e.g., Panther 2005, 2016, Panther and Thornburg, 2018) and by Ruiz de Mendoza and his collaborators (e.g., Pérez and Ruiz de Mendoza, 2002, Ruiz de Mendoza and Baicchi, 2007, Pérez, 2013, and Ruiz de Mendoza and Galera, 2014, 2020), which is here simplified for expository convenience. In the metonymy in (11), because of cultural convention, the statement of a need stands for a request to get such a need satisfied. Like the metonymies in (9) and (10), the one in (11) works through domain expansion, since the statement of the

need serves as a point of access to a scenario based on a cultural convention according to which we are expected to provide other people with adequate help, to the best of our ability, when we detect that they are in need. The scenario-based activations in (10) and (11) are closer in conceptual complexity to the activation called upon by a fictive-motion situation. This is so both because of their non-lexical, scenario-based nature, but also because, in essence, they take the form of an "if-then", or condition-consequence, schema. The following statements capture the essential aspects of this kind of schema:

(10') If X needs to go somewhere, then a possible choice for X is to hire a taxi service.

(11') If it is manifest to X that Y is in need, and X is capable of catering for such a need, then X is expected to provide Y with enough help to satisfy the need.

These schemas are very similar to the paraphrases in (4') to (7') above. The only difference is the hypothetical character of the latter, which is consonant with their "fictive" nature.

5. Fictive motion and image schematic transformations

Fictive motion is based on what Ruiz de Mendoza (2017b) has termed an *image-schematic complex*, which is the combination of several image schemas, whether self-standing or mutually dependent, into a single conceptual unit. For example, the sentence *She went into a deep depression* makes metaphorical use of the path image schema in combination with the motion and the container image schemas. The

container image schema is conceptually independent of the path schema (the presence of a container does not entail a path or the other way around). However, the motion image schema is dependent on the path schema (motion entails a path of motion, but a path of motion does not entail motion, only the possibility or the expectation of motion). In terms of its structure and logic, this enriched version of the path image schema is more complex than each of its separate components. Thus, the sentence *She went into a deep depression* requires more than just thinking of a change of state as if it were a change of location. There is a greater inherent difficulty in getting out of a "deep" than a shallow container. Fictive motion, by its nature, is based on the exploitation of either the bare image-schematic motion-along-a-path complex, as in (12), or its enriched variant, as in (13):

(12) This path leads to the Imperial Garden.

(13) This path leads into the Imperial Garden.

There is a small difference in meaning between (12) and (13). In (12) the focus of attention is on the Imperial Garden seen as a mere end-point. Its status as a bounded region in space is ignored. This is not the case in (13), which can still be enriched further by elaborating on the logic of the container schema:

(14) This path leads into the innermost recesses of the Imperial Garden.

Let us now consider the following sentence:

(15) My parents live in New Jersey, right over the bridge.

This sentence illustrates a focal phenomenon that Lakoff (1987: 440-444) and Johnson (1987: 25-27) termed *image schema transformation* (see also Turner, 1991: 177). This phenomenon involves a shift of focal attention from a whole image schema to one of its relevant parts as cued by the combination of clausal elements which designate entities participating in the structural and logical connections of the image schema. In (15) we have an example of *path* focus to *end-point* focus transformation. Since the verb *live* is static, it should clash with the preposition *over*, which involves motion above and across from one end to another of a landmark object. However, this clash is resolved through the change of focal attention from the kind of path denoted by *over* to the final point of the path, which is compatible with a static verb. Peña and Ruiz de Mendoza (2009) have discussed this transformation as being a question of whole-for-part metonymic activity: the path stands for the end of the path; this metonymy is based on *domain reduction*, the converse cognitive operation of domain expansion. This explanation rejects the problematic assumption that the end-point of a path schema has itself the status of an image schema. Besides, the notion of transformation may not be adequate to account for sentences like (15). Shifting attention from the whole image schema to one of its constituents does not alter its nature any more than shifting attention from a container to its contents can alter the nature of the notion of container (e.g., *He drank the whole bottle* requires focusing on the contents, but there is no "transformation" of the notion of bottle). Still, even if more adequate, the account in Peña and Ruiz de Mendoza (2009) misses the fact that accounting for sentences like (15) goes beyond postulating a domain reduction metonymy from a whole image schema to one of its parts. The licensing factor for the metonymy which re-construes the image schema is our ability to likewise re-construe

the whole predication into one involving motion over the bridge to the end of the bridge. We can paraphrase (15) as (15'):

(15') My parents live in New Jersey, right at the end of the path that I could trace if I walked over the bridge (from where I am).

In other words, as with (8) above, there are two cognitive processes at work, the first one based on an attentional phenomenon, and the second one on mental simulation. However, there are differences. In the examples in (8), the first level of activity was based on the breadth of scope provided by the explicit characterization, which required domain expansion in (8b) and (8c); by contrast, in (15) there is domain reduction resulting from the need to single out the element of the path image schema which is consistent with the nature of the verbal predicate. In addition, domain reduction in (15), but not domain expansion in (8), is metonymic because of the clash between the verb *live* and the preposition *over* noted above; that is, in (15) there are two levels of metonymic activity, one related to focal attention and the other to fictive motion, while (8) only involves the one required by the fictive motion aspect of interpretation.

Another image schema transformation discussed by Lakoff (1987) is based on the identification of a trajectory. Lakoff (1987: 442) points out that "when we perceive a continuously moving object, we can mentally trace the path it is following". This perceptual and cognitive phenomenon is illustrated by the following pairs of related sentences (Lakoff, 1987: 442):

(16) (a) She went to the top of the mountain.

(b) The road went to the top of the mountain.

(17) (a) Sam ran through the forest.

(b) There is a road through the forest.

(18) (a) She walked across the street.

(b) There was a rope stretched across the street.

According to Lakoff, the (a) examples feature a zero-dimensional *trajector* (i.e., the moving entity is seen as a point in space), and the (b) examples a one-dimensional trajector (a line). The trajectory transformation entails the change from a zero to a one-dimensional trajector in constructions denoting motion; in other words, 'going to the top', 'run through' and 'walk across' in the (a) examples make use of a zero-dimensional trajector, which is changed to a one-dimensional trajector in the (b) examples. The basis for this change is our ability to mentally trace the paths followed by objects in motion. However, it is not clear how we can consider the constructions in (16b) and (17b) to involve any image schema transformation from the corresponding constructions in (a). Note that (16b) and (17b) contain real, not imaginary or fictive paths, although motion is imaginary. On the other hand, (18b), which has a simulated path and fictive motion, could qualify as an illustration of the definition of the trajectory transformation, which is based on the mental simulation of a path as a result of motion. Still, rather than state that *across* is "transformed" from one form of perception to another, given our previous discussion of fictive motion involving one or two possible layers of metonymic activity, it may be more accurate to treat the relationship between the uses of *across* in (18a) and (18b) as one where

(18a) expresses real motion and (18b) fictive motion, in both cases across a surface along a simulated path. In this view, (18b), as a case of fictive motion, is the result of a metonymic shift to (18b'):

> (18b') If I walked across the street, in so doing I would be tracing a path parallel to the stretched rope.

From all the observations made in this section, it follows that so-called image schema transformations based on motion are but cases of fictive motion requiring either one or two levels of metonymic activity. When there is one, the metonymy is external to the motion-along-a-path image-schematic complex; when there are two, one is internal and the other external to the complex. The internal process acts through the reduction of the whole complex for purposes of focal attention. The external process, by contrast, acts through domain expansion. Its function is to develop the underdetermined motion representation supplied by the sentence into one which is consistent with perceptual –and hence cognitive– constraints on our understanding of paths, path-like entities, and/or the trajectories of moving entities. In this alternative account of motion-based image-schema transformations, this phenomenon is treated as a matter of fictive motion in a way that aligns perception-based construal and knowledge-based re-construal (through metonymy) of the properties (i.e., the structure and logic) of the motion-along-a-path image-schematic complex.

6. Conclusion

This chapter has offered an overview of the essential aspects of fictive motion from the combined perspective of perception-based construal and knowledge-based re-

construal in their application to linguistic description and explanation. This combined perspective results from investigating fictive motion as a function of both language-internal and language-external motivating factors of a cognitive and pragmatic kind. The analytical pathway provided by these assumptions is a productive one. In its application to the understanding of the linguistic status of fictive motion, it allows us to go beyond exclusively embedding this notion within a theory of perception with implications for mental simulation. In this analysis, fictive motion is considered to require metonymic support on one or two levels. When there are two levels, one is restricted to the internal structure and logic of the motion-along-a-path image-schematic complex, which is the object of different focal attention shifts; by contrast, the other level, which is external to this complex, incorporates fictive motion within a more general theory of cognition in which construal is ultimately subservient to knowledge-based re-construal through metonymy. This theory ascribes to any fictive motion expression, once elaborated in terms of focal attention, a motion-based hypothetical target scenario constructed through mental simulation. This account can be applied to other perception-based phenomena grounded in the motion-along-a-path image-schematic complex. In this sense, the account can incorporate the study of so-called image-schema transformations like the "path focus" to "end-point focus" transformation and the "trajectory" transformation. The meaning implications of both transformations require regarding them as cases of fictive motion supported by the same sort of metonymic activation identified for other cases of fictive motion.

The extended account of fictive motion outlined in this chapter points to the need for further theoretical and experimental research on fictive motion, where this phenomenon is made part of a still more general theory of meaning construction and interpretation. Talmy himself has been working in the direction of providing unified

accounts of apparently disparate phenomena, the latest major piece of evidence having been provided in Talmy (2018), which unifies anaphora and deixis. A major venture, in this regard, would be to align cognitive processes and communicative effects in all cases of so-called figurative uses of language. This may require exploring the full range of cognitive processes involved in phenomena that have so far been studied as isolates. The present chapter only offers some initial insights into how this can be done.

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