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The expression of non-actual motion in Swedish, French and Thai

Abstract: Dynamic descriptions of static spatial situations, such as *the road goes through the forest* have attracted a lot of attention across different semantic theories. Analyses in terms of fictive motion and subjective motion have proposed that such expressions are strongly motivated by universal cognitive and conceptual factors. I present theoretical arguments for the conflation of several different motivations in the literature. Instead of a single general motivation, three distinct experiential motivations are presented under the term *non-actual motion*. These experiential motivations are used to design an elicitation tool for investigating non-actual motion cross-linguistically. Elicited descriptions from speakers of Swedish, French and Thai suggest that such descriptions are conventionalized in all three languages, which supports the universal character of non-actual motion across languages. However, in expressing non-actual motion, the language-specific resources for expressing actual motion are used.

Keywords: non-actual motion, fictive motion, subjective motion, motion semantics, semantic typology

1 Introduction

The use of motion verbs to describe static situations, as in the sentences (1)–(4), occupies a pivotal role in several semantic theories. Langacker (1990, 2006) gives such sentences a central position in bridging the divide between the concrete and the abstract in language and cognition. In the same examples, Talmy sees a general "cognitive bias towards dynamism" (Talmy 2000a: 171–172) whereas Matlock (2004a: 1390) claims that "language is structured the way it is because of our natural ability to simulate motion". Thus, it is claimed that these sentences reveal how language is grounded in universal cognitive factors. From this point of view it can then be conjectured that all languages would have the resources to describe static situations with motion verbs.

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(1)   *The mountain range goes all the way from Mexico to Canada.* (Talmy 2000a: 104)

(2)   *The mountain range goes all the way from Canada to Mexico.* (Talmy 2000a: 104)

(3)   *The highway crawls through the city.* (Matlock 2004b: 232)

(4)   *There is like this snaking road up the hills.* (Brandt 2009: 583)

It is notable that several different terms have been used to denote the sentences in (1)–(4). In reviewing previous literature, Blomberg and Zlatev (2014) found the phenomenon explicated differently across various analyses. The previously suggested terms *virtual motion* (Talmy 1983), *fictive motion* (Talmy 2000a), *abstract motion* (Matlock 2010) and *subjective motion* (Langacker 1990; Matlock 2004a, 2004b; Matsumoto 1996) each have a different scope of meaning but are nevertheless often used interchangeably. In order to capture a feature common to previous analyses and pinpoint that the sentences superimpose a motion not actually there, we proposed the more neutral term *non-actual motion* (NAM), which will be used throughout this article.

> [Non-actual motion] refer[s] to certain dynamic qualities of intentional acts that can be seen as motivating the use of sentences with motion semantics to denote static situations. [...] Thus, when we speak of non-actual motion sentences, we use this as a cover term for all sentences in which (minimally) a motion verb is used to denote a situation that lacks observed motion. (Blomberg and Zlatev 2014: 397)

In line with this inclusive definition, we argue that NAM-sentences are motivated by three different experiences: (1) the capacity for self-motion connected to *affordances* for motion (i.e., the perception of action potentials in the environment, which entails an immediate connection between visual perception and action), (2) visual scanning and (3) the imagination of movement. Based on these motivations, a stimuli set for eliciting NAM-sentences was designed. With a material clearly demarcating between several possible motivations, the production of NAM-sentences in relation to properties of the situation could be investigated.

Given the importance attributed to such expressions, it is surprising to note how scarce systematic cross-linguistic comparisons of this tendency have been. Among the few publications with a comparative element are Matsumoto (1996), Amagawa (1997), Rojo and Valenzuela (2004, 2009), and Stosic and Sarda (2009). These studies have all found that motion verbs are used in describing static configurations, but with varying constraints across languages. The present

study extends beyond the approach of previous studies in two ways. First, the experiment was designed to differentiate between several possible motivating factors. Second, the linguistic variation is related to different strategies for expressing physical motion.

Swedish, French and Thai were selected due to their status in motion typology as prime candidates of the three different types: s(atellite)-framed, v(erb)-framed and equipollently-framed languages, respectively. Talmy's famous binary motion event typology predicts that languages would express Path in the main verb root (V-framing) or in a complement standing in what Talmy (2000b: 102) describes as a "sister relation the main verb root" (S-framing). This leaves Manner (and additional information pertaining to the Figure's movement, such as Cause) to be either optionally expressed in V-framing languages (in, for example, a gerund) or expressed by the main verb root in S-framed languages. This is exemplified in (5) and (6) below with examples from Swedish and French, two languages cited as candidates as S- and V-framed, respectively.

(5) En   kvinna gå-r   in i grotta-n.
     DET.INDF woman walk-PRS in i cave-DET.DEF
     'A woman is walking into a cave.'

(6) Une   femme entre   dans la   caverne.
     DET.INDF woman enter.3SG.PRS in   DET.DEF.F cave
     'A woman exits the cave.'

Subsequent studies of the expression of motion have raised several objections to dividing languages in two discrete types (e.g., Levinson and Wilkins 2006; Bohnemeyer et al. 2007). One objection concerns languages where constituents with equal grammatical and syntactical status express Manner- and Path-information. Thai typically expresses Manner and Path as well as Deixis in three separate verbs joined together in a serial-verb construction (Zlatev and Yangklang 2004; Slobin 2004), as in (7).

(7) Phûyĭng doen khâw pai thâm.
     woman   walk enter go   cave
     'A woman walks this way into a cave.'
     (lit. 'a woman walks exits goes cave')

The questions of how many language types there are, or if there are construction types rather than language types has been much debated (e.g., Croft et al. 2010;

Beavers et al. 2010). However, independently of this question, the expression of motion has been found to differ across languages, making it possible to distinguish between at least three different types (Slobin 2004). I will therefore refrain from entering the debates over construction type/language type, and rather investigate to which extent the expression of physical (or actual) motion affects the possibility to use motion verbs for describing static extensions in space.

The paper is structured as follows. The concept of non-actual motion is described in more detail in Section 2, together with Blomberg and Zlatev's re-interpretation of *fictive motion* (Talmy 2000a), *subjective motion* (Langacker 1990, 2006) and *mental simulation of motion* (Matlock 2004a, 2004b, 2010). I describe the empirical study in Section 3 together with the semantic framework of Holistic Spatial Semantics (Zlatev 1997). This framework was used to analyze non-actual motion in Section 4 and the quantitative comparisons in Section 5. To anticipate the results, speakers of all three languages exhibited a strong tendency to use NAM-expressions for describing static spatial extensions. While this result supports strong experiential and cognitive motivations behind this phenomenon, speakers did so with resources closely related to the expression of physical (or actual) motion. This suggests that pre-linguistic motivations are also constrained by language-specific conventions. I conclude in Section 6 with a summary and a tentative typology for the expression of non-actual motion. I claim that this typology can be used to classify languages in an implicational hierarchy of non-actual motion.

2 Theoretical background

Several different terms in the literature denote the use of motion verbs for describing static situations. Langacker (1990) and Matsumoto (1996) speak of *subjective motion*, Talmy (1983) of *virtual*, later *fictive motion* (Talmy 2000a), while Matlock (2010) has used the term *abstract motion*. Despite their agreement on motion being mentally superimposed motion on a static situation, the terms fictive motion, subjective motion and abstract motion have different ranges of meaning and justifications. The sentences in (8)–(11) are all analyzed as instances of fictive motion by Talmy, based on "a cognitive bias towards dynamism" (Talmy 2000a: 101). In contrast, Langacker (1990) restricts the notion of subjective motion to the sentences in (8) and (10), which share "the movement of the speaker's focus of attention along a visual mental trajectory" (Blomberg and Zlatev 2014: 389). Matlock (2010) characterizes (8)–(10) as

examples of abstract motion connected to mental simulation as a general cognitive mechanism.[1]

(8)   *The highway crawls through the city*. (Matlock 2004a: 232)

(9)   *The milk is about to go sour*. (Langacker 1990: 155)

(10)   *An ugly scar extends from his elbow to his wrist*. (Langacker 2001: 9)

(11)   *The enemy can see us from where they are positioned*. (Talmy 2000a: 115)

As can be seen, there is a terminological confusion where the scope of previous analyses varies between different authors. The varying terminology can be seen as an indication of the non-unitary nature of the phenomenon as such, which in part might be a reason why it has proven difficult to semantically delimit as well as pinpointing a single explanation. The hybrid and multi-motivated character of NAM has previously been noted by Matsumoto (1996: 137), but without further exploring the implications: "[i]n some cases it is the movement of the focus of attention; in other cases the motion of some imaginary entity is involved; and in still other cases the mover is a specific person (e.g., a speaker or a hearer)". This terminological plurality can be constructively re-interpreted as pointing to several experientially distinct motivations with some type of sentences more closely linked to one kind of experience than other.

2.1 Three experiential motivations

In order to investigate the multi-faceted nature of NAM, the possible motivations should be clearly spelled out and differentiated from one another. The first motivation is closely related to the capacity of self-motion and the experience of movement and motility it brings with it. The ability to move is an indispensable part of our experience, without which it would not be possible to grasp a pen just out of reach, or explore the backside of a building. Our motility is indispensable to the degree that without it, we could expect the world to appear in a radically different way.

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1 The term *abstract motion* is also used by Langacker (1999: 82–83), but then to refer to sentences where a motion expression stands for non-spatial changes (e.g., [9]).

> For a being completely immovable there would be neither space nor geometry; in vain would exterior objects be displaced about him, the variations which these displacements would make in his impressions would not be attributed by this being by change of position, but to simple changes of state; this being would have no means of distinguishing these two sorts of changes, and this distinction, fundamental to us, would have no meaning for him. (Piaget and Inhelder 1956: 248)

To move, one must perceive that it is possible to move. For this reason, the experience of movement involves the detection of affordances for motion. The term *affordances* was introduced by Gibson (1977, 1979) to describe the intimate connection between perception and action. In perceiving for instance a door handle, it is not only perceived as a protruded part of a door, but primarily (given previous experiences with such an object) as something which allows for the door to be opened and closed. In other words, a constitutive feature of perception is related to detecting the potential actions that can be carried out with the physical environment. Similarly, roads, paths and trails are created artifacts imbued with the affordance for (human) translocation. Roads are manufactured to afford motion; trails are made in walking and over time signaling a safely traversable route. The possibility for self-motion as one motivation for NAM-sentences is further supported by the comparison between Japanese and English by Matsumoto (1996). Japanese exhibits constraints on the motion verbs that can express NAM for objects without affordance for human translocation, see (12) and (13).

(12) Sono haiuee   wa heeya no mannaka o
     the   highway TOP plain GEN center   ACC
     {tooru/iku/tootte iku}
     {go.through/go/go.through.go}
     'The highway {goes through/goes in/goes through} the center (or middle) of the plain.'
     (Matsumoto 1996: 214)

(13) Sono densen wa heeya no mannaka o
     the   wire   TOP plain GEN center   ACC
     {tooru/*iku/??toote iku}
     {go.through/go/go.through go}
     'The wire {goes through/goes in/goes through} the center (or middle) of the plain.'
     (Matsumoto 1996: 215)

A range of different Japanese motion verbs that are acceptable in situations such as (12) are unacceptable in (13), but not vice versa. We can then agree that the lexical restriction is "cognitively reasonable, given the difficulty in evoking a sensorimotor experience of moving along such a path in the mind of the conceptualizer" (Matsumoto 1996: 215).

The affordance for motion is, however, just one of several possible experiential motivations. NAM-sentences in English are insensitive to affordance for motion, as in (14) where the Figure affords motion and in (15) where it does not. Whether English or Japanese is exceptional in this regard is very much a question for empirical research.

(14)   *The road goes through the forest.*

(15)   *The wire goes through the forest.*

This fact is often emphasized in previous analyses: both Talmy (2000a) and Langacker (1990) turn their attention specifically to objects without affordance for motion. In his analysis of fictive motion, Talmy (2000a) goes as far as aiming to leave out objects with reference to actual motion.[2]

> A purer demonstration of this type of fictive motion would exclude reference to an entity that supports the actual motion of other objects or that itself may be associated with a history of actual motion. (Talmy 2000a: 104)

In his account of *mental scanning* as the motivating factor, Langacker (1990) proposes that there is a kind of dynamicity in the very *act* of experiencing. The act of "building up to a full conception" (Langacker 2001: 9) is disposed towards dynamicity. As we perceive a moving entity, it is directly connected to a continuous shift in our attention. This involves moving our own bodies, tilting our heads, saccadic eye movements, and so forth. Dynamicity does not only belong to the moving entity, but also to the act of perceiving. In (16), the Figure is moving, but correlated with the very fact of grasping this situation is the dynamism and movements of the observer. According to Langacker (1990, 2006), this dynamic aspect of conceptualizing is retained in a sentence such as (17) to describe situations without any externally moving object.

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2 Talmy's analysis of fictive motion is exceptionally detailed and involves a number of different subtypes. If not otherwise noted, I am limiting my account to what Talmy refers to as *coextension path*, defined as "a depiction of the form, orientation, or location of a spatially extended object in terms of a path over the object's extent" (Talmy 2000a: 138).

(16) *The balloon rises*. (Langacker 2006: 25)

(17) *The trail rises steeply near the summit*. (Langacker 2006: 25)

Langacker (2001: 10) thus proposes that there is an inherent temporality and dynamicity in experiential acts. It takes, so to speak, time to experience, to conceive and to conceptualize. One indication in support of this view would be using motion verbs for describing static situations. From this argument, we can extract a second motivation for NAM-sentences, viz. the configuration of an entity to allow for scanning. The predisposition to use NAM-sentences is according to this motivation, insensitive to whether an extended object is travelable or not.

Matlock (2004a, 2004b, 2010) argues that motion verbs for describing static situations can be explained in terms of mental simulation. Most generally, mental simulation proposes that "mental processes are supported by the same processes that are used for physical interaction, that is, for perception and action" (Pecher and Zwaan 2005: 1). Applied to language, this has lead to theories such as *simulation semantics*, which proposes "that the meanings of words and of their grammatical configurations are precisely the contributions those linguistic elements make to the construction of mental simulations" (Bergen 2007: 278). One indication of mental simulation is that motion is intrinsically involved in understanding or producing expressions where a static extension is described with a motion verb. On the basis of psychological experimentation, Richardson and Matlock (2007) reach the following conclusion:

> [I]n understanding an FM [fictive motion]-sentence, people re-activate and simulate aspects of the protagonist's motion, including speed, distance, and the terrain across which the movement occurred. In doing so, they construct a dynamic representation that mirrors the actual motion of the protagonist. (Richardson and Matlock 2007: 238)

As indicated by this quotation, simulation of motion involves re-activating quite specific facets of a "protagonist's actual motion". By virtue of involving specific information about actual motion, the appeal to mental simulation can be seen as complementing the accounts of affordance and visual scanning. Self-motion and scanning is associated with actual motion: the possibility of moving along a spatial entity and the dynamism of following a static object in visual perception, respectively. In contrast to these two motivations, simulation of motion (or perhaps more accurately, the imagination of motion) requires the speaker to construe information about actual motion. Such a motivation could be involved in NAM-sentences with motion verbs rich with

specific Manner-information involving, for instance, different postures, speeds, bodily movements and so on.[3] In short, verbs with lexical semantics that refer to movements carried out by someone or something. Examples of such uses are shown in examples (18)–(20).

(18)   *The highway* crawls *through the city*. (Matlock 2004b: 232)

(19)   *Insanity runs in my family... It practically* gallops! (*Arsenic and Old Lace*, cited in Brandt 2009)

(20)   *The dark velvet ditch creeps by my side*. (T. Tranströmer, *April and Silence*)

The ditch in (20) is not described as just moving by creeping, but rather resorts to the "as-if" structure of imagination. The sentence does not point to the ditch as affording self-motion, or to its extension in visual perception; rather it evokes associations with movement patterns characteristic of certain animate beings and particular bodily positions. Conceptualizing its meaning thus requires the speaker or listener to engage in the activity of *visualizing* motion, which makes this a distinct motivation.[4]

    In sum, three different and experientially distinct motivations to NAM-sentences can be distinguished. The first of these is connected to self-motion, and the affordance for motion. Per this view, the ability of the self to move along entities affording motion would motivate the linguistic expression of NAM. The second motivation is the dynamic character of (visual) experience and conceptualization, which can be seen as intimately connected to motion. Third, the imagination of motion motivates NAM-sentences, especially for sentences richer in Manner-information. At least these three experientially motivations can be extracted from the literature, which in turn point to the multifaceted nature of the phenomenon. By separating out the different motivations, it becomes possible to conduct empirical research on their respective role in the formation of NAM-expressions across languages.

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3 Manner has been a notoriously difficult category to define coherently. Recent literature have suggested distinctions between different kinds of Manner (e.g., Slobin et al. 2014). In this article, I will not enter into a detailed discussion of how to define Manner.
4 It is of course possible to have a vivid visualization of motion even when describing a non-travelable entity with a more generic motion verb (such as *go*). However, this is not entailed from the lexical semantics of the verb.

3 Method

The present experiment was designed based on an operationalization of the motivations discussed in Section 2. The first parameter was concerned with spatially extended objects that afford motion and those that do not. Thus, the objects depicted in the stimuli either afforded human movement or not. The second parameter was concerned with a difference between the notions of "cognitive bias towards dynamism" and "visual scanning". This difference in experiential engagement was operationalized by visually representing the same spatial situation with perspectival alterations: either the spatially extended object was represented from a first-person perspective (1pp) or from a third-person perspective (3pp). The 1pp-stimuli were assumed to provide a sense of being-there, thereby possibly enhancing the degree of involvement (or rather, minimizing the indispensable distance between expression and content in every visual representation). 3pp-stimuli provided a distanced view from an anonymous perspective. Taking the parameters of Perspective and Affordance for motion together gave a two-by-two design, summarized in (i) and (ii) with the four different stimuli types shown in Figure 1.

i. A first-person perspective inviting the observer to move along the spatially extended object vs. a third-person perspective providing an opportunity to scan the figure.

ii. Entities that support human motion vs. those that do not (e.g., bridges vs. fences).

3.1 Material

The pictorial material was designed to depict linear, extended objects placed in an ecologically likely spatial environment. The stimuli comprised 38 pictures (24 target pictures, 12 controls and 2 practice pictures). Both target and control pictures represented static situations without animate agents. The target pictures fitted the criterion of depicting linear, spatially extended objects related to a reference entity. These were further designed to capture the operationalized motivations described above. The pair-wise designed pictures depicted the same objects but from different perspectives. The target pictures are described in Table 1. The spatially extended object was always positioned against a reference entity (e.g., a house). To ensure that the relative relation between object and the reference entity would not bias the results, the location of the reference entity differed systematically across the stimulus set. For 3pp-pictures, it was placed to the left/right of the spatially extended object. In 1pp-pictures,
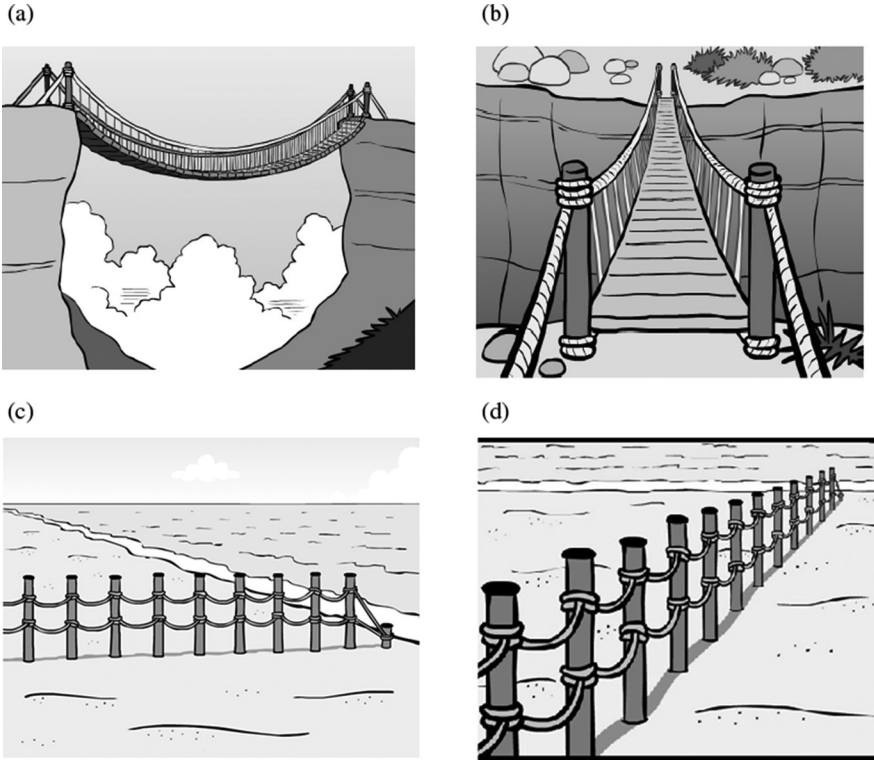
Figure 1: Stimuli according to the two parameters of Affordance and Perspective: (a) Afford/3pp. (b) Afford/1pp. (c) Non-afford/3pp, and (d) Non-afford/1pp.

the reference entity was proximal or distal with respect to the viewer's perspective. The control pictures were designed to represent static situations without, or with much less, linear extension than the target objects, such as park benches and trees.

3.2 Participants

16 speakers of Swedish (8 female, mean age 28.4, $sd = 9.5$), 14 speakers of Thai (10 female, mean age 29.9, $sd = 7.9$) and 13 speakers of French (11 female, mean age 25.0, $sd = 5.3$) participated in the study. The Swedish and Thai participants were recruited primarily through Lund University and compensated with a voucher for their participation. The Thai participants were mainly exchange students with less than two years spent in Sweden. French participants were

Table 1: Description of the target pictures.

Third-person perspective			First-person perspective		
Affords motion			**Affords motion**		
Object	*Reference entity*	*Location (of reference entity)*	*Object*	*Reference entity*	*Location (of reference entity)*
Trail	House	Left end	Trail	House	Trail begins at house
Trail	House	Right end	Trail	House	Trail ends by house
Road	Tunnel	Left end	Road	Tunnel	Road extends outside tunnel
Road	Tunnel	Right end	Road	Tunnel	Road extends inside tunnel
Bridge	Canyon	Under bridge	Bridge	Canyon	Under bridge
Row of stones	River	Surrounds Fig	Row of stones	River	Surrounds Figure
Does not afford motion			**Does not afford motion**		
Fence	Tree	Left end	Fence	Tree	Fence extends from house
Fence	Beach	Right end	Fence	Beach	Fence extends to sea
Pipe	Tunnel	Left end	Pipe	Tunnel	Pipe extends outside tunnel
Pipe	Tunnel	Right end	Pipe	Tunnel	Pipe extends inside tunnel
Phone wire	Logs	Under wire	Phone wire	Logs	Under wires
Row of chairs	Beach	Surrounds Fig	Row of chairs	Beach	Surrounds Figure

recruited at the Montrouge section of the Ecole Normale Supérieure, Paris. In all cases, a researcher fluent in the participants' native language conducted the elicitation.

3.3 Procedure

All participants viewed the same 38 pictures in three different viewing orders. Each order was viewed by as close to a third of the participants as possible. The stimuli were presented on a laptop with a 15.4″ widescreen monitor. The researcher provided instructions in the native tongue of the participant and controlled the presentation of stimuli through an external keyboard. The session began with instructions in the participant's native tongue, freely translated into English as follows.

> You will see a number of pictures. Look at each picture and describe what you see in one sentence. Please try to provide natural and colloquial descriptions, as if you were to briefly describe the picture to someone unacquainted with it. Some pictures are similar to each other. Please describe each picture without referring to previously seen pictures. The session begins with two warm-up pictures.

The instruction "describe what you see in one sentence" were used to ensure that participants provided descriptions comparable in length and content. The study was conducted in a silent room. Participants first viewed and described two warm-up pictures, of which one represented actual motion: a car driving on a road. A pre-test debriefing followed in which the researcher ensured that the task was clear to the participant. The remainder of the session was recorded for audio and video. Upon completing the elicitation task, a structured post-test interview followed. Several participants expressed difficulty in describing the pictures in just one sentence. They did not report this as a difficulty in following the instructions, but found a single-sentence description to be insufficiently detailed to exhaustively describe the picture. No participant reported the actual purpose of the study.

3.4 Analysis

Recordings were transcribed exhaustively (except for noises, interruptions and comments) in the standard orthography of the respective language. All descriptions were segmented into clauses and all word-forms were provided with a lexeme, an English gloss and a morpho-syntactic code.

The analysis required an operational definition of NAM-sentence. In order to let the connection to actual motion remain explicit, a NAM-sentence was given the following operationalized definition: *a sentence that by substituting the expression of the spatially extended object (typically expressed by the grammatical subject) with one that denotes an entity that can move by its own volition, actual motion would be the only possible interpretation*. This is shown in (21) and (22), with the (a) NAM-sentences corresponding to (b) actual motion-sentences by substituting only the Figure-expressing nominal.[5]

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5 An anonymous reviewer points out that the sentences in (22b), (23b) and (24b) would in English be more idiomatic in the present progressive tense (i.e., *is going*). By virtue of signaling that actual motion can be an ongoing activity and non-actual motion not, this could be an additional marker of the difference between actual and non-actual motion. While the proposed definition of NAM-sentences still holds for the three languages investigated, a refined definition is a prerequisite for further research.

(21)   a. *A road goes into a tunnel.*
       b. *Mary goes into a tunnel.*

(22)   a. *The fence goes along a meadow.*
       b. *John goes along a meadow.*

Given this criterion, sentences with verbs expressing dynamism and change, e.g., *begin*, *continue* and *end* were also included. From the point of view of lexical semantics, these verbs do not only or primarily express Motion, but can rather be analyzed in terms of continuity and dynamicity intimately connected to motion (see Langacker 1990), or what Talmy (2000a: 257) calls "windowing of attention". To motivate their inclusion, the same test is applied in (23).

(23)   a. *The pipe continues out of the tunnel.*
       b. *Jane continues out of the tunnel.*

Several verbs also contain reference to dynamicity. Implied in verbs describing posture or configuration is that the described state has come about by a prior motion of the Figure. A verb such as *delimit* points to the fact that the Figure is in a certain state, as in (24a). When used with an animate agent the sentence conveys the activity of attaining this state, as in (24b). Still – this is not a description of motion leading to a change of location – unlike the examples in (21b), (22b) and (23b). For this reason, such sentences were excluded from the analysis.

(24)   a. *The fence delimits the beach.*
       b. *Mark delimits the beach (by putting up a fence).*

All descriptions were coded according to the framework of Holistic Spatial Semantics (HSS). This theory proposes seven universal semantic categories for spatial meaning (Zlatev 2003; Blomberg 2014). To these seven, Manner was added as an eight category required to sufficiently capture the expression of motion (actual and non-actual) across languages.

- **Figure**: The entity whose spatial location is profiled in the expression. Also called *Trajector* (Langacker 1987) and *referent* (Levelt 1996).
- **Landmark**: A reference entity against which the (trans)location of the Figure is gauged. Also called *Ground* (Talmy 2000b), and *relatum* (Levelt 1996).
- **Frame of Reference**: A stable and fixed perspective of space presupposed by all spatial utterances (see Levinson 2003; Zlatev 2007; Blomberg 2014).
- **Motion**: The presence or absence of perceived motion. Can either express change of location (e.g., *enter*) or the process of movement (e.g., *jump*).

- **Region**: A specification of a particular region of space with respect to the Landmark, such as inside/outside the Landmark. This is similar to the notion of *search domain* (Langacker 1987).
- **Path**: Defined schematically as the Beginning/Middle/End in an expression of change-of-location, e.g., prepositions such as *from*/*through*/*to*, respectively.[6]
- **Direction**: In contrast with Path, an expression of unbounded spatial change-of-location, e.g., *rise/fall*, *come/go* and *to the East*.
- **Manner**: Involving different specifications of how the Figure moves, e.g., *walk*, *run*, *jump*, *glide, hurry*, *spin*, etc. This information can be related to Path/Direction (i.e., change of location) or not.

Linguistic forms realize the semantic categories in different ways. While one form often expresses one category, there are two other patterns. First, several semantic categories can be expressed in a single form. For instance *enter* conflates Motion with Path. Two or more distinct forms can express a single category (distribution), for example *out of* where Path is expressed in both an adverb/particle and in a preposition. Due to these patterns, HSS proposes that meaning must be analyzed on an utterance level. By taking the interplay between parts and wholes into consideration, the meaning of a form depends partly on the linguistic context in which it participates, and vice versa. Of specific relevance for the analysis of NAM-sentences is that the meaning of motion verbs depends to a certain extent on the surrounding linguistic context. As seen in examples (21)–(24), whether the Figure can move or not participates in marking the difference between actual and non-actual motion. This holistic perspective on meaning has guided the semantic analysis presented in the following section. Furthermore, these semantic categories are mapped to sentential constituents differently across languages (Zlatev 1997, 2003). While the semantic resources are universal, they are realized according to language-specific conventions.

4 The semantics of non-actual motion

4.1 Non-actual motion in Swedish

Motion-verb types were counted in the data and their semantic category was determined on the basis of what type of actual motion the verbs expressed.

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6 The difference between Path and Region is similar to the distinction between *conformation* and *vector* in Talmy (2000b).

Table 2: The different verbs used by the Swedish participants.

Manner 4	Path 2	Direction 1	Cause 2	Other 2	Total 11
flyta 'float'	*sluta* 'end'	*komma* 'come'	*leda* 'lead'	*sticka* 'stretch'	
gå 'go'	*försvinna* 'disappear'		*binda* 'bind'	*fortsätta* 'continue'	
löpa 'run'					
spruta 'spurt'					

Results showed that the Swedish participants used 11 different Motion-verbs distributed over five different semantic categories, as shown in Table 2.

Considering the semantic content of these verbs, they were either generic, such as *gå* 'go' and *leda* 'lead', or did not primarily serve as verbs for Motion, such as *sluta* 'end' and *försvinna* 'disappear'. The semantically general verb *gå* 'go' can express change in time, possession and extend to virtually any domain. However, the basic meaning is a walking gait (i.e., as the English verb *walk*). It is then notable that its use in (25) cannot be substituted for similar Manner-verb, see (27). Limited to spatial extensions, the meaning of *gå* seems to be closely related to another Swedish verb: *leda* 'lead'. The latter verb can be used to convey actual motion with meanings such as 'to make something move', 'to steer' and 'to direct' (for instance steering an animal, such as a horse or goat). Outside of Motion, it can be used to express the consequence of a certain behavior, process or intention (28) or to be in charge (29).

(25) En   väg   som   **gå-r   in i**   en   tunnel.
      DET.INDF road COMP.REL **go-PRS in in** DET.INDF tunnel
      'A road that goes into a tunnel.'

(26) Avgränsning på strand-en   som   **led-er   ner   till** havet
      delimitation on beach-DET COMP.REL **lead-PRS down   to**   sea-DET.DEF
      'Delimitation on the beach that leads down to the sea.'

(27) ? En   väg   som   {**vandra-r/promenera-r/**} in i
      DET.INDF road COMP.REL {**wander-PRS/stroll-PRS/**}   in in
      en   tunnel.
      DET.INDF tunnel
      'A road that {wanders/strolls/saunters} into a tunnel.'

(28) Snabb-a lösninga-r kan **leda**   till katastrof.
     Quick-PL solution-PL can **lead.INF** to catastrophe
     'Quick solutions might have disastrous effects.'

(29) General Custer **leder**   en   armé.
     General Custer **lead**-PRS DET.INDF army
     'General Custer commands an army.'

The Swedish participants also used the Manner-verb *löpa* 'run', as in (30). As a Motion-verb, it conveys a sense close to *springa* 'run'.

(30) Ett   trä-staket   som   **löper i rät   linje**.
     DET.INDF wooden-fence COMP.REL **run.PRS in straight line**
     'A wooden fence that runs in a straight line.'

This seems to suggest that Swedish NAM-sentences can retain information about the Manner of motion. However, Manner- and Cause-verbs can be used as long as this information is demoted. Apart from the pre-given intuition that information about pace, gait, etc. should be demoted in NAM-sentences (Matsumoto 1996), it is not really clear wherein the demotion of Manner-information lies. If we extend the scope to entire clauses, it is possible to formulate this intuition more clearly. In (25), (26) and (30), the entities are described together with adverbs and prepositions contributing to the expression of Motion. In other words, the demotion lies in that the Path- and Direction-information given about a static object "overrides" the Manner-information provided by the verb.[7] This is one explanation why it typically sounds strange to qualify Manner in a NAM-expression: if the Manner-verb in (30) is modified with the adverb *snabbt* 'quickly', then the sentence is semantically deviant, as shown in (31). Alternatively, the verb *löper* might be associated with the mental scanning of the wooden fence, rather than the object itself.[8] Given such an explanation, it would be equally strange to conceive of the mental scanning as something that can be qualified in terms of adverbs such as 'quickly'.

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7 A different way to phrase the analysis of Path/Direction "overriding" Manner would be in terms of basic meaning changing to contextual meaning. That is, a verb that expresses Manner as its basic meaning can have contextual meanings where Manner is not expressed. One example of this would be NAM-sentences. I owe this important remark to one of the anonymous reviewers.
8 I would like to thank an anonymous reviewer for pointing out this alternative explanation in terms of mental scanning.

(31) ? Ett trä-staket som **löp-er snabbt** i rät linje.
DET.INDF wooden-fence COMP.REL **run-PRS quickly** in straight line
'A wooden fence that runs quickly in a straight line.'

If we understand NAM-sentences as demoting Manner-information across the clause, then it is possible to pinpoint why some sentences might be in need of an imagination-based interpretation. As discussed in Section 2, neither affordances nor visual scanning can account for NAM-sentences rich on Manner-information. With the addition of more Manner-information, either with an adverb or with verbs expressing more elaborate forms of Manner, comprehension cannot resort to conventional semantics. We could even generalize to the point of saying that the possibility to participate in sentences where Manner-information is overridden is essential for a Motion-verb in order to be regarded as "bleached". The type of sentences and constructions that participate in expressing NAM can be expected to typically include verbs and constructions already applicable to a wide array of domains. Other examples attested in the data include *fortsätta* 'continue' and *sluta* 'end', i.e., verbs that by highlighting an aspectual phase can express the continuation or end of a process in general.

The Swedish participants also provided an additional interesting type of descriptions that by definition fall outside of NAM-sentences. These involved sentences without motion verb – in fact with no verb at all – but with the adverbs *ut* and *ner* ('out' and 'down', respectively), as shown in examples (32)–(34). In these complex NPs, the adverb was combined with a preposition.

(32) En landsväg **ut genom** en tunnel.
DET.INDF road **out through** DET.INDF tunnel
'A road out through a tunnel.'

(33) Ett rör **ut genom** en tunnel.
DET.INDF pipe **out through** DET.INDF tunnel
'A pipe out through a tunnel.'

(34) Ett staket på en strand **ner mot** vattnet.
DET.INDF fence on DET.INDF beach **down towards** water.DET.DEF
'A fence on a beach down towards the water.'

It is not possible to express actual motion in this way, see (35). What could be expressed, however, is something like the view from a window, as in (36), where

the window is presented as facing towards the sea.[9] Arguably, however, what is directed toward the sea is the vantage point of a (possible) perceiver. Standing by the window, one is provided with a framed perception of the sea. In a building, windows are for *looking out*; in a sense they are there to afford and to allow a view of the outside. Thus, to look in through a window is to be a Peeping Tom, unless, of course, it is a display window.[10]

(35) * En   man **ut   mot**   strand-en.
         DET.INDF man **out towards** beach-DET.DEF
         'A man out towards the beach.'

(36) Et   fönster **ut   mot**   hav-et.
       DET.INDF window   **out towards**   sea-DET.DEF
       'A window facing towards the sea.'

In (36), the situation is different from examples (32)–(34). The window in (36), in contrast to a highway or a pipe, does not occupy the space between the house and the sea. What remains to be investigated are the cross-linguistic tendencies to express perceptual vantage points in the same way as spatial extensions. If found to be a stable pattern, this could be read as support for an extended reading of Langacker's notion of visual scanning: perception, even in the absence of a scan-able object, searches for a correlate that can stand in for the act, such as a window.

In sum, all picture types were found to elicit NAM-sentences in Swedish with generic or bleached verbs as *gå* 'go' and *leda* 'lead' together with adverbs and prepositions. Using the resources for expressing actual motion, the semantic focus of the Swedish descriptions was how the Figure as a spatially extended object was related to the spatial environment. This sense was conveyed in two additional ways:

 i. Change-of-state verbs not restricted to motion, e.g., *börja* 'begin' and *sluta* 'end' + Path-and Direction prepositions and/or adverbs.
 ii. Complex NPs with only prepositions and adverbs expressing Path and/or Direction.

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9 As Talmy correctly notes, (36) differs from the previous sentences. The path is not formed through a physical objects, but from the gaze of visual perception, what Talmy (2000a) calls *prospect path*.

10 My thanks to Göran Sonesson for pointing out the cultural affordances of windows.

Per the definition of NAM-sentences as "a sentence which in principle could describe actual motion, and by substituting the Figure-expression with one that denotes an entity that can move by its own volition", the sentences falling under (i) are instances of NAM-expressions. In contrast, (ii) cannot be used to convey the sense of actual motion and is therefore best considered a semantic sibling to Non-actual motion, which I call *Non-actual Path*.

4.2 Non-actual motion in French

The descriptions produced by French speakers were similar to the Swedish ones in that the French speakers also tended to use bleached and generic Motion-verbs for expressing NAM. The range of used motion verbs types was, however, wider, including 35 different verbs (see Table 3).

Table 3: The different verbs used by the French participants.

Manner 5	Path 8	Direction 8	Cause 4	Manner+Path 3	Other 8	Total 36
baigner 'bathe'	*entrer* 'enter'	*diriger* 'direct'	*conduire* 'lead'	*jaillir* 'spurt out'	*aller* 'go'	
écouler 'flow'	*passer* 'pass'	*longer* 'run along'	*mener* 'lead'	*s'enfoncer* 'penetrate'	*bouger* 'move'	
fuir 'flee'	*sortir* 'exit'	*monter* 'ascend'	*relier* 'connect'	*pénétrer* 'penetrate'	*deboucher* 'open into'	
marcher 'walk'	*traverser* 'cross'	*venir* 'come'	*sèparer* 'separate'		*se poursuivre* 'continue'	
s'étendre 'expand'	*arriver* 'arrive'	*se diriger* 'head for'			*transporter* 'carry'	
	retourner return'	*suivre* 'follow'			*emprunter* 'take'	
	partir 'leave'	*s'avancer* 'move forward'			*prendre* 'take'	
	accéder 'reach'	*s'approcher* 'go closer'			*continuer* 'continue'	

The generic motion verbs *mener* 'lead' and *aller* 'go' realized NAM-sentences across all stimuli types, as shown in (37)–(39).[11]

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11 The glossing of the French examples clearly deviates from standard French orthography, for instance by separating forms that are typically contracted both in speech and writing, such a *d'un -> de un*.

(37) Un   petit chemin qui   **mène**   **à** la   porte.
     DET.INDF.M small path   COMP.REL **lead.3SG.PRS to** DET.DEF.F door
     'A small path that leads to the door.'

(38) Une   barricade qui   **va**   **jusqu'à** le   horizon.
     DET.INDF.F barricade COMP.REL **go.3SG.PRS until**   DET.DEF.M horizon
     'A fence that goes all the way to the horizon.'

(39) Une   barrière qui   **mène**   **jusqu'à** la   mer.
     DET.INDF.F fence   COMP.REL **lead.3SG.PRS until**   DET.DEF.F sea
     'A fence that leads all the way to the sea.'

We can apply the same analysis to these NAM-sentences as to the Swedish ones: the verb together with a preposition expresses the continuity of the spatial extension.

As could be expected, Path-verbs were recurrent in the French data. This can be seen as clearly related to the typological characterization of French as a verb-framed language. Shown in (40)–(41) are NAM-sentences that follow the common expression of motion in French (see Blomberg 2014).

(40) Une   route qui **passe**   sous   un   tunnel.
     DET.INDF.F road COMP.REL **pass.3SG.PRS** under DET.INDF.M tunnel
     'A road that passes under a tunnel.'

(41) Une   route qui **traverse**   une   montagne.
     DET.INDF.F road COMP.REL **cross.3SG.PRS** DET.INDF.F mountain
     'A road that crosses a mountain.'

When the Figure was partially inside and partially outside the Landmark, the French speakers tended to use the verbs *sortir* 'exit' and *entrer* 'enter'. These verbs were used analogously to their use in actual motion descriptions, i.e., together with prepositions *de* 'from' and *dans* 'in', respectively, see (42) and (43). It is notable that in (42), the speaker uses the gerund form *en sortant*. This progressive form suggests the situation is construed as-if the speaker rather than the road is exiting the tunnel. Even though such constructions were scarce in the data, they might be an additional indication of an imagination-based motivation.[12]

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12 My thanks goes to an anonymous reviewer for making me aware of the progressive form as possibly indicating an imagination-based explanation.

(42) Là   c'   est   en **sortant**   **de**   un   tunnel.
here 3SG be.3SG.PRS in **exit.PRS.PTCP from** DET.INDF.M tunnel
'Here we are leaving a tunnel.'

(43) Les   canalization-s qui   **rentre**   **dans** un   mur.
DET.DEF.PL pipe-PL   COMP.REL **enter.3SG.PRS in**   DET.INDF.M wall
'The pipes that enter in a wall.'

Apart from these expected patterns of Path-verbs and other Motion-verbs applicable to a wide array of domains, the French speakers exhibited some additional patterns. One of these concerns sentences that express Direction rather than Path, as in (44) and (45).

(44) Une   route qui   se   **dirige**   **vers**
DET.INDF.F road   COMP.REL PRON.REFL **head.for.3SG.PRS toward**
une   forêt.
DET.INDF.F forest
'A road that heads toward a forest.'

(45) Un   chemin de pierre en plain milieu de l'   eau
DET.INDF.M path   of stones in.the.middle. of DET.DEF.F water
qui   **longe**   une   rivière.
COMP.REL **run.along.3SG.PRS** DET.INDF.F river
'A path of stones in the middle of the water that runs along a river.'

There were also instances of verbs conflating Manner and Path, e.g., *pénétrer* 'penetrate'. This can be interpreted as expressing the process through which the entity came to be, in the present study restricted to pipes and roads through tunnels (46). To attain the state-of-affairs, a previous force *actually* penetrating or drilling through the landscape is required. The reference to the prior process is retained in describing the present landscape.

(46) Cette   belle   conduite qui   semble   **pénétrer**
DET.DEM.F pretty pipe   COMP.REL seem.3SG.PRS **penetrate.INF**
sous   ces   roche-s.
under DET.DEM.PL rock-PL
'This pretty pipe that seems to penetrate under those rocks.'

Arguably, the function of an object can make the differentiation between actual and non-actual motion somewhat blurred. For instance, a pipe can serve as a

Table 4: The different verbs used by the Thai participants.

Manner 3	Path 5	Direction 5	Cause 2	Manner+Path 4	Other 3	Total 22
doen 'walk'	*khâw* 'enter'	*khuên* 'ascend'	*chueam* 'connect'	*chò* 'pierce'	*thai* 'take'	
phûng 'dash'	*khaâm* 'cross'	*long* 'descend'	*riang* 'put in order'	*lôt* 'penetrate'	*toò* 'continue'	
wîng 'run'	*oòk* 'exit'	*ma* 'come'		*tàt* 'cut-through'	*thòt* 'take-off'	
	phaàn 'pass'	*pai* 'go'		*thálú* 'go-through'		
	thuˇeng 'reach'	*taam* 'follow'				

conduit for transporting liquids. Even though the entity itself is static, it contains something moving. In this way, there is a possible ambiguity in the motivation to this use of NAM-sentences: either the function of actually transporting water or the spatial configuration of a pipe. Considering the multi-faceted nature of NAM discussed in Section 2, it may be expected to be *both*.

4.3 Non-actual motion in Thai

In motion typology, Thai has been characterized as an equipollently-framed language (Slobin 2004). This is due to the serial-verb constructions (SVCs) of Thai with Path, Manner and Deixis expressible in separate verbs with equal syntactic status (Zlatev and Yangklang 2004; Blomberg 2014).[13] Looking at the type frequency of produced motion verbs, the Thai speakers were in-between the Swedish and French participants (Table 4).

One of the first things to note is that the Thai speakers' NAM-descriptions did not contain verbs corresponding to Swedish *leda* 'lead' or French *mener* 'lead'. While the verb *phaa* 'lead' can be used to express actual motion, as in (47), it cannot be used to express NAM.

(47) Phuˇying **phaa** dek   pai rohngriian.
      Woman **lead** child go school
      'The woman leads the child to school.'

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13 In the semantic analysis, deictic motion was analyzed as form of Direction. Specifically, deictic motion was considered as expressing Direction according to a Viewpoint-centered Frame of Reference.

Instead, the Thai participants typically produced serial-verbs construction with some constraints dependent on the type of entity described. The SVCs often contained one Path- and one Deictic verb. In contrast to sentences describing actual motion, NAM-sentences characteristically did not contain a Manner-verb in the SVC (Blomberg 2014). Before venturing further into SVCs, let us begin from sentences containing a single motion verb.

The Thai speakers used Path-verbs such as *phaàn* 'pass' and *khaâm* 'cross'. Both these verbs were used to describe a bridge between two cliffs, see (48) and (49). The first of these, *phaàn*, has a wider range in the data and can also be used for pictures where the Figure is such that it typically passes through the Landmark, such as a road or pipe passing through a tunnel, as in (50).

(48) Mi saphan yao **phaàn** maênaám.
     COP bridge long **pass** river
     'A long bridge passes a river.'

(49) Mi saphan **khaâm** heǒ.
     COP bridge **cross** ravine
     'A bridge crosses a ravine.'

(50) Thànǒn **phaàn** umong yù bon laì-khǎo.
     road **pass** cave exist top hillside
     'A road passes a cave (that) is on the top of a hillside.'

As shown in (51)–(53), the Path/Manner-conflating verbs *lôt* 'penetrate', *tàt* 'cut-through' and *chò* 'pierce' were attested in the data, the latter only in a serial-verb construction with the two additional Path-verbs *thálú* 'go-through' and *phaàn* 'pass'. Just as in French, these Path/Manner-conflating verbs were only used to describe roads and pipes entering and exiting tunnels. The first of these is similar to the French verb *pénétrer* 'penetrate' in that the verb could be used to express the actual motion responsible for bringing about the state-of-affairs. In order to make a tunnel, one drills through the mountain. Force is enacted on the mountain; a force retained by describing the relation between tunnel and mountain with verbs such as *lôt* and *pénétrer*.

(51) Pen thang **lôt** tai umong.
     be way **penetrate** under cave
     'A road penetrates under a mountain.'

(52) Pen thàňon thî **tàt** **phaàn** phukhǎo.
     be   road   COMP **cut-through pass**   mountain
     'A road that cuts-through and passes a mountain.'

(53) Thang rotyon **chò** **thálú** **phaàn** phukhǎo.
     way   car   **pierce go-through pass**   mountain
     'A car road pierces through and passes a mountain.'

The relation between a Figure partially inside and partially outside a Landmark could also be described with the verbs *khâw* 'enter' and *oòk* 'exit', as seen in (54) and (55).

(54) Thangdoen **khâw pai** nai   umong.
     path   **enter go** inside cave
     'A path enters goes inside a cave.'

(55) Thàňon **oòk ma**   chaàk umong.
     road   **exit come** from   cave
     'A road comes out of a cave.'

Since both *khâw* 'enter' and *oòk* 'exit' mainly focus on the discrete transition between two distinct Regions (Zlatev 2003), a sense of dynamic continuity can be added not only by the deictic *ma* 'come' and *pai* 'go', but also by the verb *toò* 'continue'. Similar to *fortsätta* 'continue' in Swedish, *toò* does not express Motion *per se*, but in the context of NAM-sentences provides the continuity of the extended object beyond the transition from inside to outside. This is shown in (57) and (58).[14]

(56) Pen tho yao **toò**   kan   **oòk ma**   **chaàk** umong.
     be   pipe long **continue** PRON.REFL **exit come from**   cave
     'A long pipe continues out from a cave.'

(57) Mi tho   thî **toò**   kan   yao **khâw pai** nai   umong.
     COP pipe COMP **continue** PRON.REFL long **enter go** inside cave
     'A pipe that connects together and enters a cave.'

The previous examples illustrate the use of deictic verbs together with Path-verbs. However, both *pai* and *ma* occurred as the single verb in a NAM-sentence,

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14 The phrase *toò kan yao* in (57) is a form of lexicalized phrase with a meaning not reducible to its parts: 'connects to make long'.

see (58) and (60). *Pai* 'go' also occurred together with other motion verbs, as in (59).

(58) Mi   thangdoen **pai** nai   umong.
     COP path   **go**   inside mountain
     'A path goes inside a mountain.'

(59) Mi   tho   sueng **khuên pai**.
     COP pipe COMP   **ascend go**
     'A pipe goes up.'

(60) Pen tho   thî   **ma**   **chaàk** umong.
     be   pipe COMP **come from**   cave
     'A pipe that comes from a cave.'

These sentences indicate that the uses of *ma* 'come' and *pai* 'go' differed, with more constraints for *ma* 'come' than for *pai* 'go'. This difference was reflected in the only type of stimuli that allowed *ma* were pictures from a first-person perspective with the object extending outside the Refence entity (as shown in Figure 2). A tentative explanation must first acknowledge the importance of deictic information in Thai, which is where the motivation from experience comes in. Confronted with the choice of *pai* 'go' or *ma* 'come' in a

Figure 2: Stimuli from First-person perspective where the Figure is extending beyond the perceptual field of view.

NAM-situation, the former could be explicated in terms of Langacker's (1990) scanning analysis: when following a static object in visual perception, it could be more preferably conceptualized as a non-actual movement departing from the speaker rather than (non-actually) reaching the same. However, this does not account for the use of *ma* 'come' when describing stimuli such as in Figure 2. Here, the Figure has no apparent continuity forward in space and the road "disappears" into the darkness. It could be argued that the stimulus thereby presented less motivation for *pai* 'go', implying departure from the speaker's perspective than for *ma* 'come', implying its arrival at the speaker's location.

I have hitherto discussed Path and Direction (specifically Deixis) in NAM-sentences. Given this characterization, it seems as if the Thai speakers behaved somewhat similarly to the French participants, but with Deixis added. However, such a conjecture does not take one of the most important the important features of Thai motion expressions into account: SVCs and the recurrent pattern of combining verbs expressing Manner, Path and Deixis. In NAM-sentences, this was reflected in the form of three different Manner-verbs which occurred in SVCs: *doen* 'walk', *wîng* 'run' and *phûng* 'dash', cf. (61)–(64). These were always found together with at least one Path-verb, what Rojo and Valenzuela (2004) call *path-related manner-verbs*.

(61) Mi thang léklék   **doen khâw pai**.
      COP way   small.small **walk enter go**
      'A small road goes (in)to [a house].'

(62) Thàňon sen nuèng sueng **wîng khâw pai** bon   phukhǎo.
      road   CLF NUM   COMP   **run   enter go**   inside mountain
      'A long road that runs away into a mountain.'

(63) Pen thàňon thî   **wîng oòk ma**   chaàk umong.
      be   road   COMP **run   exit come** from   cave
      'A road that runs out from a cave.'

(64) Mi thàňon **phûng khâw** su thang.
      COP road   **dash   enter** to way
      'A road dashes into a way.'

The use of the Manner-verbs *wing* 'run', *doen* 'walk' and *phûng* 'dash' in Thai seems to be highly motivated by the typical velocity of movement along the object. Paths and small roads were described with *doen* 'walk', whereas larger roads such as freeways, where the velocity is typically faster, were described with *wîng* 'run' or *phûng* 'dash'. Manner-verbs thus convey information about how fast one tends to

move on the object in question.[15] This suggests that Manner in Thai contributes crucial information to NAM-sentences not seen in Swedish and French.

To sum up, the expression of NAM in Thai differed from Swedish and French in several crucial respects. All three types of motion-verbs were used in expressing NAM: Path and Direction-verbs independently or together, as well as Manner-verbs. The Region-changing verbs *khâw* 'enter' and *oòk* 'exit' were used in contexts where the figure did not "enter" or "exit" a landmark. This suggests that the verbs are bleached even in the context of NAM-sentences. Deictic verbs, specifically *pai* 'go' marked (at least) the vantage point of the speaker's conceptualization. I have argued that this use is both motivated from the experience of NAM and dependent on linguistic conventions. The speakers' use of *ma* 'come' was restricted to stimuli of entities from a 1pp with spatially extensions partially located outside and partially inside the reference entity (i.e., tunnel). This constraint was tentatively interpreted as experientially motivated by the lack of a forward continuation of the entity in question. In these pictures, the extended objects are not seen far beyond the tunnel entrance, as shown in Figure 2. For this reason, there is nothing that is "away" from the speaker as much as "towards" the speaker. Another tendency used only by the Thai-speakers was Manner-verbs in NAM-sentences. Dependent on whether the Figure was associated with fast or slow travel, the Thai speakers marked this difference with Manner-verbs expressing different velocities of human translocation. This contribution of Manner-verbs to NAM-sentences was not found in Swedish and French, where Manner-verbs, if they occurred at all, were bleached and interchangeable with Motion-verbs such as Swedish *gå* 'go' or French *aller* 'go'.

5 Quantitative comparisons

This section describes the quantitative results from the study, beginning from overall proportions of NAM-sentences across the three language groups before moving on to the distribution of verbs and verb types. Finally, the proportion of NAM-sentences across the four experimental conditions is described and discussed.

5.1 Proportion of non-actual motion descriptions

First of all, it was important to determine if the descriptions in the three languages were comparable. The proportions of descriptions that contained *at*

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15 Of course, the Manner-information pertains to velocity and not the type of movement associated with the entity in question. For instance, one typically *drives* and not *runs*, along a freeway.

Table 5: Percentages of descriptions with spatial information for target and control stimuli.

	Swedish	**Thai**	**French**
Target	95.3 % (*SD* = 5.5 %)	89.5 % (*SD* = 13.4 %)	89.7 % (*SD* = 8.4 %)
Control	87.0% (*SD* = 10.0 %)	86.3 % (*SD* = 16.3 %)	88.5 % (*SD* = 8.1 %)

least one clause with any or several of the spatial semantic categories are shown in Table 5.

As can be seen from this table, the speakers of all three languages produced a high number of spatial descriptions for target as well as for control stimuli, indicating that they performed according to the instructions. Approximately 40% of all spatial descriptions contained a NAM-description in all three languages, with the Thai and French groups producing slightly more on average (see Figure 3). This could be compared with the control pictures, which as expected, elicited NAM-descriptions in less than 5% for all three language groups. As shown in a paired two-sample t-test, the difference between target and control stimuli in the proportions of NAM-descriptions was statistically significant (t = 15.0, df = 42, $p < 0.001$). The differences between languages were
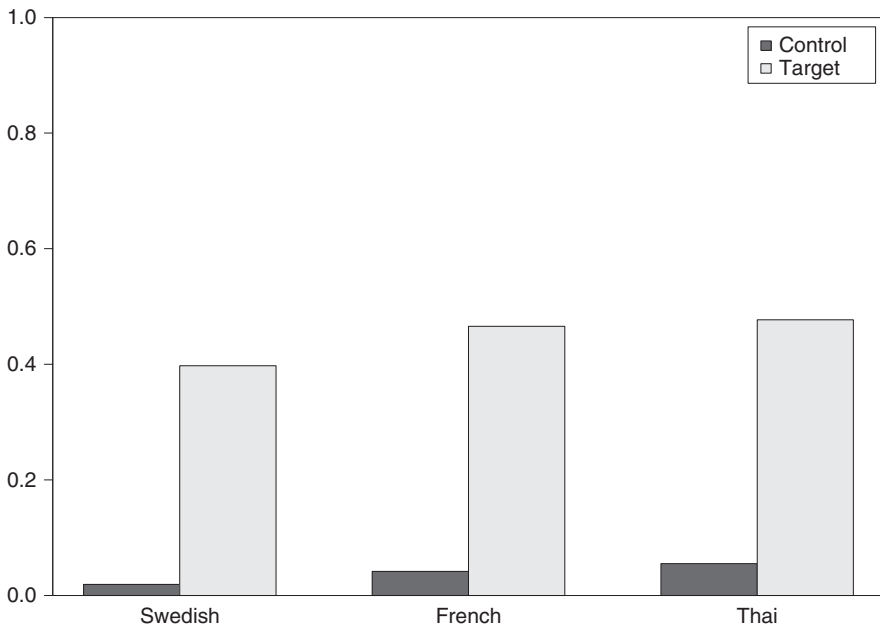
Figure 3: The proportion of NAM-descriptions in Swedish, French and Thai.

not significant. This indicates that the participants clearly differentiated target from control stimuli. Furthermore, the proportion of NAM-sentences is sufficiently high to suggest that they are not only a possible strategy, but also common and conventionalized in the three languages.

5.2 Distribution of verb types

With respect to the motion verbs used, speakers of all three languages displayed a strong tendency to prefer general motion verbs with applicability to domains other than motion and space (Table 6). The most common verbs were quite sparse on information about Manner of motion. This is in line with observations previously made by Matsumoto (1996) and Rojo and Valenzuela (2004): motion verbs in NAM-sentences must retain information pertaining to Path of motion while demoting information about Manner of motion.

Table 6: The most common Motion-verbs in Swedish, French and Thai.

	Translation	Occurrences	Percentages
Swedish verbs			
gå	go	63	39.4
leda	lead	62	38.8
komma	come	14	8.8
fortsätta	continue	10	6.3
French verbs			
sortir	exit	28	16.7
mener	lead	19	11.3
traverser	cross	17	10.1
aller	go	16	9.5
rentrer	(re-)enter	13	7.7
passer	pass	10	5.9
Thai verbs			
pai	go	79	24.1
khâw	enter	50	15.2
phaàn	pass	44	13.4
oòk	exit	23	7.0
ma	come	17	7.0
lôt	penetrate	15	5.2
tàt	cut-through	12	4.6

Percentages of total Motion-verb tokens in respective language.

The Swedish participants used the two verbs *gå* 'go' and *leda* 'lead' in almost 80% of all cases. As noted in 4.1, these verbs are widely used in domains other than actual motion. Still, that two verbs would make up almost 80% of all NAM-sentences is quite noteworthy. In addition to these two verbs, the deictic verb *komma* 'come' and the *fortsätta* 'continue' also occurred quite frequently. The latter expresses continuity and signals aspectual phases (Talmy 2000a), but when applied to NAM, it occurs together with Path/Direction adverbs and prepositions and thus participates in expressing the spatial continuity of an entity's extension.

Consistent with the larger amount of verb types, the French speakers were also more diverse in terms of verb type frequencies. Different Path-verbs were common, such as *sortir* 'exit' and *rentrer* 're-enter', *traverser* 'cross' and *passer* 'pass'. The two generic verbs *mener* 'lead' and *aller* 'go' also recurred.[16] The Thai speakers regularly used the deictic motion-verb *pai* 'go' – to a much greater extent than its opposite *ma* 'come'. Considering the dedicated slot for deictic verbs in SVC, a high frequency of such verbs is to be expected. A partial explanation for the higher frequency of *pai* 'go' is that go-verbs are often less deictic than come-verbs (see Fillmore 1997, and the discussion of visual scanning in Section 4.3). This would suggest that *pai* is more semantically general than *ma*. The verbs *khâw* 'enter' and *oòk* 'exit' were recurrent in the data, as were *phaàn* 'pass', as well as the Path + Manner-conflating verbs *lôt* 'penetrate' and *tàt* 'cut-through'.

As previously discussed, Swedish, French and Thai have been considered as prototypical candidates for the three different types in motion typology, satellite-, verb- and equipollently-framed languages (Slobin 2004; Zlatev and Yangklang 2004). How, if at all, does this transfer to non-actual motion? With very few exceptions, the experimental conditions Afford motion and Perspective did not influence verb preference.

Among the few exceptions were the two most common verbs in the French data, which exhibited differences dependent on the condition. The verb *sortir* 'exit' occurred mainly when the depicted spatial extension did not afford human motion, such as pipes (n = 20 for Non-afford, n = 6 for Afford). When the extension afforded human motion, *sortir* was elicited only for stimuli of figures drawn from a first-person perspective. No similar constraints pertained to the opposite direction, i.e., *entrer* 'enter'. Instead of *sortir*, the French speakers preferred verbs such as *traverser* 'cross' and *passer* 'pass'. This could possibly indicate that continuity and travel is associated with roads but not with pipes. While insensitive to Perspective, *mener* 'lead' showed the opposite pattern with respect to Affordance: 17 out of 19 occurrences were produced for Afford. The Swedish

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16 Interestingly, Rojo and Valenzuela (2004) found Spanish speakers to use a more diverse set of motion verbs than English speakers.

verb *leda* 'lead' exhibited a similar tendency accounting for 46 out of 62 occurrences for the condition Afford. While in part attributable to the higher number of NAM-descriptions for this condition, the difference in occurrences is so considerable that the higher number of NAM-descriptions can only constitute a partial explanation. A possible explanation is that *leda* and *mener* are goal-directed: they can express different forms of processes with a direction towards an end. It could be possible that since roads afford human motion they are seen as imbued with a telos. Fences and pipes, by contrast, are not made for human beings to travel along. The production of the two most common verbs in Thai *khâw* 'enter' and *pai* 'go' combined in a serial-verb construction, *khâw pai* 'enter go', was also constrained by the experimental conditions: 9 out of 11 occurrences were found in cases where the figure afforded motion. The use of these verbs as the only verb in a clause, or together with other verbs in SVCs, was not restricted by conditions in the same way.

The general tendency to use a restricted set of motion verbs independent of the experimental conditions speaks in favour of the conventionalized character of NAM-expressions in the three languages. At the same time, the specific preferences of some verb uses can be explained by appeal to the experiential motivations.

5.3 Non-actual motion sentences per experimental condition

We saw in Section 4 that NAM-descriptions were prolific, but we have yet to determine how they were distributed across the four experimental conditions. NAM-descriptions were most often used for the condition 1pp/Afford motion in all three languages (Figure 4). This effect was strongest for the Thai speakers, intermediate for the French group and weakest for the Swedish participants.

The data was analyzed with regression analysis with fixed and random effects for two-way interaction between the experimental conditions. This analysis found that Afford Motion + 1pp differed significantly from the other conditions ($\chi^2 = 11.8$, df = 1; $p < 0.0001$). Three-way interaction with language as a third factor was not significant ($\chi^2 = 13.2$, df = 8; $p = 0.10$). The large differences between control and target stimuli (see Figure 3) make a strong case for the prevalence of NAM-sentences in the three languages. This could possibly be explained by appeal to an explanation along the lines of visual scanning. However, it cannot account for the significant differences between the experimental conditions. The motivation from self-motion would explain why NAM-descriptions were most strongly elicited under the conditions of Afford + 1pp. Finally, the dominance of Afford + 1pp could also predicted by the imagination-based hypothesis, but the actual verbs used (with the possible exception of the Manner-verbs in Thai) do not support this notion.
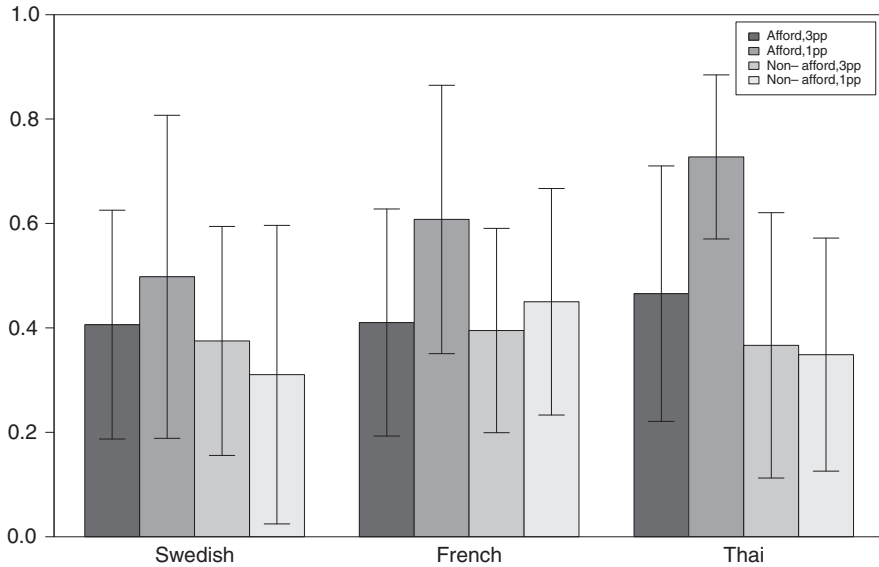
Figure 4: Proportion of NAM-descriptions per stimuli type and language; error bars represent standard deviation.

In sum, the results support the multi-motivated character of NAM: all three motivations were found to have a decisive role in the production of NAM-sentences to different degrees. This proposes that NAM is a hybrid phenomenon covering several experiential motivations conventionalized differently across languages.

6 Discussion: Towards a typology of non-actual motion in language

All stimuli types elicited NAM-descriptions in all three languages. From this, it can be concluded that NAM-sentences are highly conventionalized in Swedish, French and Thai. Speakers of all three languages described pictures in ways that suggest a connection to motion, such as dynamism, aspectual phases, vantage point, and so forth. Even if all three languages have the resources for expressing NAM, they realize these differently in ways clearly reminiscent of how actual motion is expressed in each respective language. The Swedish speakers used (bleached or generic) Motion-verbs together with Path/Direction adverbs and

prepositions. This naturally follows from the few Path-verbs in Swedish: among the few examples are *korsa* 'cross' and *passera* 'pass'. These were not attested in the present study. The French speakers produced both Path-verbs and generic Motion-verbs and the Thai speakers produced serial verb-constructions Path- and Deictic verbs and sometimes also with Manner-verbs. These variations between languages indicate how the pre-linguistic experiences discussed in Section 2 adapt to the internal logic of language-specific semantic conventions and constraints.

Several different types of NAM-sentences were detected, some common to all and some unique to one of the three languages. Both Swedish and French participants used generic Motion-verbs to express NAM, as in (65) and (66). These types of expressions were not sensitive to the stimuli described.

(65) En   väg   som   **gå-r   in i**   en   tunnel.
      DET.INDF road   COMP.REL **go-PRS   in in** DET.INDF tunnel
      'A road that goes into a tunnel.'

(66) Une   barricade qui   **va**   **jusqu'à** l'   horizon.
      DET.INDF.F barricade COMP.REL **go.3SG.PRS**   **until**   DET.DEF.M   horizon
      'A fence that goes to the horizon.'

Both the French and Thai speakers used Path-verbs, as in (67)–(68), including enter/exit verbs; see (69)–(70).

(67) Mi   saphan **khaàm** hěo.
      COP bridge **cross**   ravine
      'A bridge crosses a ravine.'

(68) Une   route qui   **traverse**   une   montagne.
      DET.INDF.F road   COMP.REL **cross.3SG.PRS** DET.INDF.F   mountain
      'A road that crosses a mountain.'

(69) Thangdoen **khâw pai** nai   umong.
      path   **enter go**   inside cave
      'A path goes to the inside of a cave.'

(70) Les   canalization-s qui   **rentrent**   **dans** un   mur.
      DET.DEF.PL pipe-s   COMP.REL **enter.3PL.PRS**   **in**   DET.INDF.M wall
      'The pipes that enter into the wall.'

These sentences are similar in that they use (a) generic Motion-verbs and/or (b) the language-specific conventions for actual motion. From this baseline of characteristic or typical NAM-sentences, there are related sentences where the reference to motion is diminished, but which still (i) clearly use the vocabulary and the constructions of motion and (ii) evoke the sense of motion. One clear examples of this type were complex NPs with "dynamic" (Path/Direction) pre-positions and adverbs in Swedish, as in (71).

(71) Ett   rör   **ut genom**   en   tunnel.
      DET.INDF pipe **out through** DET.INDF tunnel
      'A pipe out through a tunnel.'

Since they evoke dynamism and change, sentences with a verb expressing change of state or aspectual phases are semantically somewhat similar to the complex NPs above. These verbs, which are found in all three languages, are used in NAM-sentences to express the change of something immobile. Limited to their spatial uses, these verbs have a reduced element of motion, as in (72)–(74).

(72) En   häng-bro   som   **börja-r**   i   botten av bild-en.
      DET.INDF rope-bridge COMP.REL **begin-PRS** in bottom of picture-DET.DEF
      'A rope bridge that begins in the bottom of the picture.'

(73) Une   haie   qui   **avance**   **vers**   la   mer.
      DET.INDF.F hedge COMP.REL **advance.3SG.PRS** **toward** DET.INDF.F sea
      'A hedge that advances toward the sea.'

(74) Pen tho yao **toò**   kan   **oòk ma**
      be   pipe long **continue** PRON.REFL **exit come**
      chaàk umong.
      from   cave
      'A long pipe continues out from a cave.'

A third type of NAM-sentence has the opposite character of involving more information about the type of movement involved. This can be made in different ways. In this study, we found two such strategies. One is by reference to the actual motion involved in attaining the particular static situation, as in (75) and (76), and another way is to use Manner-verbs that convey the velocity associated with traveling on the Figure, as in (77). This can, of course, be seen as an effect of the fact that the stimuli only represented linear extensions in space. With a material also comprised of objects with different shapes and forms, it is possible

that the degree of Manner-information would have been higher (though possibly still not very high – see Rojo and Valenzuela [2004]).

(75) Cette   belle   conduite qui   semble   **pénétrer**
DET.DEM.F pretty pipe   COMP.REL seem.3SG.PRS **penetrate.INF**
sous   ces   roche-s.
under DET.DEM.PL rock-PL
'This pretty pipe that seems to penetrate under those rocks.'

(76) Pen thang **lôt**   tai   umong.
be   way **penetrate** under cave
'A road penetrates under a mountain.'

(77) Thàňon sen nueng sueng **wîng khâw pai**
road   CLF NUM   COMP **run   enter go**
bon   phukhǎo.
inside mountain
'A long road that runs away into a mountain.'

On the basis of (at least) these three different types of NAM-sentences, it is possible to make further generalizations according to the degree of semantic information expressing motion. The least specific type includes sentences expressing Path but not Motion. These are sentences with information only about the spatial relation construed in somewhat dynamic terms. The clearest cases were the complex NPs in Swedish with Path adverbs/prepositions. Such expressions involve specifications of the spatial extension with elements associated with motion. I call this *Non-actual Path/Direction*. NAM-sentences with generic Motion-verbs or verbs conflating Path and Motion are, in terms of the degree of motion involved, one step up the hierarchy. In contrast to Non-actual Path, the spatial relation is not only dynamically conceived but explicitly relies on motion verbs. A third and final type of NAM-sentences use Motion verbs expressing more elaborate evocations of motion. This is what may be called *Non-actual Movement*. In such sentences, the Figure is described with more elaborate forms of movements, which can either relate to the shape of trajectory (e.g., 'zigzag', 'snakes') or the type of movement the entity is associated with, such as the Thai speakers use of Manner-verbs expressing different velocities dependent on whether the described object is associated with faster and slower travel. Non-actual movement would thus not only describe a spatial configuration with terms of motion, but also include information about state came to be or something about the motion associated with the extended object in question.

Table 7: The three types of Non-actual sentences ordered in an implicational hierarchy

	Non-actual Path	< Non-actual Motion	< Non-actual Movement
Characteristics:	No Motion-verb; Change-of state verbs; Path-prepositions	Generic Motion-verbs; Path verbs	Manner-verbs; Shape-verbs

In sum, the preceding discussion leads us to a three-tiered hierarchy from Non-actual Path via Non-actual Motion to Non-actual Movement. This corresponds to an implicational hierarchy, such as those used in typology (Greenberg 1963), stating that if a language has a particular type of structure then it must also have all levels to the left of it (see Table 7).

Future research should explore the availability and usage of these three general types of non-actuality across languages. The present study was not designed to elicit expressions of Non-actual Movement, and was therefore unable to provide systematic data in this regard. Due to the scarcity of studies on NAM-expressions, the research priority was rather to operationalize the motivations and to implement them in a limited and consistent stimulus material designed to elicit NAM-expressions across languages. With the knowledge that speakers of languages as diverse as Swedish, French and Thai regularly and spontaneously used NAM-sentences in the present experimental set-up, upcoming studies should preferably include various forms of non-linear configurations as well as systematically differentiating between entities allowing for fast and slow travel.

7 Conclusion

In this article, I have explored expressions where motion verbs are used to describe static configurations in space, what may be called Non-actual motion sentences. The present study made the distinction between different possible experiential motivations (based on Blomberg and Zlatev 2014). The three motivations were affordance for motion as directly connected to self-motion, scanning and imagination of motion. These were used to design stimuli for cross-linguistic investigations. Through an elicitation-based study on Swedish, French and Thai, it was found that speakers of all three languages use NAM-expressions prolifically. This supports arguments for the universality and strong cognitive basis of this linguistic phenomenon.

NAM-sentences were in all three languages most common for stimuli of affording motion entities represented from a first-person perspective. This result was interpreted as most strongly in favour of the motivation from self-motion, but support was also found for the role of imagination and scanning. Since all motivations were supported to some degree, this speaks for the hybrid nature of NAM. Future research should add more languages to investigate whether this is a stable cross-linguistic observation.

A tentative hierarchy ranging from Non-actual Path via Non-actual Motion to Non-actual Movement was proposed. Where Non-actual Motion expresses spatial continuity with the help of motion verbs, Non-actual Path signals beginning and endpoints with resources closely connected to motion. Non-actual Movement adds more motion information pertaining to Manner. That is, if a language has expressions for the latter, then they also have the other two types of expressions. With the addition of more languages, the validity of the proposed hierarchy can be tested.

Even though the three different languages groups behaved similarly, a semantic analysis of NAM-expressions showed that the resources for expressing actual motion were retained. The difference between actual and non-actual motion lies in the fact that the latter strongly relies on semantically bleached and generic motion verbs. The only exception was the Thai speakers' use of Manner-verbs to differentiate between the types of velocity associated with different figure. In sum, NAM-expressions are not only motivated from experience but are also highly conventionalized with clear language-specific constraints on their formation.

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