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Fictive motion: Some models in cognitive linguistics
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Abstract: Motion is a universal phenomenon and indispensable for human life. In everyday communication, we often use language about the motion to express motionless situations. This usage is pervasive when we are describing stationary representations. Fictive motion is a term coined by Leonard Talmy. It refers to “figurative representations of motion attributed to immobile material objects, states, or abstract concepts, in which the meaning of motion verbs is semantically extended to express relations that do not involve motion per se nor change of state.” Interest and study of fictive motion help us more insight into the use of language figuratively, thereby understanding how humans perceive motion and how they encode it linguistically. Consequently, there has been numerous research on fictive motion both inside and outside within cognitive linguistics. Therefore, this paper examines some models of fictive motion within cognitive linguistics. There are five selected models to consider in this paper: Talmy’s model, Langacker’s model, Lakoff’s model, Fauconnier & Turner’s model, and Matlock’s model. Based on the system of ideas and points formulated in each model, this paper will describe and analyze each model in three aspects: basis, content, and characteristics. Although not fully presented all fictive motion models, but with models mentioned in the paper, the results of this study, on the one hand, help linguistic professionals with a holistic and systematic view of the fictive motion in cognitive linguistics, and on the other hand, provide them with appropriate choices for using one model or another in studying fictive motion in each particular language.

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PUBLIC INTEREST STATEMENT
In a word, a fictive motion, cognitively, is physic motion as an inherent characteristic of humans and animals, ascribed to non-human or motionless objects, as well as to mental states, or abstract concepts, that can not move through physical space. As a result, they become moving like people or animals. Linguistically, fictive motion is the figurative language usage in which we use words that denote motions that are only intended for people or animals to represent motionless or stationary objects. For example, in the fictive motion sentences, a motion verb applies to a subject that is, literally, not capable of movement in the physical world. Thanks to such ways, we not only make these objects soulful, alive, closer, and familiar to us but help us recognize and understand more deeply about their nature and characteristics.
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Keywords: Actual motion; conceptual motivation; fictive motion; image-schema; mental scanning; motion metaphor

1. Introduction

Motion is a universal phenomenon and indispensable for human life. Thanks to motion, we can distinguish moving objects from nonmoving objects, motion speeds from motion manners, motion conditions from motion types, and the circumstances of the environments in which motions happen by changing their places or directions. Ontologically, motion is one of the most central human activities. Linguistically, motion types are encoded and expressed by motion verbs. Motion verb systems exist in all languages and exhibit their semantic extension patterns cross-linguistically. Every time we use a motion verb to describe literally how a physical object moves from one place to another in space, the passage of time and the motion's succession from a starting point to an endpoint are presupposed in the description.

In everyday communication, we often use language about a motion to express motionless situations. This usage is pervasive when we are describing stationary representations. For example, when talking about roads, we say Đường làng men doc bò sòng (The village road follows along the river bank); when talking about mountains, we say Đảo Trường Sơn chạy từ Bắc về Nam (The Truong Son range runs from north to south); even when talking about scars, we use expressions such as Một vết sẹo troi dài từ màng đến cắm anh ấy (A scar stretched from his left cheek to his chin). Such expressions exist in almost all languages, as attested by the extensive research conducted by many cognitive linguists.

In the 1980s, inspired by one of the basic tenets of cognitive linguistics, which holds that meaning is conceptualization (Biên, 2017b), expressions such as those mentioned above were investigated by cognitive linguists. For example, the founders of cognitive linguistics, such as Leonard Talmy and Ronald Langacker, argued that such expressions invoked an implicit, fleeting sense of motion, even when no motion is expressed openly. This pervasive language phenomenon has various names, e.g., virtual motion (Talmy, 1983), abstract motion (Langacker, 1986), non-actual motion (Blomberg & Zlatev, 2014), metaphorical motion (Özçalışkan, 2003), and subjective motion (Langacker, 1986; Matsumoto, 1996a). According to Langacker (2008a, ch. 14.2), this phenomenon is related to general linguistic fictivity; Talmy (2000a, ch. 2) viewed it as including a series of rather distinct categories, and Talmy (1996) attributed this interesting linguistic phenomenon to fictive motion (henceforth: FM).

This paper’s primary purpose is to introduce some models of the fictive motion approach in cognitive linguistics. There are five selected models to consider in this paper: Talmy’s model, Langacker’s model, Lakoff’s model, Fauconnier & Turner’s model, and Matlock’s model. Each model will be described in its fundamental aspects: bases, contents, and characteristics. Beyond this primary purpose, the article also has a secondary aim: to provide linguistic professionals with appropriate options for using one model or another in studying FM in each particular language.

Therefore, to achieve these purposes, the paper is structured as follows: in addition to the introduction (Section 1) and the conclusion (Section 4), we introduce related concepts and issues, such as concepts of actual motion, fictive motion, and the significance of investigating FM in Section 2. Then, the bases, contents, and characteristics of each model are presented in Section 3.

2. Motion: From actual to fictive

2.1. Actual motion

Actual motion or physical motion is a phenomenon in which an object changes its position over time. In physics, actual motion is analyzed in terms of distance, displacement, direction, acceleration,
velocity, and time. The motion of an object is viewed in relation to a reference frame attached to the observer. And changes in the object’s position are measured relative to that frame over time. The branch of physics that studies the motion of objects without reference to their cause is called kinematics, while dynamics studies forces and their effect on motion. When the position of an object is not changing relative to a given reference frame, then it is said to be at rest, stationary, or that it has a constant or time-invariant position relative to its surroundings. According to Wahlin (1997, ch. 9), because there is no absolute reference frame, absolute motion cannot be determined. So, we may consider everything in the universe to be in motion (Tyson et al., 2000, pp. 21–22).

In our life, actual motion applies to many physical domains: space, time, objects, matter, fields and particles, radiation, radiation fields and particles, even curvatures. We can also specify the images, shapes, and boundaries of the motion. Therefore, in this sense, the word motion implies a continuous change in the position or configuration of a physical system in space. For instance, we can talk about the motion of a quantum particle where its configuration is the probability of occupying a specific place.

There are many quantities for measuring the movement of an object. One of them is momentum. That is a physical quantity intrinsically connected with motion and proportional to an object’s velocity and mass. In an isolated system—it means the system is not affected by external forces—an objects’ total momentum is invariant with time, as explained by the law of momentum conservation. The motion of an object and its momentum cannot change unless a force acts on that object.

In language, actual motion usually is expressed by motion verbs. The motion verbs of the actual motion such as chạy (run) and đi (go) describe situations in which an animate object or being moves from one place to another in physical space, as in Nam chạy từ Bãi Trước tới Bãi Sau (Nam runs from Front Beach to Back Beach) or Nam đi lên dốc (Nam goes up the hill). As mentioned in the introduction, presupposed in such literal uses of motion verbs are a passage of time, a change of state, and a path connecting a starting point and endpoint (Miller & Johnson-Laird, 1976; Talmy, 1975b).

2.2. Fictive motion
According to Talmy (1996, 2000a) and Langacker (2008a), FM refers to figurative expressions of motion attributed to immobile material objects, states, or abstract concepts where motion verbs semantically extend their meanings to express relations that neither involve the motion itself nor state change. Consider the sentences in (1) below:

(1) a. Quốc lộ 1A chạy từ Bắc về Nam.
   (National Route 1A runs from north to south.)

   b. Quốc lộ 1A chạy từ Nam ra Bắc.
   (National Route 1A runs from south to north.)

   c. Con đường mòn bò qua thung lũng.
   (The trail crawled through the valley.)

   d. Một dòng sông uốn lượn qua những cánh đồng.
   (A river winds through the fields.)

As the sentences in (1) show, the utility of motion verbs to describe such static situations holds a crucial role in cognitive linguistics. Talmy (2000a, pp. 171–172) detected a general dynamic cognitive bias in such sentences. Langacker (2006) assigned them to a central status between the
abstract and the concrete in cognition and language. And Matlock (2004a, p. 1390) argued that language is architected in its specific way due to our mental ability to simulate motion. Thus, we can affirm that sentences like these in (1) exhibit how language is grounded in universal cognitive factors. And from this observation, we can predict that all languages would have the resources to represent static situations with motion verbs.

Langacker (2008a) acknowledged that actual motion and FM expressions involve mental scanning along a path. In sequential scanning of the path the mover traverses physically, we can conceptualize FM in actual motion (Biên, 2021). Langacker (2008a, p. 529) also specified that the conceptualization of FM essentially involves the same mental operations. An analog of the mover is a spatially extended stationary entity, such as a fence, road, etc. The conceptualizer, instead of tracking the motion of an object, mentally scans along the path. By doing so, (s)he invokes the constitutive places to establish a complete understanding of the object’s spatial configuration. Langacker (2008a, pp. 111–112) termed this more holistic model of establishing manipulable gestalts as summary scanning. He pointed out that, although imaginary, the cognition of FM is grounded in human experience. Furthermore, Langacker (2008a, pp. 528–529) also considered FM as a result of subjectification that arises from the order in which the spatial configuration of the object depends on the conceptualizer’s part.

2.3. The significance of investigating FM
According to Talmy (2000a, p. 104), FM opens a window into our cognitive processes and the relationship between language and cognition. FM involves an inconsistency between the dynamic linguistic forms encoding a static entity or situation and that static entity/situation like we perceived them. Langacker (1987, p. 138; 1999, 2005, p. 164) also repeatedly indicated that language does not necessarily encode our direct perception of the world and that the mind plays a core role in the meaning-construction.

FM is a significant case where language and the perceived reality mismatches, and the mismatch provides evidence concerning the relationship between language and cognition (Talmy, 1991, 1996). The study of FM also contributes to understanding spatial perception. In space, both entities and relationships are either dynamic or static. And in most cases, they are faithfully conceptualized and expressed as either dynamic or static. FM goes against the norm and describes static physical entities or relationships as dynamic ones. The problem is whether all static physical entities and situations are equally qualified to be interpreted with FM.

The investigation of FM can specify the biases towards the types of entities that tend to occur in FM and thereby reveal some aspects of how we conceptualize space. Inquiries of FM events can increase the knowledge of motion events. According to Talmy (2000a, p. 25), a motion event can either be an actual motion event or a static locational event. FM events are related both by conceptual contents similar to that of a locational event and via linguistic forms describing a translational motion event. The entities or situations depicting FM are static physical entities/situations, but the linguistic constructions are dynamic ones about motion.

The lexicalization patterns describing translational motion events have been investigated widely (for instance: Talmy, 2000b; pp. 21–288; Slobin, 2004; Ibarretxe-Antuñano, 2004, among many others), and the expressions about locational events, to some extent, have also been explored (Stosic & Sarda, 2009). When static physical entities or situations are conceptualized and expressed as dynamic ones, the word choices and constructions are very different from those in actual (or physical) motion events. The patterns or constraints in terms of linguistic strategies for FM may shed light on some conceptualizations of motion events as a whole.

An extensive research direction has focused on the influence of FM on perceptions of time. We usually mention time based on a motion. For example, Vietnamese speakers may describe themselves as moving through time toward or past events with statements such as Chứng ta đang tới
3. Some models of fictive motion

3.1. The model of Talmy

Honored as one of the founding fathers of cognitive linguistics, Leonard Talmy is the first researcher who has investigated FM systematically, which he did within his concept structuring systems framework (Biên, 2016, 2017a; Talmy, 2000a, 2000b). His first mention of FM is in his paper “Figure and ground in complex sentences” published in 1975. In this paper, Talmy (1975a) homologized motion events with sentences of spatial relationships that are spatial-temporal homologies. However, in 1996, he divided linguistic representations into two types based on differences in their visual representation. In the literal sense, if linguistic manifestations conform highly to images witnessed by observers, they are called factual manifestations. And if their conformity is low, they are called fictive manifestations. In other Talmy (1991; 1996, 2000a, ch. 2) suggested “a unified model of the cognitive representation of FM as an introduction to a more general framework of general fictivity.” He considered how nonveridical forms of motion are expressed linguistically and recognized visually to cover partial similarities and differences across different cognitive systems in the same way that they structure perceptual or other conceptual representations (Talmy, 2000a, p. 100). Considering that it extends continuously past what is frequently associated with visual perception or conception Talmy (1996; 2000a, ch. 2) suggested a systematic account of fictivity that covers the combination of perception/conception in a unique continuous cognitive domain. In his proposed framework, fictivity is the discrepancy between two representations of the same entity in which one is considered more veridical than the other representation. The
manifestation of a particular entity that is recognized to be more veridical is called factive. And the exhibition of the same entity that is recognized to be less veridical is termed fictive.

Talmy (1996) confirmed that the base for this division is inconsistent but unified in human cognitive systems. Talmy (2000a) asserted that human beings have many cognitive systems involving the sensory system, memory, and language. These cognitive systems are not independent of each other but correlated and can be considered a continuum. They can function together under the guidance of the brain. They are intertwined with each other so much that Talmy coined the term coption² to express that. Every cognitive system has particular characteristics that differentiate it from others, while each has commonalities with others.

As one of the human cognitive systems in language, when the linguistic representation is not compatible with its visual perception, the discrepancy may lead to the linguistic phenomenon: FM. This discrepancy between the two cognitive systems for the same entity does not mean these two systems are contradictory. The discrepancy is due to different perspectives toward the same object. Therefore, motion verbs are employed to describe a stationary entity, while stative verbs are utilized to describe the motion event. But there are more instances of the former, while many fewer of the latter, which can only exhibit the human preference for a motion event over a stationary event.

The core in Talmy’s FM model is his lexicalization patterns and typology of the motion event. His pioneering work (Talmy, 1985, 1991, 2000a, 2000b) on motion event lexicalization patterns plays a significant role and occupies a special place in the research field of linguistic typology. According to Talmy (2000a), there are six elements in a complex motion, but only the first four in an elementary motion. These six elements are:

(a) **Figure** (the moving object);
(b) **Ground** (the reference frame);
(c) **Motion itself** (indicates the appearance of motion or locatedness of the event);
(d) **Path** (the trajectory followed or site occupied by Figure relative to Ground);
(e) **Manner** (how the Figure moves); and
(f) **Cause**.

These six elements can be encoded linguistically in different combination types. Languages exhibit typical lexicalization patterns: verb-framed or satellite-framed patterns. These lexicalization patterns are the root of typological variation. In reality, the linguistic diversity witnessed in expressions of motion has revived questions about whether and how language may affect our construal of motion events and provide a window into the cognitive processes that may underlie conceptualization. To show that human languages encode spatial information in different ways using different lexicalization patterns, Talmy (2000a) divided languages into two groups: satellite-framed languages (e.g., English and Russian) and verb-framed languages (e.g., Turkish, Hebrew, and Spanish). In satellite-framed languages, motion and manner are encoded in the verb with a path as a satellite using a satellite-framed lexicalization pattern. By using a verb-framed lexicalization pattern, verb-framed languages encode motion and path in the verb, and manner is expressed by a satellite.

Talmy (2000a, pp. 100–101) explained that within general fictivity, discrepant descriptions usually (though not exclusively) differ in describing opposite poles of the same dimension. Change is one such dimension. Thus, in the physical space and time domain, change results in a more particular dimension: the dimension of motion (Biên, 2017a). Stationariness or movement is the more-or-less veridical representation, or vice versa, depending on the specific case. They respectively result in fictive motion and fictive stationariness. From this viewpoint, FM in language, according to Talmy (2000a, p. 101), involves the linguistic pattern in which the literal meaning of
a sentence that describes motion is a referent that one usually considers to be stationary. However, this general condition includes some relatively different FM categories. And he classified FM into six categories, as follows:

**A. Emanation paths**: FM type of an intangible entity appearing from a source. This type includes four subtypes: (i) *orientation paths*, which Talmy defined as “a continuous line emerging steadily from the front of the source object” (Talmy, 2017, p. 9). Talmy (2017, p. 9) also subdivided this subtype into two kinds: *prospect paths*, in which the source object has a flat front from which the fictive line appears perpendicular and *demonstrative paths* in which the source object is linear with a pointed front from which the fictive length appears along the axis; (ii) *radiation paths* with “radiation emanating continuously from an energy source and moving steadily away from it” (Talmy, 2000a, p. 111); (iii) *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” (Talmy, 2000a, p. 114); and (iv) *sensory paths* that, according to Talmy, are “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” (Talmy, 2000a, p. 115).

**B. Pattern paths**: include the conceptualization fictively of any organization as moving through space. According to Talmy (2000a, p. 129), “the literal sense of a sentence depicts the motion of some arrangement of a 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.”

**C. Frame-relative motion**: the factively stationary surroundings fictively are described as moving.

**D. Advent paths**: describe the location of a stationary object in terms of its manifestation or arrival it holds. The two main subtypes are location manifestation (the fictive change in the sense of the display of this object at its site) and location arrival (i.e., the object’s FM to its location).

**E. Access paths**: describe “a stationary object’s location in terms of a path that some other entity might follow to the point of encounter with the object” (Talmy, 2000a, p. 136).

**F. Coextension paths**: describe “the location, orientation, or form of an object extended spatially on base a path over the object’s extent” (Talmy, 2000a, p. 138).

Talmy (2000a, p. 103) noted that coextension paths also “can serve as an orientation to fictive motion in general.” Talmy illustrated coextension paths with sentences such as *The road goes from the North to the South or The mountain range lies between France and Spain.* In coextension paths, the fictiveness is the object’s representation as moving along or over the space configuration. And the factiveness is the object’s representation as stationary in the absence of any entity traversing the described path (Biên, 2016).

Moreover, Talmy (2000a, p. 104) further distinguished *constructional fictive motion* from experienced *fictive motion*. The former designates linguistic forms and constructions that refer primarily to movement, and the latter indicates the extent to which such expressions evoke an actual perception or conceptualization of motion. He emphasized that the latter differs essentially from one person to another. For a particular instance of constructional FM, some speakers describe a strong semantic evocation of motion, while others describe there is no motion there. However, every speaker experiences a “move-meaning” for assured fictive-motion constructions. Talmy also adds: “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
Table 1. Categories of fictive motion [Adapted from Talmy (2017)]

| A. Emanation paths | “A fictive entity emerges from a factive source object, moves in a straight path through space (and impinges on a distal factive object)” [Talmy (2017, p. 9)]. |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Orientation paths | “The fictive entity is a continuous line emerging steadily from the front of the source object” [Talmy (2017, p. 9)]. |
| a. Prospect paths   | “The source object has a planar front from which the fictive line emerges perpendicularly. The cliff wall faces toward/past/away from the Island” [Talmy (2017, p. 9)]. |
| b. Demonstrative paths | “The source object is linear from a pointed front from which the fictive line emerges axially. The arrow on the signpost points toward/past/away from the village” [Talmy (2017, p. 9)]. |
| 2. Radiation paths  | “The fictive entity is an intangible line of radiation emerging continuously from an energy source. Light shone from the sun into the cave” [Talmy (2017, p. 9)]. |
| 3. Shadow paths     | “The fictive entity is a shadow that moves from a factive object straight through space onto a distal factive object. The pole cast a shadow against the wall/ The pole’s shadow fell onto the wall” [Talmy (2017, p. 9)]. |
| 4. Sensory paths    | “The fictive entity is a continuous sensory probe that moves from an experiencer along a straight path through space (to an experienced object). I looked down into the valley/past the steeple” [Talmy (2017, p. 9)]. |

| B. Pattern paths    | “A factive pattern exhibits fictive motion because components of the pattern have moved factively. As I painted the ceiling, (a line of) paint spots slowly progressed across the floor” [Talmy (2017, p. 9)]. |

| C. Frame-relative motion | “A first object moving factively relative to a second object is represented as factively stationary with the second object as factively moving. I sat in the car and watched the scenery rush past me” [Talmy (2017, p. 9)]. |

| D. Advent paths | “The location of a factively stationary object is represented in terms of its fictive arrival at that location. The palm trees clustered together around the oasis. Termite mounds are scattered/spread/distributed all over the plain” [Talmy (2017, p. 9)]. |

| E. Access paths | “The location of a factively stationary object is represented in terms of a path that another entity might factively follow to the point of encounter with the object. The bakery is across the street from the bank” [Talmy (2017, p. 9)]. |

| F. Coextension paths | “The form, orientation, or location of a factively stationary extended object is represented in terms of a fictive path over the object’s extent. The fence goes from the plateau down into the valley” [Talmy (2017, p. 10)]. |

motion differently on different occasions” [Talmy, 2000a, pp. 104–105]. Table 1 below is a summary of Talmy’s FM classification categories.

### 3.2. The model of Langacker

The FM model of Langacker is based primarily on his two fundamental assumptions: linguistic fictivity and mental scanning.
3.2.1. Linguistic fictivity

According to Langacker, language teems with references to fictive entities invoked for describing real-life situations. To demonstrate Langacker (2005; 2008a, ch. 14.2) began his argument on linguistic fictivity (in Langacker, 1999) he termed it virtuality) from the idea that a lexical noun (e.g., car, table) merely designates a type of thing, not any specific case of that type. Likewise, a lexical verb (e.g., run, go) only indicates a situation or event type, which Langacker (2005, p. 170) termed a process, not any particular case of the process. He notes that the thing or process designated by a type specification is fictive essentially as it does not refer to an actual thing or process. For instance, in the statement: I don’t have a brother, the type specification of a brother is evoked to specify what is not the case, i.e., the nonexistence of any representative instance of this type. A type can thus be described basically as a fictive entity that “represents an abstraction from actuality which captures the commonality inherent across a set of actual instances” (Langacker, 2005, p. 170). A noun phrase or finite clause is typically a grounding element (Langacker, 1991, ch. 6, 2008a, ch. 9) that particularizes a particular instance of a type and locates it relative to the ground; it signifies the speech event and its participants. Figure 1 presents how the relationship between the type (t) and its (t_i, t_j, t_k) instances can be clarified using the metaphor of planes, or mental spaces, to indicate abstraction.

As Figure 1 shows, a thing or process type can correspond to any number of instances of that type. These instances are determined thanks to their place in the instance plane or the instantiation domain (Langacker, 1991, 2008a, pp. 132–136). While the type links to all its specific instances, it does not hold any particular place in the domain of instantiation. Langacker emphasizes that it is important to remember not only how types relate to the fact but also how they arise from the fact as a kind of generalization from actual occasions. Such occasion sets are supposed to be alike in significant respects (Langacker, 2005, p. 170). He added that the lower plane in Figure 1 is named the instance plane rather than the actual plane because the type-instance distinction is not equivalent to the fictive/actual one. The types always are fictive entities, and instances do not necessarily have to be actual ones—they can either be actual or fictive. For example, suppose that the sentence This road runs to London points to a road that provides favorable access to the city of London. The linguistic reference to motion—namely runs—seems to be at the instance level. However, while the sentence is a statement about actuality (because both the road and the city are actual instances), the process of motion conjured up to represent the road is fictive because no actual motion happens. Therefore, to understand the overall meaning of an expression, the first thing that we must know is not only what the language directly encodes but also how fictive entities associate with reality.

We received fictive patterns by abstraction. This abstraction may be a fundamental means of transcending direct experience, which Langacker (2008a, p. 525) defined as an abstraction that derives from the reinforcement of what is common to different experiences. Because nonrecurring characteristics do not seem to be entrenched, an abstracted structure is often poor compared to the experiences from which it derives. And since commonalities are often transparent only in
a very coarse-grained view, involving lesser precision, abstracted structures are usually schematic and related to those experiences. Though existing of those experiences, an abstracted structure is independent of any particular instantiation. It expresses a generalization with the potential to be invoked in the following processing. Lacking this abstraction capacity, every experience would be unique and unrelated to each other.

An abstraction follows the structures it is based on but is less detailed. In other words, it is essentially a representation of what these structures share, but not in an exhaustive fashion. Another fundamental means of transcending direct experience, but one that displays the opposite nature, is conceptual integration (Fauconnier & Turner, 1998, 2002), which involves metaphorization (Lakoff & Johnson, 1980, 1999). Conceptions are blended through correspondences between mental spaces. The resulting blend is a new conception, which is often essentially different from the inputs. An exciting feature of conceptual integration is that it permits us to develop ideas that are surprisingly (e.g., scorching rain in the sun), purely imaginary (e.g., tooth fairy), and even incoherent conceptually (e.g., colorless green ideas). Blending is used to produce fiction works based purely on imagination and provides a valuable means for dealing with actuality in the ever-changing circumstances of real life.

Langacker (1991, p. 215) also recognized subjectivization, defined as a semantic extension or shift in which an objectively understood entity receives a more subjective construal. Langacker (2006, p. 24) emphasized that subjectivization is not metaphorical intrinsically. To demonstrate this difference, Langacker (2006, p. 25) described sentences (3a-c) with the verb rise whose meanings are made tangible by pictures (a)-(c) of Figure 2 and 3.

(3) a. The balloon rose quite slowly. [objective, actual motion]

b. Last year, the price of coffee rose steadily. [objective, metaphorical motion]

c. The trail rises steeply near the summit. [subjective, fictive motion]

Sentence (3a) profiles actual motion. It is construed objectively by the subject (S). Through time (t), the trajector (balloon) successively reaches a series of higher positions. The conception subject follows the spatial progress of the trajector in capturing the profiled event, as shown in Figure 2a. The verb rise is used metaphorically in (3b) to refer to a price increase. Here the source domain of spatial motion is superimposed on the target domain of coffee pricing to create a blend (Fauconnier & Turner, 1998, 2002; Turner, 2007). As Figure 2(b) shows, the trajector (the price of coffee—coffee as a commodity) is still construed objectively in its motion, and the conceptualizer scans this event sequentially (Biên, 2021). The difference is that the movement happens metaphorically in a blended space. Finally, sentence (3 c) illustrates subjective FM. In this
instance, there is no objective change through time—nothing in the scene actually moves or otherwise changes. For that reason, the verb *rise* is imperfect and happens in the simple present tense, which shows constancy through time. The trajector attains a series of higher positions successively along the vertical axis but does so simultaneously as a spatially extended object. According to the analysis of Langacker, this motion is construed subjectively by the subject of conception: the conceptualizer does not think of herself as moving through space, but merely apprehends the scene; the movement is inherent in the very conceptualizing activity, therefore it is offstage and construed subjectively (Biên, 2021). Accordingly, Langacker (2006, p. 25) affirmed that the conceptual element of the spatial motion experiences subjectification when the semantics of this verb are extended. In this case, its extension is from the factive motion to imperfective FM.

Langacker (2008a, pp. 528–529) saw FM as the result of subjectivization, which arises when the cognitive processes inherent in the conception of moving events are diverted to awareness of static scenes.
Langacker (2008a, p. 528) also remarked that he termed subjectification to show that the processes appear to be independent of the objective settings where they initially occur, and they partially establish their perception. Consider sentences (1a-b) above, repeated here as (4):

(4) a. Quốc lộ 1A chạy từ Bắc về Nam.
   (National Route 1A runs from north to south.)

b. Quốc lộ 1A chạy từ Nam ra Bắc.
   (National Route 1A runs from south to north.)

According to Langacker (2005, 2008b), if we observe the sentences in (4), we will intuitively see that they seem to include elements used to represent spatial motion, i.e., the motion verb chạy (run) and the path prepositions từ (from), về (to), and ra (to) and confuse a motion meaning in opposite directions. They both describe the same static situation in which nothing is moving or changing. Their semantic opposition exists entirely in the orientation of mental scanning of the conceptualizer.

Moreover, Langacker (2008a, p. 530; 2008b, p. 70) also observed that fictive change includes expressions concerning past participles derived from change-of-state verbs used as adjectives, e.g., a broken line, a detached garage, or scattered villages. In such representations, the change indicated by the participle is only virtual, i.e., construed subjectively “as a mental progression in which the profiled state is viewed as departing from the canonical one” (Langacker, 2008a, p. 530). The change is not considered unfolding through time but serves to specify how the actual situation deviates from one considered typical or neutral. Langacker (2008a, pp. 530–531) illustrated another type of fictive change by the sentences in (5a-c):

(5) a. The general’s limousine keeps getting longer.

   b. His apartment keeps getting bigger every time I visit.

   c. Our Christmas tree gets smaller every year.
Figure 6. Imperfective fictive motion. [Adapted from Langacker (2008a, p. 529)]

Obviously, in all these descriptions, the considered change is fictive rather than actual. These descriptions can be verified using the distinction between roles and their values that Fauconnier (1994, ch. 2.2; 1997) suggested. For instance, in (5a), the general’s limousine describes a role fulfilled by different cars at different times. Each is assigned a value in that role.

Langacker (2005, pp. 174–175) explained that the role reference, as represented at the top in Figure 3 below, is only one of three virtual planes that occur for this case. This role instantiates the general type (in this situation it is a virtual limousine). Behind this, we see a series of different real limousines. Every limousine does not change in size but is longer than the previous limousine. They differ in values instantiating the role. They are understood as if they were one single entity, which leads to the conception of a virtual object whose length can be compared at subsequent times constituting the third plane. The change resulting from that comparison concerning a single entity is necessary for a coherent conception of fictive change. In other words, it is the understanding of such fictive instantiations as a single entity that leads to the comprehension of the limousine getting longer.

From this perspective, FM is viewed as a particular case of fictive change, with three following essential differences as Matsumoto (1996b, pp. 138–140) pointed out: (i) in fictive change, the referent of the subject noun phrase is supposed to change. However, in FM, the described object does not undergo any kind of change. Exclusively, its spatial configuration is described, (ii) the difference between the cases of fictive change concerns the basis of induction of the two processes. Fictive change is affected by an unusual character of the object in question. It marks a deviation from a determined reference state. And FM is induced by the described object’s spatial configuration. In turn, this object triggers the focus of attention in the mind of the conceptualizer, and (iii) the relevant stages of the process for the description of the state are different. In fictive change, what is described is the final state of change. Its initial state is relevant only by comparison with the final one, and all intermediate stages of change are irrelevant to the object’s description. In contrast, in FM, all successive motion stages over the spatially extended entity are relevant to its representation, forming the basis for mental scanning.

3.2.2. FM as mental scanning
In several Langacker (1986, 2005, 2008a) showed that both actual and FM expressions include mental scanning along a path. We usually tend to conceptualize actual motion events by pursuing the progress of a mover along a spatial route, as outlined in Figure 4:

As Figure 4(a) shows, in processing time (T), the conceptualizer performs sequential scanning along the path in which the mover traverses reality. The moving object is conceptualized as successively reaching a series of locations that form the motion’s path. The conceptualizer experienced the actual motion event by mentally locating the mover’s successive positions in the same order as it achieved them. The motion occurs in conceived time (t), which intrinsically is
related to any situation. [See also the canonical event model in Langacker (1991, ch. 7; 2008a, pp. 357–358).]

Essentially, in FM, according to Langacker (2008a, p. 529), the same mental operations are applied to a static scene. As Figure 4(b) shows, the mover is a spatially extended object, e.g., a fence, a road, etc. In this case, instead of following the moving object, the conceptualizer mentally scans along the spatial configuration path of that object. Thereby, the conceptualizer invokes the constitutive locations to build the entire conception (Biên, 2021). Therefore, the FM conceptualization happens in the same manner as the actual motion event conceptualization. In the objective content (OC) of the expression, the conceived time (t) has no significant role because its object simultaneously occupies all spatial locations in the path. Still, the temporal component is necessary for considering it to be a type to be obtained by accounting for the processing time (T), i.e., the time in which the conceptualization takes place. Langacker also distinguished perfective FM from imperfective FM. Langacker (2005, p. 175) illustrated the former by (6a-b) and the latter by (7a-b).

(6) a. The path is rising quickly as we climb.
b. This road is winding through the mountains.
(7) a. The path rises quickly near the top.
b. This road winds through the mountains.

He suggested that the progressive occurrence in (6a-b) typically involves motion on the subject's part. Although perfective FM is still fictive rather than actual, it has an experiential basis, reflecting what a person experiences while traveling along the described path, which in (6a) is expressed overtly in the adverbial as we climb. Perfective FM is illustrated in Figure 5:

Figure 5 shows that the conceptualizer moving through the conceived time (t) reaches various locations along the spatial path. This spatial path is the segment of the entity that crossed. This segment differs referentially from one move to another. Langacker also notes that one can identify this segment with the immediate field of view of the conceptualizer.

In Figure 5, rectangles indicate parts of the path experienced by the conceptualizer at subsequent moments. Conceptualization of this FM type requires sequential scanning along the path, which Langacker described with the following hypothetical situation: “Suppose we actually watch a ball roll down an incline. In our real-time viewing of this occurrence, we see the ball in just one position at any moment, and we necessarily access these component states in the precise sequence of their temporal manifestation. Sequential scanning is thus inherent in this viewing arrangement (without being restricted to it). If a relationship develops through time, the most natural way of apprehending it is to track it through time in this manner” (Langacker, 2008a, p. 111). Therefore, we can equally apply the sequential scan regardless of whether considering an observed, remembered, or imagined event. He also adds that while sequential scanning may seem mysterious, we engage in this scanning mode whenever we directly see any event. Besides, statements like (7a-b) are imperfective, i.e., the spatial entity they profile is construed as stable and unbounded temporally, as indicated in English by using the simple present tense. In this case, neither the conceptualizer nor any other viewer actually moves. The imperfective FM represents the global path configuration, which is visible to the conceptualizer at any time. The change exists in the mental scanning of the conceptualizer through the scene. Hence, the conceptualizer establishes a conceptualization of the entirety of the described object's spatial configuration (Biên, 2021). The imperfective FM is portrayed in Figure 6.

As Figure 6 shows, in the imperfective FM, the time included in the construal is the processing time (T). For instance, in (7a-b), the conceptualizer feels the path as rising or winding, respectively,
by mentally scanning along its expanse. In the imperfective FM, the factor that governs using motion verbs is a subjective equivalent of actual movement. It occurs conceptually from mental scanning along a specific spatial path. As the profiled relationship, its spatial configuration is characterized with stability through time and results in sentences that are imperfective (Langacker, 2005, p. 177). Langacker (1986; 2005, 2008a, pp. 83, 111–112) termed this more holistic model of simultaneously building up manipulable gestalts in memory—as the available wholes—summary scanning. The difference in construal between perfective and imperfective FM can be due to the contrast between a local and a global perspective, as Langacker (2008a, ch. 3.4) said. A local view is a core component of the perfective FM created by moving along with an extended object when just a part of the object, at a given motion, is observed. Moreover, the expressions of imperfective FM using a global view of that object occur when one perceives its whole configuration as a single gestalt (Langacker, 2005, p. 176, 2008b, p. 69). Langacker (2005, p. 176) also added that the perfective cases of FM potentially can be described further in terms of whole-for-part metonymy.

Langacker believed that the sense of motion diminishes as one proceeds from actual motion through perfective FM to imperfective FM, which, to some degree, has been confirmed in brain studies. Moreover, mental scanning also can be viewed from a broader perspective: “Once we have made the transition from actual motion to mental scanning through processing time, we are no longer limited to the spatial domain” (Langacker, 2005, p. 177). From this perspective, it is plausible to consider fictive scanning as a frequent feature of everyday language use, which we use in many contexts, as illustrated by the example sentences of Langacker, himself, in (8a-d):

(7) a. From one restaurant to the next, prices vary greatly.

b. The president’s plane keeps getting more luxurious.

c. Every year my Christmas letter is longer.

d. As body size increases, the average gestation period gets longer.

All these sentences represent commonly static situations in dynamic terms. While they do not include motion verbs, they are likely to induce mental scanning through a range of choices in a predetermined order. This fact shows that mental scanning can be expressed linguistically in different ways: by a prepositional phrase specifying source and goal (8a), by comparatives (8b–c), by expression of fictive change (8d), and so forth. Langacker concluded that a proper description of the semantics of such constructions must take into account mental scanning as an essential organizing feature. Langacker (2005, 2008a) saw using motion verbs and adverbials in fictive constructions as a linguistic indication of embodiment. He concluded that cognitive processing of linguistic fictivity involves mental models and mental simulations employed schematically to represent and simulate the scanning experience.
3.3. The model of Lakoff

The FM model of Lakoff (1987) is based principally on his Conceptual Metaphor Theory (henceforth: CMT) with two main components: fictive motion metaphors and image-schemas of motion.

3.3.1. Fictive motion metaphors

In CMT, FM realizes mapping across domains. FM is the linguistic representation of the universal metaphor, FORM IS MOTION, whose source domain is motion and whose target domain is shape and form. Accordingly, in nature, FM is a conceptual mapping to comprehend shape or form by movement.

FM involves two discrepant representations of the same entity. The entity or scene under discussion is known as stative, while it is construed as dynamic linguistically. The best way to confirm this discrepancy between our stative belief and the dynamically linguistic description is to attribute it to our cognitive ability to generate metaphoric mappings between different domains based on conceptual metaphors. The model of Lakoff approaches certain linguistic expressions from the perspective that we have the capacity to process, understand, and express more relatively abstract concepts (target domain) in terms of more concrete ones (source domain) (Lakoff & Johnson, 1980). This process is actualized thanks to cross-domain mappings, where the image-schema structure of the abstract domain is compatible with that of the concrete one. According to Lakoff and Turner (1989, pp. 144–146), in the case of FM, the conceptual metaphor works by the mapping, FORM IS MOTION, as illustrated in the following example from Lakoff and Turner (1989, p. 142).

(1) The roof slopes down.

In sentence (9), the roof does not move anywhere, but its configuration is in the form of a slope with a higher end and a lower one. It is an expression. It operates by the metaphoric mapping, FORM IS MOTION (Lakoff & Turner, 1989, pp. 142–143). The source domain is a motion with the downward-sloping form of some abstract entity, while the target domain is the roof with a slope. Its shape is understood and expressed in terms of the downward-sloping motion tracing the form.

Generally speaking, for FM, a static entity or scene is conceptualized based on dynamic linguistic forms. In other words, the entities in the stative spatial domain are interpreted and expressed through entities in the dynamic spatial domain, which is a very general one. It is associated with and intersects with many others. For instance, the motion domain and animal domain meet in that one core part of the concept [ANIMAL] that can move. Obtaining a more specific picture of which ones related to the general motion domain are usually employed to create words requires a more detailed investigation into factual data.

| Table 2. Basic features of the MOVING-TIME metaphor |
|---------------------------------|---------------------------------|
| Source domain (spatial motion) | Target domain (temporal change) |
| Location of the Ego             | The present                      |
| Space in front of the Ego       | The future                       |
| Space behind the Ego            | The past                         |
| Moving objects                  | Times                            |
| The motion of objects past the Ego | The passage of time             |
According to Lakoff and Johnson (1999), phenomenologically—at the level of sensed experience—two of the most significant ways in which time is experienced are through the motion of objects and the motion of our bodies. This fact leads to two basic metaphorical spatializations in our concept of temporal change. Lakoff and Johnson (1999) analyzed these and other time metaphorical conceptualizations in detail. One of two spatialization metaphors conceptualize discrete times as objects moving toward a stationary observer, or Ego, according to the terminology of Evans and Green (2006). The object is first approaching in front of the Ego, then passing the Ego, and finally moving farther and farther away behind the Ego. The remaining spatialization metaphor is a conceptual mapping of entities, structures, and relations from the domain of moving objects in space onto the conceptual domain of temporal change, as follows:

(i) The MOVING-TIME metaphor

This MOVING-TIME metaphor is based very naturally on our experience of correlations between moving objects in space and temporal change. Although many linguists have argued that such a metaphor can only be based on the background of a set of pre-existing truth similarities between moving objects in space and the passing of time, this is not the case. In reality, there are no similarities between the source domain (moving objects) and the target domain (temporal change)

Table 3. Basic features of the MOVING-EGO metaphor

| Source domain (spatial motion)                          | Target domain (temporal change)     |
|--------------------------------------------------------|------------------------------------|
| Location of the Ego                                     | The present                        |
| Space in front of the Ego                               | The future                         |
| Space behind the Ego                                    | The past                           |
| Locations on the Ego’s path of motion                   | Times                              |
| The motion of objects past the Ego                      | Amount of time that has passed     |
relevant to the meaning of the expressions based on the metaphor. Instead, these experiential correlations provide a background for the metaphor because spatial motions are the key ways that time “moves” or “passes” for us.

In the moving-time model, there is an experiencer who is called the Ego. This Ego may either be implicit or linguistically coded by expressions such as I. Its location represents the experience of “now.” In the moving-time model, the Ego is stationary, while events and temporal moments are objects in motion. From the future, these objects move toward the Ego and then beyond it into the past. The passage of time is recognized due to this motion. Figure 7 illustrates this cognitive model (Evans & Green, 2006, p. 85; Dân, 2009).

In Figure 7, the small gray circles denote times, and the arrow connecting the times indicates their motion toward and past the Ego. Although past, present, and future are marked on the figure, the Ego is not oriented. Many languages, including Vietnamese, conceptualize the Ego as facing the future with the past behind. It is possible to attest to this cognitive model with Vietnamese examples (10) in which the passage of time is understood based on the motion of a temporal entity toward the Ego:

(10) a. Tết nguyên đán dang đến gần. (Lunar New Year is getting closer.)
   b. Tiết mục văn nghệ yêu thích của chúng mình sắp đến.
      (Our favorite performance item is coming up.)
   c. Han nộp luôn văn của anh ta đã qua.
      (The deadline for submitting his thesis has passed.)
   d. Kết quả thi của chúng ta sẽ có trong vòng hai tuần tới.
      (Our exam results will be available within the next two weeks.)

Once this initial orientation of the stationary Ego and moving time is situated, the conceptual mapping of a structure from the source domain to the target domain allows us to use our knowledge of moving objects to build a metaphorical understanding of the passage of time. For example, we project fronts and backs onto moving objects, so that the front maps in the object’s direction of motion and passes a stationary point before its backside. Thus, it is moving forward. We can imaginatively project one object’s front and back in front of or behind another one, depending on their shared direction of motion and their relation to each other. When this knowledge structure is valuable for our understanding of time, we build a corresponding knowledge structure for moving time. We speak of Tuesday coming after Monday, and of Tuesday preceding Wednesday. We also feel objects moving past us at different speeds and different types of motion (creeping, flying by, racing). Correspondingly, times move with different speeds: Chuyển về chăm chăm trong hau quanh (The afternoon comes back slowly in solitude), Mùa xuân thoáng qua dậy (The spring passes transiently), and in different manners: Xuân rộn ràng sang (Spring comes bustling), Thu lắng đọng về (Autumn distractedly comes). Finally, when a particular time passes us (as the Egos), it is conceptualized as being located where we are. So, we can talk about doing something here and now. Table 2 below is a summary of the primary features of the moving-time metaphor cognitive model.

(ii) The MOVING-EGO metaphor

The second prominent type of metaphor emerging from time spatialization relies on our body motions in space. In this type, the Ego is not stationary but is moving from one place to another in
a spatial environment. This source-domain structure yields a mapping in which times are spatial locations, and the motion and speed of the moving Ego determine the character of temporal change.

In this model, as illustrated in Figure 8, the Ego moves over a landscape representing TIME. And time is perceived by the Ego’s movement across this landscape toward specific temporal moments and events conceptualized as locations (Evans & Green, 2006, p. 86; Đån, 2009).

In Figure 8, the small circles indicate future times toward which the Ego moves and past times that the Ego has already moved beyond. The direction of the arrow represents the motion of the Ego. As with Figure 7, the Ego is unmarked for orientation. The moving-Ego model comes from evidence such as that in (11):

(11) a. Chúng ta đang tới gần Tết nguyên đán.
(We are approaching the Lunar New Year.)

b. Chúng ta đang tới gần tiết mục văn nghệ yêu thích của mình.
(We're approaching our favorite performance item.)

c. Anh ta đã quá hạn nộp luận văn.
(He has passed the deadline for submitting his thesis.)

d. Chúng ta sẽ có kết quả thi trong vòng hai tuần tới.
(We will have exam results within the next two weeks.)

Example (11) shows that we conceptualized TIME as a static location or bounded region in space. Through the Ego’s motion, we understand the passage of time.

Like the MOVING-TIME metaphor, the MOVING-EGO metaphor uses our knowledge of the source domain to build a corresponding understanding of the target domain. Spatial places may vary in size, and we can determine their length by established length units (meters, kilometers, miles, etc.) Correspondingly, times may vary in duration, and we can measure their duration by standard time units (minutes, hours, days, months, etc.). We can visit our relatives for a short or long time. We can extend our stay for one week, and a conference can stretch over five days. We can travel on
the holidays. As an Ego moving along a path, we can approach many places, and get nearer or farther from them by moving. Therefore, in the temporal realm, we speak of getting closer to the New Year, approaching the weekend, passing the deadline, arriving in a minute, leaving some unhappy event behind, reaching Saturday, and being halfway through the month.

The crucial goal is that the metaphor is conceptual. It relies on experiential correlations between the motion of a person over a landscape and the passing of time. So, the conceptual metaphor is not only a linguistic entity—a collection of words alone—but is based on experienced correlations of temporal flow and motion rather than on any assumed after-the-fact correlations between time change and spatial movement for a cross-domain mapping. This mapping establishes our conceptual knowledge and leads our reasoning about time and is, in turn, the basis for the language.

Figure 11. Generic mental space.[Adapted from Fauconnier and Turner (2002, p. 42)]

Figure 12. Cross-space mapping.[Adapted from Fauconnier and Turner (2002, p. 41)]
that we use to talk about time. This reality is very apparent, and we can find meaning and concepts grounded in the properties and structures of the body’s experience. The following Table 3 is a summary of the primary features of the moving-Ego cognitive model.

We also need to add that recently the cognitive processing of FM expressions in CMT has been considered as conceptual metonymy. In some cases, FM expressions reflect metonymic thinking (Lakoff, 1987, pp. 106–107; Fauconnier, 1997, p. 178; Fauconnier & Turner, 2002, p. 378). Consider example (1a) again, which is repeated here as (12).

(12) Quốc lở 1A chay từ Bắc vô Nam (National Route 1A runs from north to south.)

Sentence (12) is a typical FM sentence. The subject (Quốc lở 1A) is non-moves but combines with a motion verb and directional prepositions. The National Route 1A, in reality, is the trajectory of the moving entity described by the motion verb and directional prepositions. This trajectory takes the subject position so that not only the topic (Quốc lở 1A) is focused, but also the typical trajectors can be evoked metonymically (Fauconnier & Turner, 2002, p. 378).

3.3.2. Image-schema of motion
Lakoff (1987, pp. 442–443) analyzed FM sentences in terms of image-schema transformations. He assumed the existence of a natural relationship between a one-dimensional trajectory (1DTR) in FM and a zero-dimensional moving trajectory (0DMTR) that traces a path in actual motion. They are associated with the image-schema transformation: “0DMTR—1DTR. When we perceive a continuously moving object, we can mentally trace the path it is following” (Lakoff, 1987, p. 442). Lakoff also noted that such image-schema transformations are direct reflections of our visual or kinesthetic experiences.

When analyzing English sentences such as (13) from the perspective of the conceptual metaphor:
Lakoff and Turner (1989, p. 142) argued that such expressions have relied on a metaphorical way of understanding static shapes: “Such language is based on a common way of understanding static shapes metaphorically in terms of motion tracking that shape. For example, in the roof slopes down, the roof is not moving, but we know its shape—a slope shape—based on a downward ‘sloping’ motion. Here the metaphor is FORM IS MOTION, in which a form is interpreted based on the motion tracking the form” (Lakoff & Turner, 1989, p. 142).

The metaphor of FORM IS MOTION transforms a static schema into a dynamic motion schema by tracing the schematic form grounded in our experience. However, the analysis has to go deeper into the nature of the phenomenon in question. It appears to go along the lines of the conceptual
metaphor theory only to the extent that “the essence of metaphor is understanding and experiencing one kind of thing in terms of another” (Lakoff & Johnson, 1980, p. 5).

As shown in Figure 9, the SOURCE-PATH-GOAL motion schema is a perfectly qualified image-schema to function as the source domain in metaphoric mappings due to motion schema is a perfectly qualified image-schema to function as the source domain in metaphor mappings due to image-schema has its daily experiences, and its simple, well-defined structure, etc. (Lakoff, 1987, p. 278).

This schema is maintained steadily across all abstract target domains that use the motion domain as the source domain. Entities that concerned some state change type can be expressed based on the motion experienced following the mapping: CHANGE OF STATE IS CHANGE OF LOCATION (Radden, 1996, p. 425). When the motion is known as the location change, locational change is more fundamental than other types of change, such as temporal change, emotional state change, or health condition change. The motivation for perceiving more abstract types of change in terms of locational change (which is more concrete) is to achieve human-based understanding because we, as human beings, have the most direct and clear experiences and perceptions of physical motion. This overall goal also applies to FM expressions.

3.4. The model of Fauconnier & Turner

Fauconnier and Turner (2002) explained FM based on their Conceptual Blending and Integration Theory (henceforth: CBIT). On his private website on conceptual blending and integration, Turner gives a cartoon picture of a Buddhist monk walking up a mountain during the day and meditating overnight, then descending the next day. Attached to this cartoon picture is a riddle—adapted from Koestler (1964)—as follows: Is there a place on the path that the monk occupies at the same hour of the day on the two trips? (http://markturner.org/blending.html). They often used this Buddhist monk riddle to show how their CBIT works (Fauconnier & Turner, 1998, 2002).

To understand CBIT, we first need to recall briefly Fauconnier’s (1994) earlier work on the theory of mental spaces. According to that theory, there are four mental spaces in basic human concepts: two input spaces, a generic space, and a blending space that create a conceptual integration network. Fauconnier and Turner (2002, p. 44) pointed out that “building an integration network
involves setting up mental spaces, matching across spaces, projecting selectivity to a blend, locating shared structures, projecting backward to inputs, recruiting new structure to the inputs or the blend, and running various operations in the blend itself.” By applying composition, completion, and elaboration operations, we will produce a new emergent structure in the blending space. This emergent structure is vital to the understanding of linguistic phenomena. Mental spaces are real-time constructs generated during discourse that provide cognitive structure. Fauconnier and Turner (2002, p. 40) termed them conceptual packets. They are created as we think and talk for the purpose of local action and understanding. They contain elements and relational links to other mental spaces. And other spaces are continually added while the spaces adjust and adapt dynamically as the discourse progresses. In the Buddhist riddle case, there is a person (a monk) walking up a mountain. And there are all sorts of background information that people can bring into this mental space due to their mountain-walking experiences physically or vicariously. These mental spaces exist in our working memory. But once activated, they can be present in our long-term memory as a frame. This frame can then be called up into working memory when the context views it as necessary. We can speak of the walking-up-a-mountain frame in this way (Fauconnier & Turner, 2002, p. 102).

For blending working, at a minimum there must be two input mental spaces. For instance, in the Buddhist riddle case, the first input space is the monk ascending the mountain on the initial day \( d_1 \), and the second input space is the monk descending the mountain the next day \( d_2 \), as shown in Figure 10.

These two input spaces permit the establishment of a generic space. This generic space encompasses the similarity between the two input spaces. It includes elements such as an agent (the monk), a place (the mountain), a time (daytime), and an action (motion upwards and downwards), as shown in Figure 11.

According to Fauconnier and Turner (2002, p. 48), the blend structure not only comes from the sum of these input spaces but also arises through the composition, completion, and elaboration processes. Then, a cross-space mapping between these two input spaces creates new relations. This process, termed composition, is represented in Figure 12.

Further, factors such as background knowledge, discourse context, and basic cognitive abilities also give the reader the additional structure to complete the blend. This process is called completion. These input spaces project selectively into a blended space, as indicated in Figure 13.

In the blended space, a single monk becomes both the ascending monk \( a_1 \) and the descending monk \( a_2 \) on the same mountain and can thus complete the impossible, namely: he meets himself. It is in this blended space that the answer to the riddle appears. This final process is called elaboration. It includes the selected projection elements of the two input spaces and fuses them.
into the blended space. And that is the operational way of this space in which we simulate and imagine creatively the ascending and descending monk meeting himself on the mountain path.

CBIT can be used to explore the cognitive mechanism of FM. The sentence (14) below is taken from Matsumoto (1996a, p. 364) as an example to analyze the conceptual blending and integration processes of the kinds of FM that access paths.

(14) The bike is across the street.

Sentence (14) is associated with four mental spaces: (i) input1, which embodies the actual motion of crossing the street; (ii) input2, which includes the static location of the bike; (iii) generic space, which involves the corresponding elements of both inputs. For example, the motion (across the street) in input1 and the location (bike) in input2 have something in common concerning space, so they are projected onto the generic space; and (iv) blended space. This blended space contains some elements in both inputs. For instance, the motion (crossing the street) in input1 and the location (bike) in input2 are projected onto the blended space, forming an emergent structure that includes both the motion of some Mover and the bike location. We can illustrate the FM conceptual blending process with the access path of (13) as in Figure 14.

In Figure 14, the two solid black circles of input1 represent the Source (S) and Goal (G) sequentially, and the open circle represents the Mover (M). The two solid black circles in input2 represent Object (O) and Reference (R) separately. As Figure 14 shows, M moves from S to G on the time axis (t) in input1. And O is placed at a certain location point on (t) relative to R in input2. The corresponding elements in both inputs, such as the G of M in input1 and the O location in input2, share something in common concerning space. Therefore, they are projected onto the generic space. Several elements of the generic space, such as the motion in input1 and the location in input2, are mapped onto the blended space, forming an emergent structure. In the blended space, the movement from S to G of M designates the O location relative to R.

3.5. The model of Matlock
In her 2001 doctoral dissertation and later articles, Matlock (cited from Matlock, 2004b) explored experiments in FM comprehension. In her dissertation, Matlock provided much trustworthy evidence proving that it is no accident that FM happens with motion verbs. Knowing both literal and figurative uses of motion verbs is needed for visual scanning or simulating motion.

By conducting many experiments with different research methods, such as narrative reading tasks, eye-tracking tasks, and drawing Matlock (2004a, 2004b) found that FM is the mental simulation of motion by our brains. Her results show that subjects dealing with FM sentences use more time than those who do not. These results indirectly support her opinion that we simulate motion with our brains because the simulations need time.

In Matlock (2004b, p. 229), she sustained the idea that to progress an FM construction, the conceptualizer performs a continuous series of transformations so that one configuration in one construal becomes another in another construal. This fact allows the conceptualizer to simulate a representation of the trajectory in real-time. The speaker/hearer scans sequentially along the trajectory to obtain a coherent understanding of the scene.

Moreover, an FM structure is well-formed when it indicates a reasonable measure of time, as illustrated in (15) with two sentences from example (9) in Matlock (2004b, p. 229):

(15) a. The road runs along the coast for 2 hours.

b. The road runs along the coast for 2 seconds.
Sentence (15a) provides the conceptualizer the occasion to scan along the coastline, but (15b) does not indicate a reasonable measure of time. Matlock proposes that depicted objects with FM must be long enough to construe time flexibly for the mental scanning to appear. Matlock (2004b, pp. 231–232) distinguished two FM structure types:

Type I: structures with paths that are related to motion and permit or tolerate manner verbs, such as crawl, race, etc.;

Type II: structures with a trajectory associated with motion, such as a table, etc., that do not allow motion verbs.

Based on these distinctions, it is reasonable to accept the idea that our ability to simulate FM motivates the use and behavior of FM structures, including what is usually acceptable linguistically.

3.5.1. Eye movement studies
In one experiment, subjects viewed scenes on a computer screen while listening to descriptions of the scenes. Every one of the scenes was a line drawing with a horizontal path and a vertical object (e.g., a road running horizontally and a tree line running vertically). Many sentences contained FM, and many sentences did not, such as The cord runs along the wall (FM), and The cord is on the wall (non-FM). While the subjects viewed the pictures and listened to the sentences, their eye movements were tracked and recorded by an eye-tracking camera. The experiment allowed the researchers to pinpoint where and how the subjects directed their visual attention while processing linguistic information. The experimental results revealed that viewing the region connected with the related path or linear object while listening to FM sentences needs more time. For instance, the subjects spent less time looking at the part of the scene that displayed a cord (than other parts of the same scene) while listening to The books are along the wall (non-FM) than they did while listening to The books run along the wall (FM), as Figure 15 illustrates.

A later experiment also used similar visual and verbal stimuli. In this experiment, the subjects first heard only one sentence that describes the terrain, such as The valley is covered with ruts or The valley is covered with dust. Next, they listened to another sentence containing or not containing FM, such as The road runs through the valley or The road is in the valley. The terrain descriptions carried information that implied easy or difficult motion (e.g., ruts versus dust). Then, the subjects observed a scene (e.g., a valley). This experiment showed that terrain information affected eye-movement patterns differently in sentences with FM, than in non-FM sentences. After listening to difficult-terrain information (e.g., ruts in a valley), the subjects directed their visual attention to linear objects or paths (e.g., roads) more time after listening about easy terrains (e.g., dust in a valley).

Matlock’s eye-tracking studies provided evidence to support the hypothesis that FM includes mentally simulated motion. The second experiment is especially compelling because terrain information influenced visual attention differently for the trajector only with FM sentences. According to Matlock (2004a), these findings resonate with how we experience motion in the world, and terrain affects how quickly and fluidly we move, demonstrating that processing FM evokes a mental representation of movement.

3.5.2. Narrative reading tasks
The subjects involved in the experiments of narrative reading tasks were university undergraduates with reported native or near-native proficiency. They were required to read paragraphs about motion through a particular environment (e.g., a man driving through a desert) and later to immediately decide (yes or no response) whether the FM target sentence (e.g., Road 49 crosses the desert) related to what they had read. This experiment asked subjects to think about the motion they read and to re-experience how it displayed along a path. Responses were measured in milliseconds and analyzed across subjects and items.
In one experiment, the subjects also were asked to read passages that differed on the velocity of travel. The protagonist moved slowly in some passages and fast in others (e.g., driving 25 versus 100 miles an hour across a desert). The subjects read a slow-fast travel passage and decided whether a subsequent FM sentence was related. In summary, the time needed to determine the target sentence changed according to travel velocity. The subjects made decisions about FM target sentences after reading about fast travel more quickly than slow travel.

In another experiment, the subjects read passages that differed on whether the protagonists traveled short or long distances (e.g., 10 miles versus 100 miles) and then decided whether FM target sentences were related. The subjects made quicker decisions after reading about short-distance travel than long-distance travel. And in another experiment, they also read passages about moving through cluttered/uncluttered terrains (e.g., bumpy versus smooth). Their response to FM target sentences was quicker after reading about uncluttered terrains than cluttered ones.

Matlock’s experiments showed that the subjects were quicker to process FM sentences in the context of travel with short distances (versus long), fast travel (versus slow), and uncluttered terrains (versus cluttered). Control studies were also conducted using the same passages and target sentences lacking FM, and no reliable processing differences emerged. Based on these results, Matlock (2004a) concluded that processing FM sentences includes some amount of mentally simulated motion.

3.5.3. Drawing studies
Drawing studies also were used to examine the conceptual structure of FM sentences. In drawing Experiment 1 from Matlock (2006), subjects drew pictures of sentences that included TRs that could be construed as long or short, such as The birthmark runs between her knee and her ankle (FM) or The birthmark is between her knee and her ankle (non-FM). None of these TRs were traversable. The subjects drew longer TRs in depiction sentences that contained FM than in those that did not, as shown in Figure 16. According to Matlock (2006, pp. 67–85), the results were in line with the idea that processing FM involves mentally simulated motion.

In Matlock’s (2006) Experiment 2, subjects drew simple line drawings to show their understanding of sentences that did not carry FM. In this experiment, all trajectors were inherently long traversable paths, such as highways and bike paths. Generally speaking, subjects again drew longer TRs for FM sentences, such as A road runs along a mountain range (FM), and shorter depictions for non-FM sentences, such as A road is next to a mountain range (non-FM), as shown in Figure 17.

The experiments were conducted to examine whether mental facsimile or simulation underlies the comprehension of FM language. Results demonstrated that language and thinking about motion do not split, and that understanding verbs of motion involves perceived bodily movement. Consider the Vietnamese sentences in (16):

(16) a. Đồng sông lại bế về hướng Bắc.

(This river turns north again.)

b. Rừng phi lao chạy doc bờ biển dài 15 km.

(Casuarina forest runs along the coast for 15 km.)

c. Con đường lao qua khu dân cư.

(A road is rushing through the residential area.)
d. Xe cò chen chúc bố qua tuyến dài lọ đẹp nhất thành phố.

(Traffic crowded through the city’s most beautiful boulevard.)

e. Vết sẹo chạy dài từ má xuống cằm.

(The scar runs from the cheek to the chin.)

These linguistic data strengthen the idea that FM involves motion simulation or visual scanning. FM sentences frequently incorporate words and phrases that describe physical motion, for instance, direction, such as Bắc (north) in (16a), and length, such as 15 km in (16b). They also occur with manner verbs that express how fast or slow motion is, such as lao (race) in (16 c) or bò (crawl) in (16d). These sentences also indicate the extension from one part to another of a scene, as in (16e).

Matlock (2004b) defined the structure of an FM expression that has the three following constituents: (i) a subject noun phrase (the hose, road, scar, etc.); (ii) a motion verb (race, crawl, run, etc.); and (iii) either a direct object (the city) or a prepositional phrase (along the coast). The subject noun phrase denotes the trajector that is a path or a linear entity, such as the river or road in the examples mentioned above. The trajectory is the core in an FM construction because its construal shapes the structure and overall meaning of the construction (Matlock, 2004b, p. 226).

3.5.4. The conceptual motivation of FM
Matlock (2004b) also explained the conceptual motivation that underlies FM. As just mentioned, she considers the trajector as the core element in this construction type because its construal shapes the overall meaning of the construction (Matlock, 2004b, p. 226). However, she added that FM typically denotes the spatial configuration of a trajectory concerning a landmark, as illustrated in (17).

(17) a. The road runs along the coast.

b. The railroad tracks follow the river.

Sentences (17a-b) make sense because the described trajectory has a plausible relationship conceptually with the landmark. In contrast, when listening to the sentences in (18):

(18) a. *The road runs along.⁴

b. *The railroad tracks follow.

We feel them odd because of the lack of a landmark that would enable us to position mentally the trajector in the described scene. This fact shows that without a reference landmark, it is impossible to judge the spatial configuration of a trajector unless there is a substantial background that the communicators share.

However, Matlock (2004b, pp. 227–228) also pointed out that, for FM, the trajector must be an oblong or elongated object. When the trajector inherently is not an elongated one, it must have at least an option of spatial extension. For example, observing Vietnamese sentences in (19), we see that understanding sentence (19a) results in a conceptualization of a long rectangular/oval table rather than a small round one. The same inferences occur for the fish pond in (19b). In this sentence, the pond must be conceptualized as an elongated object rather than a round one.

(19) a. Bàn bể chay từ tường bể đến lề đi.
(The kitchen table runs from the kitchen wall to the aisle.)

b. Ao cá men theo bờ rào đầm but.

(The fish pond goes along the hibiscus fence.)

Matlock concludes that such constraints come from the inherent conceptual properties of motion verbs. Namely, the trajector must be large enough to trigger mental scanning by which the conceptualizer aims to achieve a coherent understanding of the described configuration in space. In the absence of mental scanning, the conceptualizer can only activate discrete places in the arrangement and cannot establish a unified whole.

Apart from an elongated shape, the trajector in FM needs to be large enough for the mental scanning to occur. Matlock (2004b, p. 228) argued that there is no reason to scan small objects because small objects can achieve with only a glance. For that reason, even though a cigarette lighter is typically a rectangle, most of us would agree that the sentence of The gas lighter goes from the cigarette packet to the ashtray sounds odd. However, when the same sentence appears in the context of an enormous gas lighter described on an advertising panel, the spatial scale is sufficiently large to allow the conceptualizer to do mental scanning of the trajector, so this sentence is more likely to make sense. Besides, Matlock (2004b) recognized that “travelable” paths (paths usually associated with a motion) allow manner verbs to a greater extent than paths not usually connected with that motion. For instance, in (20a), the manner verb carries information about how movement occurs along a given path. The manner of the motion does not represent an actual motion event but to some extent makes a construal of the route (Duong Quốc lở) that tends to be at a standstill due to having much traffic during rush hours (20a).

(21) a. Đường Quốc lở bờ qua thành phố.

(The national route crawls through the city.)

b. *Thưa khoai lang bờ doc hàng rào.

(The plot of sweet potatoes crawls along the fence.)

It is not easy to understand the manner of motion in (20b) consistently because no motion is required to occur along the non-travelable trajector. Here, the characteristics related to the speed of movement cannot be mapped metonymically onto the shape or configuration of the path. It reveals that the trajectory constrains what inference forms that the conceptualizer makes about various motion paths and types in FM expressions.

According to Matlock (2004b), the semantics of the verb in FM allows us to derive metonymically information about the traits of the path from common knowledge about how a suitable kind of motion happens within an appropriate spatial region, which may go far beyond conveying information associated with speed. For instance, in the sentence Lối đi bờ này loang chang tự quan nhau vè nhau nghi (This walkway staggered from the pub to the motel), the verb loang chang (stagger) can relate to a crooked shape of the path. In this case, Matlock (2004b, p. 232) held that the verb sounds fine because pubs are associated with drinking, and a drunk person is known to walk erratically, zigzagging back and forth. She added that although such uses of FM “have a somewhat poetic flavor and are less conventional” (Matlock, 2004b, p. 232), they sound perfectly fine in specific contexts. From a phenomenological perspective, it can be argued that the best approach to expressions of FM is a cognitive pragmatic-semiotic approach in which FM is viewed not as independent of the expressive function of language but as intrinsic to it. Blomberg and Zlatev (2014) suggested that an honest description of FM needs to cover
a broader phenomenological-linguistic framework of consciousness-language interactionism, which accounts for an interactive ring between personal experiences and conventional linguistic meaning shaped by discourse practices and cultural beliefs. It must be stressed that the proponents of cognitive linguistic models of coextension paths have voiced a need for more conspicuous data from experimental studies to support their claims (e.g., Langacker, 2008c; Talmy, 2000a, p. 104).

4. Conclusion
The paper has presented and described five models of the FM approach in cognitive linguistics: the models of Talmy, Langacker, Lakoff, Fauconnier & Turner, and Matlock on three aspects: bases, contents, and characteristics. Each model, as we have seen, has its specific uniqueness and subtleties.

The model of Talmy is built mainly on his unique conception of the motion event typology and two lexicalization patterns in coding this motion event: the verb-framed pattern and the satellite-framed pattern. Talmy acknowledged six elements of a complex motion, with a basic motion formed by only the first four of them. They are (a) Figure (the moving object); (b) Ground (the reference frame); (c) the motion itself, which refers to the presence of itself motion or locatedness in the event; (d) path (the trajectory followed or the site occupied by the Figure relative to the Ground); (e) manner (how the Figure moves); and (f) cause. These elements can be encoded linguistically in many types of combinations. Languages show their typical lexicalization patterns: verb-framed patterns or satellite-framed patterns based on these combination types. And they form language diversity and typological variations. With such a unique viewpoint, Talmy classified FMs into six categories.

The model of Langacker is formed on two of his fundamental-based assumptions: linguistic fictivity and mental scanning. From the linguistic fictivity perspective, Langacker sees FM, on the one hand, as a product of subjectification, which happens when cognitive operations inherent in the conception of motion events are transferred to a perception of static scenes, and on the other hand, as a particular case of fictive change. While from the mental scan perspective, Langacker argued that both actual motion expressions and FM involve mental scanning along a path. We often conceptualize actual motion events by pursuing the progress of a mover along a spatial route. So, the FM conceptualization appears almost parallel to the conceptualization of the actual motion event. Although there are noticeable differences between perfect FM and imperfect FM, these two FM types share a common background. Moreover, Langacker also sees FM as a product of subjectification. Accordingly, the spatial configuration of the object is grown on the part of the conceptualizer. And using motion verbs and adverbials in fictive expressions is a linguistic indication of embodiment. He concludes that cognitive processing of linguistic fictivity involves mental models and mental simulations employed to represent motions schematically and simulate the scanning experience.

Based on his CMT, Lakoff established his model from two main components: FM metaphors and image-schemas of motion. In terms of FM metaphors, FM realizes mapping across domains. FM is the linguistic representation of the metaphor, FORM IS MOTION, whose source domain is motion and whose target domain is shape and form. Generally speaking, for FM, a static entity or scene is conceptualized based on dynamic linguistic forms. In other words, the entities in the static spatial domain are experienced and expressed through entities in the dynamic spatial one. This fact leads to two core spatialization metaphors: (i) time as a moving object towards a stationary Ego (observer); and (ii) a moving Ego (observer) where entities, structures, and relations of the moving objects in the space domain are mapped onto the temporal change conceptual domain. As for the image-schemas of motion, Lakoff analyzed FM sentences in terms of image-schema transformations. Lakoff considered image-schema transformations as direct reflections of our experiences, which may be visual or kinesthetic. The model of Fauconnier & Turner is based on their CBIT. They explained FM based on four mental spaces of basic human concepts: two input spaces, a generic
space, and a blending space, which create a conceptual network. To understand FMs, we need to map one input space to another. These spaces, together with generic space, are mixed in blending space. By operations of composition, completion, and elaboration, a new emergent structure appears in the blending space, which is crucial to the comprehension of FMs. For example, in the sentence The bike is across the street, the location across the street (input1) and the bike position (input2) have something in common concerning space, thus they can be projected into the generic space. This generic space is mapped into the blended space, forming an emergent structure that includes the motion of some Mover and the site of the bike.

Unlike the above four models, the model of Matlock is an experiment-based one. By conducting various experiments with different research methods, such as narrative reading tasks, eye-tracking tasks, and drawing tasks, she found that FM is the mental simulation of motion by our brains and that the simulation needs time. From this viewpoint, Matlock formulated a significant hypothesis: FM always has a conceptual motivation and is called the trajectory core in an FM construction because its construal shapes its overall meaning and structure.

We note that, in addition to the five models mentioned above, there are also some other FM models, such as the model of Yo Matsumoto and the model of Ray Jackendoff. In his FM model, Matsumoto illustrated some interesting features of coextension path expressions in Japanese and English from the perspective of a cross-linguistic comparison [for details, see Matsumoto (1996a, 1996b, 1996c)]. In his Conceptual Semantics framework,

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Notes
1. We prefer to use the term fictive since it is the preferred and accepted term in cognitive linguistics nowadays.
2. The term conception appears for the first time in the article “Fictive motion in language and “ception” published by Talmy in 1996. Perhaps this is his pun because both perception and conception in English share the same root: ception. This term is justified theoretically within cognitive linguistics. Talmy linked perception/conception through this notion of conception. Talmyn defined conception as a combination between the perception domain and the conception domain, representing both in a single continuous field “to cover all the cognitive phenomena, conscious and unconscious, understood by the conjunction of perception and conception” (Talmy, 2000a, p. 139). This conjunction of perception and conception makes conception an appropriate theoretical starting point for an empirical investigation of construal because of the following important question: does any difference in linguistic encoding affect how events are perceived?
3. For details, see http://markturner.org/blendging.html.
4. We use an asterisk in front of an example sentence to indicate this sentence is very suspicious semantically.
5. Ray Jackendoff does not identify himself a cognitive linguist. However, he admits that he shares fundamental understandings with cognitive linguists that language is the result of human conceptualization. (For details, see Jackendoff (1996); Biên (2017a)). Therefore, in this article, we still consider him as a cognitive linguist.

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