# Towards a Cognitive-Semiotic Typology of Motion Verbs

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**Preamble: Setting the scene – the cognitive semiotics of motion**

The present paper argues that the lexico-grammar of spatial *Motion* (as a supercategory for dynamic movement and static location, cf. Talmy 1985) cannot be understood except as an integral part of the semiotic triad of reality, mind, and language. Motion in language should thus be explained on the basis of the (Gestaltist) psychology of motion in *perception*, in that language 'structures' the mind's construction of motion in reality. Accordingly, the typology of motion verbs is based on an experientially founded typology of motional situations in mind. A mental motional situation is perceptual, or 'pictorial': Human beings perceive motional situations in reality by forming (concrete) 'pictures' of them with diverse figure-ground constellations – and recognize them as belonging to different categories (according to stored percepts). There are two kinds of picture, viz. static, or 'stable', and dynamic, or 'unstable', roughly according as the figure is static or dynamic. Furthermore, we seem to be able to construct only one situational picture at a time. A single situational picture is a simple mental Situation – a stable picture is a 'state', and an unstable picture an 'activity'. So far the notion of Motion has been *Perceptual*. Now, it goes without saying that the 'mentality' of Situations involves much more than simple perceptual Situations, in that situations may be conceived of as possibly integrated with one another into 'complex' Situations. A "snapshot" of what at first sight might seem to be only a state or an activity may thus show out to be the endpoint or the starting point "window", respectively, on an integrated, complex Situation involving an Activity and a State, what will be called an Action. In the first case, the State in focus would be preceded by a *causal* Activity; in the second case the Activity in focus would be succeeded by a *resultant* State, in the normal course of events. The connection between the two simple Situations in a complex actional Situation is a general relation of *telicity*, the causal Activity tending to actually eventuate in the resultant State. The state-focused Action will be termed an Event, whereas an activity-focused Action will be termed a Process. Illustrating this, we may conceive of a scenario where I am sitting alone in the drawing room, then leave for the kitchen and come back, and lo and behold, *you are sitting there*! This may be conceived of as a Motion Situation, viz. a Motion Event, where you are sitting here as a result of your, say, returning home from work, and I may second it by the utterance *Nå, du er kommet hjem fra arbejde* 'oh, you've come home from work'. In this case the motion *for me* was only conceptual, in that I didn't see, or otherwise witness it, but only inferred it. We may thus talk about *Conceptual* motion in such cases. When now turning to language (as a system) and the typology of motion verbs in the mental lexicon, we must add the Sign Vehicle, i.e. the phonological expression, as a representation of Percean Firstness. The linguistic Sign Object (Secondness) and Sign Interpretant (Thirdness) then recall the mental perceptual and conceptual structures, respectively, just mentioned. So the sign contents are two-fold, the linguistic cognitive-semantic domain being bipartitioned into an (abstract) perception-based 'imaginal' representation (cf. Spatial Structure in Jackendoff 2002) and an (abstract) conception-based 'ideational' representation (cf. Conceptual Structure in Jackendoff 2002).

What we mean by this is that whereas there is only one single reality "out there" (the dynamical, referential object of the sign when used, e.g., a motion event perceived), there are two mental contents to grasp it. In the first place reality is mirrored by the perception-based Image (the immediate object), which is a typification of a mental picture, but additionally it is *interpreted* by the conception-based Idea (the immediate interpretant). Thus, according to the present model, a motional verb sign is an "omnipotent" *symbol*, applicable to any situation covered by its contents (Durst-Andersen 2009). On the image level, it is determined whether it may be used to refer to a simple or a complex motional situation; evoking a stable or an instable picture in the usage situation; recalling a specific figure-ground constellation. This experiential level is the basis for the interpretive ideational-propositional level where the imaginal content is interpreted logically as rhematic, in the Peircean sense of a predicate, and this rheme is 'telescoped' into a propositional and even an argumental representation. This is most obvious in the case of actions: corresponding to the causal activity situation we have an activity proposition p and to the resultant state situation a state proposition q, connected by the logical relation of implication. A process focuses on the causal activity, this triggering the 'assertion' of p, whereby q may (come to) be true; whereas an event focuses on the resultant state, this triggering the 'assertion' of q, whereby p may (have) be(en) true.

The proposed framework makes it possible to distinguish motion events from motion in a wider sense and to give a precise and coherent interpretation of Talmy's variables *Figure*, *Ground*, *Manner* and *Path* (Site). The final result provides a basis for describing and explaining not only already observed differences between languages, but also differences that have gone unnoticed.

## 1. Background, aims, and scope

### 1.1 Lexicalization typology

Motion event research has grown into a well-established and highly productive field. Its theoretical cornerstone are the classic studies by Talmy (1975, 1985; for further refinements, see 2000: 25ff.), supplemented by works primarily by Slobin (e.g. 1996a/b; 2004a/b), but also by others (for an overview, see Mora Gutiérrez 2001). Despite the overwhelming amount of specific works within motion event research and despite the seemingly growing awareness of the need for a more fine-grained, less schematic approach than the Talmy-Slobin framework, the core assumptions and variables of the framework nevertheless are still upheld. Talmy's basic assumption is that even though people's pre-linguistic conceptualization of e.g. a directed Motion Situation appears to be universal – involving the same fundamental components to be lexicalized (apart from Figure and Ground, *Motion* itself, *Manner* of Motion, or *Cause*, and *Path* (i.e. trajectory), the ways of linguistically lexicalizing it in different languages are not the same because not all the components are able to be co-lexicalized in the same (verbal) morpheme in a *major* lexicalization system (Talmy 1985: 76): apart from cases where only Motion is lexicalized in the verb, as in English *move*, either the Manner component co-lexicalizes with the Motion component in the verb, leaving the Path behind to be lexicalized in a so-called Satellite, as in Manner languages, or it is the Path component that is lexically 'incorporated' into the *verb*, in so-called verb-framed or Path languages, whereby the Manner component becomes secondary, left for optional expression in a con-verb or adverb. Thus, we have a nice binary typology of major lexicalization patterns, and derivatively of languages, in that it is assumed that at least most languages fit into one of these types:

- **Manner (or, satellite-framed) languages**, like e.g., Danish, Swedish, English, German, Russian, and Chinese, where only the *Manner* of motion is lexicalized in the verb root together with Motion, while the direction or Path of motion is explicated elsewhere when

required, through the addition of a Satellite in the shape of a particle (preposition/adverb) or a prefix. Example (1) is a cardinal example of a Manner conflation from English:

| | | | | |
|---|---|---|---|---|
| (1) | The lorries | drive | over | a weighbridge |
| | Figure | Motion+Manner | Path | Ground |
| | | [Activity Telicity | Event]$_{Action}$ | |

Here the Motion+Manner conflation is encoded morphosyntactically by a single verb root *drive*, its meaning being a spatial 'activity', or locomotion. In order that the (concrete, manner-specific) locomotion be 'directed', we have to also encode a Path concept, and this is done adverbially, by a Satellite, in this case *over*. By adding this Path concept in the shape of an adverbial Satellite, denoting a spatial change-of state (event), the simple spatial activity verb now becomes the nuclear part in a spatial *'action' frame* denoting *Relocation* (Smith 2003, 2005, 2006), i.e. the displacement of an entity from one Location to another. In order that the combination of the spatial activity (*drive*) with the spatial Path (*over*) may come to denote an 'action', a notion of *telicity* must be implied (i.e. conflated, or incorporated) between the activity component and the change--of-state component: the movement determines, or 'causes' the change of state (cf. Durst-Andersen 1992; cf. also Foley & Van Valin 1984). The dynamic imaginal content of the verb plus the (ultimately) static image evoked by the Satellite are paired with two ideational sub-propositions, p and q, for the activity and the state, respectively. The Action is the logical conjunction of p and q (p&q) – both the antecedent and the consequent must be true for the conjunction to be true. The Figure role of the activity (*the lorries*) is coreferential with the Figure role implied by the relational Satellite *over*. This second Figure is then seen in relation its Ground role (*a weighbridge*). Semantico-syntactically, the Motion+Manner—Path lexicalizations comprise a 'complex predicate' (Nedergaard Thomsen 1991, 1992), with the Motion+Manner conflation being a 'host predicate' and the Path lexicalization a 'co-predicate'.

The opposite member of the lexicalization typology is the following Path profiling type:

- **Path (or, verb-framed) languages**, like e.g., French, Italian, Spanish, Modern Greek, Turkish, and Japanese, where the verb roots co-lexicalize *either* Manner *or* Path, in addition to Motion, but not both, e.g., Fr. *courir* 'run' (Manner) vs. *entrer* 'enter' (Path), but where only the Path verbs conflate Motion with change of location, leaving Manner to be explicated elsewhere in the clause structure, e.g., Fr. *à pied*, *en avion*, *en courant*, if at all. A prototypical example of a Path conflation is seen in the following example (2) from Spanish:

| | | | | | | |
|---|---|---|---|---|---|---|
| (2) | a. | La remolacha | llega | a | la fabrica | en camiones |
| | | the beet[s] | arrive(s) | (to) | the factory | in lorries |
| | | Figure | Motion+Path | (Path) | Ground | Means/Manner |
| | | 'The sugar beets arrive at the factory in lorries' | | | | |

What this example shows is that the *verb* root in this type of language (or, construction) in itself denotes a directed motion, or change-of-location: the abstract Motion component conflates with an abstract Path component into a verb root, here *llega* 'arrives'. Only when there is enough informational focus on the Means/Manner component does it become formulated in a modifier, as in this example *en camiones* 'in lorries'. Note that

the prepositional Path *a* is actually an analytic case proclitic (here, allative). The Manner role in this instance functions at the same time as a Container (Vehicle) and thereby Location Site (*en* and secondary Ground *camiones*) for the Figure. We must, however, distinguish between the above construction in (2a) and one in which the Manner of Motion is encoded in a verb stem, cf. (2b):

(2) b.

| El globo | se fue | por | la chimenea | volando |
|---|---|---|---|---|
| the balloon | refl went | through | the chimney | flying |
| Figure | Motion+Path | Path | Ground | Motion+Manner |

'The balloon flew away through the chimney'

Syntactically the gerund *volando* 'flying' is a predicative attribute denoting a Circumstance activity of the main predication 'event' (Hengeveld & Mackenzie 2008: 264). It describes the Manner Activity leading up to the change of Location denoted by the main predicate *se fue* 'went away', which denotes a motional 'event', i.e. an Action with a resultant State profile. Note that the end point of the Locomotion ('outside the chimney') is not within the scope of predication – only the Trajectory Path is specified by the perlative *por* 'through'. Here it is important to be precise with respect to the distinction Verb-framing vs. Satellite-framing: the Verb-framing construction in Spanish denotes a motional 'event' where the Circumstance is left unspecified, as in (3a), but a motional 'process' with a gerund con-verb, as in (3b):

(3) a. Llegó
arrived:3
'He arrived' (event)

b. Llegó corriendo
arrived:3 running
'He arrived running' (process)

c. Llegó cantando
arrived:3 singing
'He arrived singing' (process)

The activity denoted by the predicative attribute in (3b) converts the mode of action of the construction from 'event' in (3a) (state focus) to 'process' (activity focus). It should also be mentioned that the function of the con-verb is *not* in itself to encode (or specify) a latent Manner component of a *total* motional action (as seems to be implied by Talmy's model of carving out the same conceptual input), as is evident from the example in (3c) – 'singing' is not a motional Manner. In the Satellite framing construction, the Satellite (denoting an 'event') turns a motional 'activity', profiling a motional Manner, as in (4a), into a motional 'event', as in (4b), all from Danish (' means full stress; $_{o}$ means reduced stress):

(4) a.

| Han | 'løb |
|---|---|
| he | ran |

a'.

| Han | 'løb | hele vejen hjem |
|---|---|---|
| he | ran | all the way home |

b.

| Han | $_{o}$løb | hjem |
|---|---|---|
| he | ran | home |
| Figure | | Path |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| c. | *Han | $_{o}$sang | hjem | | c'. | Han | 'sang | hele vejen hjem |
| | he | sang | home | | | he | sang | all the way home |

As should be expected, an activity which does not denote a Manner of motion cannot occur in a Satellite framing construction, cf. (4c). Note that a seeming Path Satellite (*hjem* 'home') in (4a') and (4c') is only part of a measure adverbial. In Danish, event Satellites may occur on their own, cf. directive *ned!* '[move] down!' In so far as a Satellite framed language like Danish and English uses a Path Satellite to convert an activity into an event, it may apply a sequence of Satellites to denote a sequence of changes of location involving the same 'travelling' Figure, whereas a Verb framed language like Spanish has to apply a sequence of Path-specifying verbs (cf. Slobin 1997: 438). For some examples, see (20) below.

However, the typology is not exhaustive yet: it shows out that there are (a) two more types of languages, and (b) two more types of lexical conflations, namely (a) 'equipollently-framed languages' where there are two Motion verbs, i.e. a Manner verb followed by a Path verb; (a/b) Figure conflation (as in Atsugewi, Talmy 1985); and (b) Path+Ground conflation in deictic verbs, where the Speaker is Ground and the Path is Goal or Source.

- **Equipollently-framed, or Manner-Path, languages** (Slobin 2004a: 226), as e.g. Chinese, offer a typological alternative to Path (Verb-framing) and Manner (Satellite-framing) languages, in that they evince serial verb constructions, involving Manner and Path verbs as equipollent verbal elements in sequence, cf. (5) from Chen & Guo (2008):

| | | | | | |
|---|---|---|---|---|---|
| (5) | Wǒ | pǎo | chū | le | chúfáng |
| | I | run | exit | pfv | kitchen |
| | Figure | Motion+Manner | Motion+Path | | Ground |
| | 'I ran out of the kitchen' | | | | |

In this example there is both a Manner verb and a Path verb, in this iconic, diagrammatic order. The Manner verb denotes an activity and the Path verb an event (state focus). On a higher level of conceptualization they correspond to an action, which assigns the notion of telicity between the activity and the state. Notice that the Manner and Path verbs are not restricted to occur in series, they may occur on their own (hence the term equi-pollent).

- **Deictic motion verbs** (Fillmore 1975; Nakazawa xxx) co-lexicalize Motion with Path plus, as Ground, the Speaker's location in the utterance situation from where he can see the Figure, cf. (6) from Zúñiga (2006: 172). In Chinese, as in other serializing languages, the Deictic verbs often demarcate the Manner+Path verb series, cf. (6):

| | | | | | |
|---|---|---|---|---|---|
| (6) | Tā | zǒu | jìn | **lái** | le |
| | he | walk | enter | **come** | pfv |
| | Figure | Motion+Manner | Motion+Path | **Motion+Path+Ground** | |
| | 'He walked in where I am/towards me' | | | | |

Languages may differ as to whether the Path conflated in Deictic verbs is bounded finally ('to', as in English *come*) or unbounded finally ('towards', as in Chinese *lai* '"come"' and English *go*), or is bounded initially (as in English *go*) (Nakazawa xxx).

Notice that deictic motional action verbs like English *go* indicate that the resultant state may be 'negative' ('begin not to be at Utterance Location').

- In a **Figure language** (as e.g. Atsugewi, cf. Talmy 1985: 72-74), imaginal characteristics of the Figure are conflated in the verb root, cf. (7):

| | | | | | |
|---|---|---|---|---|---|
| (7) | /´-w | -ca | -st´aq´ | -ic´t | -$^{a}$/ |
| | | from:wind: | for:runny:icky | into:liquid | |
| | 3$^{rd}$ ps. | blowing:on:Figure | material:to:move | | factual |
| | | Force | Motion+Figure | Path | |

'The guts blew into the creek'

A number of sub-issues have been subject to more detailed investigation, including (a) the exact place of particular languages in the lexicalization typology (e.g., Zlatev & Yangklang 2004; Zlatev & David 2004; Berthele 2004; Ibarretxe-Antuñano 2004; Fong & Poulin 1998; Smith 2003, 2006; Ozol 2004); (b) the possible impact of cross-linguistic, typological differences on non-linguistic thinking and problem solving (e.g., Pourcel 2005; Papafragou et al. 2002; Gennari et al. 2002; Herslund & Baron 2003; Slobin 1996b); (c) the impact of communicative settings, rhetorical norms, etc. on the speaker's actual choice among the options offered by any given language (e.g., Strömquist & Verhoeven 2004; Berman & Slobin 1994; Korzen 2005); and (d) the actual consequences of the typological differences for cross-linguistic communication and translation (e.g., Rojo & Valenzuela 2001; Slobin 1996a, 2005; Ibarretxe-Antuñano 2003; Willemoes 2008; Vovk 2008).

### 1.2 The prerequisites for a classification of motion verbs

In the present paper we shall argue that a proper understanding of the linguistics of Motion will need the following cross-classifications:

- **Situation**: motion event semantics is fundamentally based on *space*, so we will need a **typology of Situations** that is founded on experiential structures other than time (for some examples of time-based theories, see Vendler 1967, Langacker 1991, Lyons 1977): as stated in the preamble, the typology is founded on visual perception, differentiating simple Situations (one picture) from complex ones (two pictures). Within the former, simple situations, it distinguishes between states (stable pictures) and activities (unstable pictures), and within the latter it distinguishes what could be termed 'moving', e.g., waving one's hand, from simple loco-motion, e.g., moving in a certain direction (e.g., walking) or in various directions within the limits of one location (e.g., walking around). Complex motion is, e.g., going from one location, source, to another, destination, via a trajectory. The latter kind of motion is often referred to as "motion event", "translocation", "directed motion" or "translational motion", and the corresponding verbs are called "directed motion verbs", "change-of-location verbs", etc.

- **Ontological domain**: the following two classifications concern the semantics of verbs and verbal expressions, in terms of on the one hand the **typology of conceptual representations of domains of reality**, what is known as 'process types' in Systemic-Functional Linguistics (cf. Martin & Matthiessen 1990), on the other in terms of semantic construals of Situation types, i.e. *Aktionsart*s or modes of action (cf. above). What is meant is that verbal Situations, before they are classified into modes of action, are distinguished into different domains of reality, primarily space – especially

relevant for this paper – possession, mental experience, and lastly quality: it is obvious, for instance, that the English verbs *have* (State), *administer* (Activity) and *give* (Action), over and above representing different verb classes according to mode of action, all three have in common that they involve the domain of reality 'possession'. In the same way Russian *stojat'* 'stand' (State), *idti/xodit'* '[+/–intense] walk' (Activity), and *ujti/uxodit'* '[imperfective/perfective] leave by walking' (Action) all represent the three different modes of action, but superordinately they all involve space, more narrowly 'spatial position' [+vertical]. This kind of typology is needed, because it turns out that if a language focuses on the concrete notion of 'spatial position' or on the abstract notion of 'existence', it will do so in every *Aktionsart*. We'll come back to that later.

- Experiential **mode of action**: on this level a **classification of verbs** and verbal expressions involves reference to two distinct, but interrelated (sub-)levels, i.e. the experiential, image-based level and, paired to it, an ideational, proposition-based level. A verb, then, is an image-idea pair. On its experiential, image level, it is classified with respect to 'mode of action' types corresponding to the above pre-linguistic Situation types, viz. State, Activity, and Action. Furthermore, on this level, the verb occurs in a 'participation' frame where perceptual functions such as Figure, Ground, Manner, and Path are relevant. On the ideational, propositional level the verb is represented as a propositional structure that interprets its type of experiential image (cf. Situation) in terms of implied propositions. On this level the verb has a propositional frame (to which we return later). Recognizing the two semantic levels allows us to detect and describe differences between corresponding verbs and verbal expressions in different languages that even though they refer to the same situation in reality, interpret it differently. Thus, a motion Situation – as shown in (1) and (2) above – may be construed by a Manner verb in one language and a Path verb in another: e.g., Eng. *Walk into the room*; Fr. *Entrer dans la chamber*; Rus. *Vojti/vxodit' v komnatu*. In the Satellite-framing case, the Path (change-of-state) coding Satellite (lexical preposition *into*) is required for the clausal nucleus to denote a motional 'action', in that the verb itself denotes an 'activity'; whereas in the verb-framing case, the external Path specification is in some sense redundant, Path being inherent in the Path coding 'action' verb. In Slobin's terms, the 'thinking for speaking' of a Manner language like English requires Manner (except for motion verbs of French origin, like *arrive*), whereas the one of a Path language like French doesn't. Focusing on 'actions', which are composed of a dynamic activity and a resultant state, may either be, basically 'processes', profiling the activity, or 'events', profiling the resultant state. The Danish verb *stille* 'put' has these two variants, event being realized by full stress retainment (8a), process by stress reduction (8b):

(8) a. Han 'stillede mælken i køleskabet
he put milk-the in fridge-the
'He put the milk in the refrigerator' (event)

b. Han $_{o}$stillede mælken i køleskabet
he put milk-the *into* fridge-the
'He put the milk into the refrigerator' (process)

- The 'event' views the Situation from the *vantage point* of the resultant state and "looks back" onto the causal activity, whereas the 'process' takes its point of departure

in the activity and "looks ahead" towards the resultant state. Note that the unitary stress in (3b) indicates a close-knit connection between the framing satellite, denoting Path, and the motional verb – the latter may be said to incorporate the former (cf. Nedergaard Thomsen 1991, 1992, 2002b). In this connection it must be stressed that grammatical operators of Tense-Aspect-Mood must in principle be left out of consideration when cross-classifying the verbal lexemes. Accordingly, the different presentations of the same event denoted by the same verbal root (lexeme) have nothing to do with verb classifications/typologies: accordingly, e.g., *walking into the room* and *walked into the room* both denote a motional action, i.e. relocation.

- This leads us directly to a cross-classification of verbs and verbal expressions in terms of **morphosyntactic function** and **morphosyntactic technique**: The English expression *walk into* is in terms of function a **complex predicate** (Nedergaard Thomsen 1991, 1992, 1998, 2002a/b), in terms of technique it is a phrasal verb. The nuclear verb is host predicate, and the directional or Path Satellite performs the role of co-predicate. In isolating, serializing languages, as in Mandarin Chinese above, the morphosyntactic technique is (diagrammatic) serialization, and the corresponding complex predicate is a sequence of **equipollent sub-predicates**, and in languages relying heavily upon morphology the technique may of course be one of compounding, incorporation, or suffixation. In a polysynthetic language like for instance Mapudungun (Zúñiga 2006), a kind of morphological serialization is found, cf. (9), where the first verb root denotes Manner of motion (9a) or a Circumstance (9b), both from Zúñiga (2006: 168):

(9) a.

| Rüngkü- | kon- | -i | ruka | mew |
|---|---|---|---|---|
| jump | enter | indic | house | pop |
| Motion+Manner | Motion+Path | | Ground | Path |

'He jumped into the house'

b.

| Ülkantu- | yekü- | pa- | -y |
|---|---|---|---|
| sing | arrive | towards:Speaker | indic |
| Circumstance | Motion+Path | Motion+Path+Ground | |

'He came (towards Speaker) singing' (cf. Span. 'vino cantando')

- Continuing with morphosyntax, a distinction should be drawn between clausal grammar and text grammar, where a **clause** is a clause-grammar unit that contains a unified predicate (any Motion verb or Motion verb construction), i.e. "a predicate that expresses a single situation" (Chen & Guo 2008: 7), and an **episode** is a text-grammar unit which is semantically delimited as "the movement of a major protagonist, beginning from a stationary position and continuing to move until arriving at another stationary position where a plot-advancing event occurs" (Özçalışkan & Slobin 2003: 260). What appears to be treated as one single situation and clause in one language may be treated as a sequence of situations and clauses, an episode, in another. Thus, languages (types) may prefer divergent **scales** for the presumably 'same' cognitive content.

As a basis for further analysis we will make the following assumptions, where at least the first two are also an integral part of Talmy's general approach: it is assumed (a) that the semantic modelling required must incorporate insights gained on pre-linguistic visual cognition, (b)

that figure/ground segmentation is a key variable in humans' perception and conceptualisation of real-world situations, and (c) that all motion detection relies on some form of 'delay-and-compare' processing, i.e. the comparison of contradictive visual information over time (see, e.g., Rasche 2005; Borst 2000; Zacks & Tversky 2001). Much seems to suggest that the delay-and-compare processing can be performed on two distinct cognitive levels and that "motion" is hence two very different things from a cognitive viewpoint. In a study by Blaser & Sperling (2008), the term Perceptual (or Visual) Motion is suggested for motion detected through first-order processing of immediate visual stimuli partly based on "build in" neural 'wetware', whereas the term Conceptual Motion is suggested for motion detected through higher-order processing relying on general-purpose cognitive systems that does not necessarily involve any immediate visual stimuli at all (a "simulation" if you will of the first-order visual motion computations). Thus, seeing Mary waving her hand, thereby producing altering visual stimuli on your retina, is one kind of motion detection; seeing (or being told) that Mary is sitting in your office, which was empty when you left 2 minutes ago, is a completely different kind of motion detection. If you conclude that she must have walked into your office while you were away, it has nothing to do with your seeing her walking (or running, or crawling, etc.) at all. As we will soon see, Perceptual Motion on the pre-linguistic level roughly corresponds to activities with Manner of motion as the salient feature on the lexical-semantic level, whereas pre-linguistic Conceptual Motion roughly corresponds to Actions on the lexical-semantic level. Further arguments for identifying two distinct levels of processing, which are most probably performed in different functional systems of the human brain, are offered by Dodge & Lakoff (2005).

In the following we shall delve into our main concern of this paper, namely the cross-classification of motional verbs, as based on a typology of Motional Situations, to the latter of which we shall first turn our attention.

## 2. Situation typology

### 2.1 Simple and complex situations

As sketched in the preamble, the basis of situation and verb typology is the perceptual notion of a mental picture. A mental picture is the perceptual representation obtained by perceiving a situation in reality and the representamen of the corresponding mental situation. Vision is fundamental to human cognition and language, but, in principle, all senses perform the same function of acting as a mediating link between reality and mind. Situations in reality are grasped by human beings in the shape of some kind of picture and are interpreted by conceptual structures. Vision plays a crucial role in perception by putting a structured 'form' upon the outside substance, framing reality into different wholes and foregrounding and backgrounding different elements within them.

Situations are classified into **simple** and **complex situations**. Simple situations are **states** and **activities** − both are identified and distinguished by means of perception: states in extra-perceptual reality provoke **stable pictures** (e.g., the sitting on a chair) while activities provoke **unstable pictures** (e.g., the jumping up and down) "on our perceptual screen". Complex situations, or **actions**, are fundamentally different, although they consist of (a connection between) an activity and a state. Whereas states and activities are perceivable real world situations – grasped in one single picture, Actions, as e.g. translocations, are merely *conceivable* – they are partly a mental **construct**, in that they are never grasped in their totality at once, in one single macro-picture containing at the same time both a causal activity and a resultant state (as well as their causal connection), but only *either* as an activity (whereby the ensuing state must be inferred), *or* as a (resultant) state (whereby the causal activity must be inferred, or back-tracked). What we mean by this is that either the activity situation is in focus (where the Figure is moving, only to show up at its final location later) or the state situation is in focus (where the Figure is at

its final location, only as a result of its past activity). As we mentioned above, the state focusing construal of an action is in the present proposal termed an 'event' (the causal activity out of focus is already *passé*), whereas the activity focusing construal is a 'process' (the resultant state out of focus is yet to come). An event is identified and recognized on the basis of a stable picture, whereas a process is identified and recognized on the basis of an unstable picture. In that way one can argue that from a perceptual point of view, there are only simple situations, either states or activities. Events and processes only become part of our mental reality, as variants of actions, when the missing links and situations have been supplied according their inferential mental models. The idea or *concept* of action is a collective concept of events and processes − just like the concept of a *human being* is a collective concept of males and females. Phenomenologically, in the concrete, living world, a human being is always either a male or a female, the concept of man being an abstraction (for further discussion, see Durst-Andersen 1992, 2000, 2002; Smith 2005). This means that an action verb may only symbolize (or, 'name') the *idea* (concept) of an abstract action, but always evokes an *image* of *either* a concrete event (state-focus) *or* a concrete process (activity-focus).

**2.2 Stable and unstable pictures**

Although the structure of a mental 'picture' itself is determined by physiological facts about vision – distinguishing between focus of attention and periphery – recent research from eye-track studies suggest that different people start constructing the same stable picture at different places and do so in a systematic and predictable way (cf. Nisbett et al. 2001 and Nisbett 2003). American English speaking students start with the figure, whereas Chinese speaking students start with the ground. Corresponding to these different strategies of perception one may surmise that speakers of American English and speakers of Chinese may describe what they see in different ways – they may have different verbalization strategies. It has be shown that these cultural differences in perception strategies between American English and Chinese may have dramatic, but foreseen effects on performing non-linguistic tasks (cf. Hedden et al. 2008). In addition to the different perception and verbalization strategies we hypothesize that there are also different lexicalization patterns and even different gestural patterns for dealing with motion events (for experimental data, see Zheng and Goldin-Meadow 2002).

In the following we shall go into more detail with a Gestaltist analysis of mental situations. In an unstable picture portraying an activity where someone, x, is carrying a bag, y, there are two Figures and two Grounds, when switching perspectives. From one perspective, we see the carrying person, x, as figure against a location L as Ground; from a complementary perspective we see the carried thing, y, as Figure and the carrier, x, as Ground. Accordingly, we shall call the carrying x the **Primary Figure** and the carried y the **Secondary Figure**, and similarly L the Primary Ground and x (the carrier) the Secondary Ground. When lexicalizing this, there is an important typological perspectival choice: either the starting point is the Primary Figure (the carrier x) or the Secondary Figure (the carried y) – it is impossible to have two starting points in the same conceptualization (cf. Durst-Andersen 2006). In this way different languages may "view" the same situations in different ways. Later we shall illustrate this point by the typological behavior of English, French and Russian.

**2.3 Situational distinctions relevant for Aktionsart classifications and beyond**

Languages may also relate differently to the three distinctions within the proposed typology of situations:

- **simple vs. complex situations** corresponding to a distinction between one picture, i.e. one situation (a non-action), and two pictures, i.e. two situations (an action)

- **activity vs. state** within simple situations (non-actions) corresponding to a distinction between unstable and stable pictures
- **event vs. process** within complex situations (actions) corresponding to a distinction between a mental model of events involving 'causation' (a state caused by an activity) and a mental model of processes involving 'finality' (an activity tending to cause a state)

These three distinctions play some role in all natural languages, but not the same. Let us give some examples. The activity vs. state as well as the event vs. process distinctions are responsible for different semantico-syntactic types: active-stative languages are founded on the activity vs. state distinction; whereas ergative languages are built on the event vs. process distinction, the ergative construction denoting an event, the antipassive a process (for further details, see Durst-Andersen 1992 and 2002; Nedergaard Thomsen 1994). These distinctions are also responsible for different aspectual systems: the English progressive vs. non-progressive aspectual distinction is based on the activity vs. state distinction, as evidenced very clearly from first language acquisition; the Russian perfective vs. imperfective aspectual distinction is based on the event vs. process distinction (for further details, see Durst-Andersen 2000). However, the simple vs. complex distinction is even more important: primarily, at the semantico-syntactic level, it is the basis for the distinction between intransitive and transitive verbs – a simplex, intransitive verb like Da. *arbejde* 'work' automatically turns into a complex, transitive verb, if a prefix is added, e.g., *udarbejde* 'develop, create'. Secondly, what is called purely aspectual pairs in Russian and other Slavic languages are restricted to complex situation verbs, whereas so-called procedurals are solely found in simplex situation verbs (cf. Durst-Andersen 1992). Thirdly, the same distinction is also responsible for the meaning split in the French *passé simple* between "an action viewed in its totality" (i.e. two situations viewed as one) and what is called *inchoative meaning* (see Durst-Andersen 2008). We hypothesize that motion verbs in different languages are likewise influenced by these situational distinctions.

**3. Towards a typology of motion verbs**

Now we are prepared for the main part of the paper, the classification of motion verbs. Some languages, like e.g. Russian, have verbs for all four situation types in their mental lexicon, e.g. the state verb *stojat'* 'stand'; the activity verb *idti/xodit'* 'walk'; the imperfective process verb *uxodit'* 'to be leaving by walking'; and the perfective event verb *ujti* 'to have left by walking'; the two latter comprising, of course, an aspectual pair. Other languages, such as English and Danish, distinguish sharply between states (*stand, stå*) and activities (*walk, gå*) within simple situations, but use activity verbs, e.g. *walk* and *gå*, in the composition of (phrasal) complex verbs that name complex situations, e.g. Eng. *walk to the station* and Da. *gå til stationen*. In so far as *uxodit'* 'to be leaving by walking' (process) and *ujti* 'to have left by walking' (event) are two grammatical forms of the same lexeme and thus constitute a pair that cannot be separated lexically as different lexemes, we should not treat them as belonging to different verb classes: they both name an action, i.e. a complex situation, but present it as either an event (the perfective aspect) or as a process (the imperfective aspect), respectively. In short, the verbal lexicon of languages seems to reduce the four situation types, viz. states, activities, events and processes, to three verb classes, viz. state verbs, activity verbs and action verbs, leaving the event vs. process distinction to grammar, i.e. to the category of diathesis (ergative vs. antipassive, as in Dyirbal), aspect (as in Russian, Chinese, English, Hindi, Turkish, etc.), or to various semantico-syntactic structures having the same effect (as in Danish or in Swedish, se below). This is crucial, because when a verbal lexeme is to name an action, i.e. an activity related to a state by telicity, which is the collective concept of processes and events, there are divergent possible starting points, viz. the state itself with its figure-ground constellation (as in ergative languages), or the activity with its two different figure-ground-

constellations (as in nominative-accusative languages). Chinese and similar, so-called serializing languages, as mentioned above, are based on quite a different solution to the problem of only focusing on one image (situation) at a time: they name first the activity and next the state (event) in sequence, thus constituting a nice iconic (diagrammatic) treatment of complex situations – but, evidently, not all languages are this transparent in their semiotic treatment.

### 3.1 State verbs

#### 3.1.0 Definition

State verbs (e.g., *be, have, sit, lie, hang, stand, relate, correspond,* etc.) denote a single situation which involves no activity, i.e. a state situation corresponding to a stable picture in perception. The semantics of a state verb is complex, being a pair of two kinds of general content, on the one hand its mode of action semantics based on a stable image, on the other hand its propositional semantics based on a state description (idea). As mentioned above, states are typologized into different 'process types' (in Systemic-Functional terms), i.e. different kinds of state relations in terms of domain of reality, namely (at least) spatial location, possession, experience, and qualification (quality ascription). The verb *lie* is thus a location-based state (posture) verb, more narrowly classified as a horizontal-position verb. A verb like *stand* is also a position, i.e. posture verb, more narrowly a vertical-position verb. In the possessional domain, there are verbs like *have*; in the experience domain, sensing verbs like *see*; and in the domain of qualities there are verbs like *redden*. Location verbs are important for our subject matter, in that their semantics is inherent in actional Motion verbs (actions whose resultant state is a location).

#### 3.1.1 The verb model of states and its three semantic components

It appears that many languages have at their disposal the 'same' state verbs, as for instance, Russian, Danish and English. This may be an indication that they are based on the same underlying verb model. But there is a problem, though, for the very same state situation in spatial reality may be conceived and verbalized differently, as for instance the location of a shop: where Russian has vertical position *Magazin stoit v uglu* '(lit.) the shop *stands* at the corner', Danish uses horizontal position *Forretningen ligger på hjørnet* '(lit.) the shop lies at the corner', and English is neutral as to dimension: *The shop is at the corner*. The position verbs of the three languages are defined in the same way, but nevertheless they are used quite differently. Our hypothesis is that Russian, Danish, and English code different **perception strategies**, i.e. the 'same' picture of reality provokes three different linguistic images. This difference is closely related to different **naming strategies** of the said languages. We conceive of the verbal model of states as consisting of three components. Superordinately, a concrete spatial Location verb denotes the existence – permanent or temporary – of some spatial Figure in relation to a spatial Ground, the Location. Like in motion verbs, the denoted mode of action, *in casu* the state, has a specific what might be called *mode of existence*, e.g. vertical or horizontal position. In all three languages – Russian, Danish, and English – the imaginal representation is coupled with a propositional representation (idea) where an x, being in a certain mode of existence, is located on a certain location. The above difference between Russian, Danish, and English might be due to a specific 'focus' on the propositional structure whereby a specific part of it is profiled leaving the rest outside as presupposed. English might then be said to focus on the very fact of existence, whereas Russian and Danish have focus on the mode of existence, i.e. the kind of position occupied by the Figure. Thus, English prefers a general, abstract (copular) existence verb *be* to a specific, concrete position verb, while in Russian and Danish a concrete spatial position verb is the preferred choice: Russian chooses 'stand', Danish 'lie', in the unmarked cases. This may be explained by different naming strategies: Russian takes its point of

departure in the Figure ('stand'), Danish in the Ground ('lie'), whereas English is based on the interrelationship between Figure and Ground which is always existential (for further examples and discussion, see Durst-Andersen 2006 and 2008). Why there should be this kind of difference between Russian, Danish, and English has never been investigated (empirically). However, one thing is clear: a Russian, Danish, and English speaking child all learn the 'same' position verbs in their respective language, but when learning to speak their mother tongue idiomatically correct, they have to identify and assimilate how others belonging to the same speech community describe situations. If there is a mismatch between the child's and the adults' description, the child has to accommodate to the linguistic norms of its speech community. To do so, he has to find out what caused the mismatch: he did not use the pertinent perception strategy. Therefore, he has to shift to the perception strategy already agreed upon in the given speech community.

### 3.1.2 Location verbs vs. Position verbs

We shall distinguish between two subgroups of state verbs based on location, viz. *location verbs* proper, which involve an entity's *mere existence* on a specific ground, and *position verbs*, which involve an entity's *specific* position in relation to a certain ground, be it vertical, horizontal, or other. These two subgroups are important, because a language has to make a choice between them: either it has focus on existence (e.g., English, French, Spanish, Italian, etc.) or on position (e.g., Russian, Chinese, Danish, Dutch, etc.). (For descriptions of various languages, see Newman 2002.) And this choice is not restricted to state verbs alone: the choice determines how a language deals with activities and actions as well, because a state forms an essential part in activity descriptions (as an entailed situation) as well as in actions (as a resultant state). We'll come back to that in a moment.

## 3.2 Activity verbs

### 3.2.0 Definition

Activity verbs (e.g., *carry, drive, walk, swim, beat, creep, crawl, cry, play, work*, etc.) denote a single situation in reality which involves activity and provokes an unstable picture in perception. Their semantics is accordingly the unstable image of an activity (immediate object) coupled with a propositional descriptive interpretation (idea: interpretant). The image-idea pair comprises a verb model of activities. Whereas state verbs only denote states, activity verbs all seem to **entail** an underlying state description: for instance, in the case of *creep*, a description to the effect that the Figure is in a lying or flat, horizontal (moving) position. All activity verbs **entail** a specific state description, be it a description of location, possession, experience, or qualification. The state entailment explains the fact that a Figure could not be creeping without also being in a lying or flat position. This position thus constitutes the necessary, although not the sufficient condition for using the verb *creep*. We shall call this important state description implied by an activity verb its **entailment structure**. This is also found with action verbs because they, too, involve an activity description. Summing up, the activity verb *creep* designates a single, unstable situation. Being a predicate it 'telescopes' an underlying proposition which describes the unstable element, i.e. that a Figure is producing an activity at a certain Location while being at the same time in a horizontal position (i.e. the entailment structure). The verb *creep* is thus a position-based activity verb, the equivalent within activities to the position verb *lie*.

The motional activity of 'creeping' may be converted into a motional action by attaching a Satellite Path preposition or particle (e.g., *creep into*, *creep out*) to the simplex Manner verb. The resulting complex verb (predicate) automatically names a motional action, where the Path Satellite is an indication of the existence of an autonomous state (e.g., 'creeping activity' + 'existence on a specific Location').

### 3.2.1 Two types of Figure − two types of Manner

The distinction between what we call the situational, image level of a verbal lexeme and its ideational, propositional level allows us to be quite specific in our characterization of verbal lexemes. It gives us the possibility to detect hitherto unnoticed, but crucial differences between languages that are usually described as belonging to the same type, as for instance English and Russian. Let us take a concrete example: the English expression x *is carrying y* denotes an activity and therefore comprises not only an activity description, but also an entailed state description. The expression should be understood (1) *experientially* as a simple situational structure of one single, unstable image involving two different types of **Figure**, viz. **Primary**, x, and **Secondary**, y; and (2) ideationally as a complex propositional structure with an activity description 'x is producing an activity while being at a certain Location' as well as a state description 'y is sitting or hanging with x'. Both descriptions are necessary because y's position on x is a necessary condition for x's producing a 'carrying' activity. If this state description is not true, the activity description cannot be true either. In short, the activity entails the state of y's position on x. Now, languages may take their point of departure either in the Primary Figure x's activities, such as English, or in the Secondary Figure y's position, such as Russian. In other words, what we saw above when examining state verbs repeats itself here: Russian focuses on the Secondary Figure's (y) position in relation to the Primary Figure (x), or rather now the Secondary Ground; whereas English focuses on the activity performed by the Primary Figure (x). Thus, from this perspective, even though English and Russian are both Manner languages in the Talmy-Slobin typology, they belong to two altogether different 'supertypes' (Durst-Andersen ). Accordingly, the notion of *Manner* will refer to two different kinds of manners, either the 'manner' of the Secondary Figure's (y) 'position' in relation to the Secondary Ground, i.e. to y's mode of existence; or to the Primary Figure's (x) specific way of performing an activity, i.e. to the manner of producing the activity. Evidently, what might at the image level look quite alike ([x carrying y]) is at the idea level quite different: (1) **Mode of existence** is static (i.e. the position of the Secondary Figure remains the same during the activity); (2) **Manner of activity** is dynamic and changes during the Primary Figure's performing its activity (i.e. the way or ways that the Primary Figure is performing its activity, including the required means to perform it). We thus conclude that Talmy's notion of manner should be split up into these two distinct understandings that correspond to two different types of Figure, the Primary and the Secondary. As a corollary of that, the so-called *Manner languages* cover two very distinct subtypes.

### 3.2.2 Automotives and locomotives

The primary distinction within motional activity verbs is the one between location-based ones, e.g., *work, iron, wave, clap, hop,* etc. and position-based ones, e.g., *carry*, *drive*, *walk*, *swim*, *creep*, *crawl*, *fly*, *roll*, *pull*, etc. The former we shall term **movement verbs**, the latter **simple-motion verbs**. Only the last mentioned of the two subgroups of activity verbs seem to be of special interest to motion event research. Simple-motion verbs may be further classified into **automotives** and **locomotives**, according as the Primary Figure (F1) is identical (*auto*-motives) or not to the Secondary Figure (F2). Automotives, e.g., *walk, run, swim, fly, creep, crawl* and *climb*, denote a motion where the Primary Figure is identical to the Secondary Figure that occupies a certain position in relation to the Ground, be it vertical, horizontal or a combination. Locomotives, on the other hand, e.g., *lead, chase, carry, bring, roll, push, pull* and *drag*, denote a motion where the Primary Figure is *not identical* to the Secondary Figure that occupies a certain position in relation to the Ground, likewise either vertical, horizontal or a combination. The semantic distinction drawn here between auto- and loco-motives tends cross-linguistically to be correlated semantico-syntactically with mono-valent vs. divalent,

and intransitive and transitive verbs, respectively. This pertains to Dyirbal, for instance, where the verb meaning 'lead' (where F1 is ahead of F2/F2 is behind F1) is divalent and transitive – and where F2 (the O, or Undergoer) is primary 'topic', the language being ergative (Dixon 1972, Nedergaard Thomsen 1994). This also applies to Russian where simple-motion verbs (i.e. position-based activity verbs) form a closed group of 13 imperfective verb roots (cf. Durst-Andersen 1997; cf. also Nesset 2007) that occur in stem pairs with a sub-aspectual distinction of [±intense] activity, corresponding to the progressive vs. non-progressive aspect in English. This amounts to a total of 26 verbs:

**Intransitive motion verbs – Automotives**

- 'while F2 (x) is in a [vertical] position, F1 (x) performs a [±intense] activity': *idti* [+intense]/*xodit'* [–intense] 'walk, go'; *bežat'* [+intense]/*begat'* [–intense] 'run'.
- 'while F2 (x) is in a [horizontal] position, F1 (x) performs a [±intense] activity': *polzti* [+intense]/*polzat'* [–intense] 'creep, crawl' (Ground: earth); *plyt'* [+intense]/*plavat'* [–intense] 'swim' (Ground: water); *letet'* [+intense]/*letat'* [–intense] 'fly' (Ground: air).
- 'while F2 (x) is [hanging/sitting], F1 (x) performs a [±intense] activity': *lezt'* [+intense]/*lazit'* [–intense] 'climb, crawl'; *exat'* [+intense]/*ezdit'* [–intense] 'go, drive'.

**Transitive motion verbs – Locomotives**

- 'while F2 (y) is [standing/walking/running], F1 (x) performs a [±intense] activity': *vesti* [+intense]/*vodit'* [–intense] 'lead, take'; *gnat'* [+intense]/*gonjat'* [–intense] 'chase, hunt (forward)'.
- 'while F2 (y) is [lying], F1 (x) performs a [±intense] activity': *katit'* [+intense]/*katat'* [–intense] 'roll, wheel'; *taščit'* [+intense]/*taskat'* [–intense] 'pull, drag'.
- 'while F2 (y) is [hanging/sitting], F1 (x) performs a [±intense] activity': *nesti* [+intense]/*nosit'* [–intense] 'carry'; *vezti* [+intense]/*vozit'* [–intense] 'cart, convey, take'.

The above lexical analysis indicates that the description of the position of the Secondary Figure plays a fundamental role in the lexicalization patterns of Russian motion verbs, whereas the description of the Primary Figure only plays a minor role, namely by marking the 'intensity' of the activity as either [+intense] or [–intense] – corresponding to what is called the 'determinate' and the 'indeterminate' verb in the Russian tradition, and to a distinction between uni-directional vs. non-(uni)directional motion in Nesset (2007). The analysis gives the exact, non-arbitrary structure of the inventory: the combination of the position possibilities, i.e. standing, lying, and sitting/ hanging, the three types of ground, i.e. earth, water and air, and the intensity of the activity.

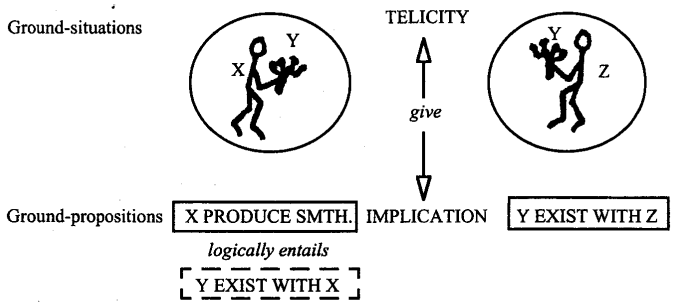
Like with the state verbs, the vertical position is once again the natural choice for Russian: *idti/xodit'* 'walk, go' is the far most frequent of all automotives and is the default choice, e.g., *avtobus idet* 'the bus is coming [going]', *xorošo idet* 'it is selling [going] well', *dožd' idet* 'it is raining', *segodnja idet "Revizor"* '"The Government Inspector" is [goes] on tonight', etc. The same applies to locomotives. Here *vesti/vodit'* 'lead, take' is the default choice (and can substitute for the others if one does not know the F2's exact position), e.g., *vesti ogon'* 'fire on', *vesti peregovory* 'carry on negotiations', *vesti vojnu* 'wage a war', *vesti samolet* 'pilot an aircraft', *vesti delo* 'run a business', etc. The grammatical distinction between [+intense] and [–intense] amounts to a distinction between a scenic, **situation description** (*on idet v školu* 'he is walking to the school', cf. Dan. *han 'går i skole*) and an individual-level **characterization** (*on xodit v školu* 'he goes to school, i.e. is a pupil', cf. Dan. *Han °går i skole*), corresponding roughly, as said above, to the distinction between the progressive and the non-progressive in English, but – as already indicated − in Russian it is limited to 13 verbs that are all imperfective.

### 3.3 Action verbs

#### 3.3.0 Definition

Action verbs comprise both accomplishments and achievements in Vendlerian terms (cf. Vendler 1967; Dowty 1979; Foley and Van Valin 1984), cf., e.g., *kill, give, sell, buy, lose, win, die, redden, leave, stop, find, sit down, stand up, lay, put, set, hang up, carry out, bring to, drive to, walk to, beat up, bring up*, etc. etc. etc. They are situationally complex on the experiential, image level, i.e. they all denote two situations: an activity (unstable) followed by a state (stable) – even the punctual ones that do not denote a durational phase. Corresponding to this the *ideational* semantics of action verbs is bi-propositional, one proposition describing the unstable causing activity, the other the stable resultant state. The telicity (causation or finality) between the activity and the state on the image level is paired with a relation of implication between the correlated propositions on the ideational level. This can be illustrated as in Figure 1 from Durst Andersen (1992) showing the semantics of the English verb *give* where the 'imaginal' Figure roles are instantiated as some one (x) giving some other (z) some flowers (y):

Figure 1. The Verb Model of the Action 'Smb (X) gives smb (Z) flowers (Y)'




Thus, English *give* is a possession-based action verb – it describes a resultant state based on possession ('z possess y'); the mode involved here is [ownership] with respect to which *give* is unmarked, in contrast to verbs like *lend* or *donate*. In addition, the verb entails a prior (possibly possessional) state, because for the Primary Figure (x) to be able to 'give' the Secondary Figure (y) to the Tertiary Figure (z), it should be the case that z exists possessionally (not spatially) with x. The propositional semantics is then: 'while F2 (y) exists with F1 (x), F1 (x) performs an activity [entailment structure + causal-activity description]; and F2 (y) exists with F3 (z) [resultant-state description, which might turn out to be true or false depending on the manifestation of the action as an as an event or as a process, respectively]'. *Mutatis mutandis*, a similar description pertains to causative, location-based motion verbs.

#### 3.3.1 From simple, motional activity to complex, actional motion – Russian vs. English and Danish

English and Danish, being mainly Manner/Satellite-framed languages, have no autonomous, single lexical units to distinguish between location-based activity ((10a) and (11a)) and location-based action, but apply Path Satellites in a complex predicate construction (Nedergaard Thomsen 1991, 1992, 1998, 2002a/b, 2003; Harder, Heltoft & Nedergaard Thomsen 1996) to make the distinction, cf. (10) from English and (11) from Danish:

(10) a. He ran quickly.

b. He ran quickly **to** the station.

(11) a. Han 'løb hurtigt.

| | | | | | |
|---|---|---|---|---|---|
| b. Han | $_{o}$løb | hurtigt | **hen til** | stationen. |
| he | ran | fast | [over] to | the station |
| Figure | Motion+Manner | | Path | Ground |

On the face of it, there are two viable classifications for the Danish and English motion verbs, as in (10) and (11): either the verb is analyzed as being *neutral* with respect to Aktionsart, as in Durst-Andersen & Herslund (1996), or it is seen as inherently denoting a motional activity – it is a 'simple-motion' verb, as in Nedergaard Thomsen (2002b, 2003). This implies that in the former classification, the English and Danish intransitive motion verb stems, by being neutral with respect to the distinction between denoting an activity (a simple motional situation), and an action (a complex motional situation), the same lexeme appears now as an activity verb (cf. (10a) and (11a)), now as an action verb (cf. (10b) and (11b)) – only the semantico-syntactic environment may determine the final reading (co-textual determination of mode of action). In the English case, it is solely the presence or absence of a Path Satellite that determines the reading. The progressive form does not change this: *he was running quickly* will still denote an activity even though it will present it scenically, while *he ran quickly* could be a characterization of the person in question. Likewise, *he was running quickly to the station* will still denote a complex, actional situation consisting of an activity as well as a state, but it will present the action referred to as an ongoing process (like one unstable, 'moving' picture), while *he ran quickly to the station* will be like a flash-back, where the Figure's running-activity and his being at the station cannot be separated from one another. In the latter classification (cf. Nedergaard Thomsen 2002b, 2003), the Manner verb always denotes an activity, but the *resultant* Aktionsart of the motional construction as a whole will, will be determined compositionally by the Aktionsarts of the component situation-denoting elements, i.e. the host predicate (*løbe*) and the co-predicate *hen til* – just like in the serialization construction in Chinese, as dealt with above.

In Danish, the resulting Aktionsart of the motional construction can be read off directly if changing the simple past to the present perfect, cf. (12):

(12) a.

| | | | | | |
|---|---|---|---|---|---|
| Han | **har** | løbet | hurtigt | | (e.g. *hele sit liv* 'his whole life'). |
| he | has | run | fast | | |

b.

| | | | | | | |
|---|---|---|---|---|---|---|
| Han | **er** | $_{o}$løbet | hurtigt | hen | til | stationen. |
| he | is | run | fast | (over) | to | the station |

(13) a.

| | | | |
|---|---|---|---|
| Han | **'har** | løbet! | (as a reply to e.g. 'It is Peter's turn.', |
| he | has | run | said in a running competition) |

b.

| | | | |
|---|---|---|---|
| Han | **'er** | løbet! | (as a reply to e.g. 'Peter, run to the |
| he | is | run | grocer's!') |

'(he has left-by-running)' (Path and Ground contextually implied)

It appears from the above examples that the perfect auxiliary *have* 'have' in Danish is used when a motion verb (construction) denotes an activity, whereas the perfect auxiliary *være* 'be' is used when it denotes a motional action. In other words, the change of auxiliary from *har* 'has' in (12a)

to *er* 'is' in (12b) can be taken as a signal to the message recipient that the state is location-based. (The same is true in German, e.g., *er hat gefahren* 'he has been driving (e.g. the car)' vs. *er ist gefahren* 'he has left (e.g. by car)').

If we include transitive motion verbs, the picture will be the same as the above:

(14) a. She carried the child (**for** nine months).

b. She carried the child **to** the nearest neighbor (**in** 5 minutes).

| | | | | | |
|---|---|---|---|---|---|
| (15) a. | Hun | bar | (på) barnet | (**i** ni måneder). | |
| | she | carried | (on) the child | (for nine months) | |
| b. | Hun | bar | barnet | **hen til** den nærmeste nabo | (**på** 5 min.). |
| | she | carried | the child | [over] to the nearest neighbor | (in 5 min.) |

All the (a) examples denote an activity at the lexical-grammatical level, whereas all (b) examples denote an action. At the propositional-semantic level, the (a) examples are a characterization of the persons involved, whereas the (b) examples are flash-backs of past actions successfully carried out. As indicated in the parentheses, the difference between (unbounded) activity and (bounded) action shows up in the time adverbials, as is, of course well-known: unbounded vs bounded time segment.

Russian sharply distinguishes location-based activity verbs that denote simple motion (cf. 3.2.2 above), cf. (16a) and (17a), and location-based action verbs that denote complex motion, cf. (16b) and (17b):

| | | | | | | |
|---|---|---|---|---|---|---|
| (16) a. | On | bistro | begal (ipf)/ | bežal (ipf). | | |
| | he | fast | ran | was:running | | |
| | Figure | | Motion+Manner | Motion+Manner | | |
| | 'He ran/was running quickly.' | | | | | |
| b. | On | bistro | **do**bežal (pf) | do | stancii. | |
| | he | fast | ran | to | station | |
| | Figure | | **P**+Motion+M | Path | Ground | |
| | 'He ran quickly to the station.' | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| (17) a. | Ona | nosila (ipf) | rebenka | (devjat' mesjacev). | |
| | she | carried | child | (for nine months) | |
| | F1 | Motion+M | F2 | | |
| | 'She carried the child (for nine months).' | | | | |
| b. | Ona | **ot**nesla (pf) | rebenka | k sosedke po domu | (**za** pjat' minut). |
| | she | carried | child | to nearest neighbor | (in five minutes) |
| | F1 | **P**+Motion+M | F2 | Path Ground | |
| | 'She carried the child to the nearest neighbor (in five minutes).' | | | | |

The simple-motion verbs in the (a) examples were examined above. The verbs in the (b) examples form a large group, which is traditionally called 'prefixed motion verbs', and where the prefix is a Talmyan Path Satellite. They all constitute purely aspectual pairs of the type *dobežat'* (pf)/*dobegat'* (ipf) 'run to a certain place'. In that way it can be argued that Russian not only marks the difference between an 'unergative' propositional structure 'while on L, x does smth.'

and an 'unaccusative' one 'x does smth. and thereby x exists on L'), but also the difference between the transitive and intransitive variants of the distinction.

The upshot of the above analysis is that there is a clear-cut distinction between 'simple-motion' verbs – the (a) examples – and 'complex-motion', verbs – the (b) examples. The former group were classified above into auto- and loco-motives. The latter group of 'complex-motion' verbs, denoting complex situations, i.e. actions consisting of a causal activity and a resultant state, are likewise cross-classified: corresponding to the subgroup of state verbs termed location verbs we have **re-location (phrasal) verbs** (*walk into*, *run into*, *swim into*, etc. and *carry to, bring to, take to*, etc.), and correspondingly, there are **re-position (phrasal) verbs** (*sit down*, *lie down*, *lay down*, *put*, etc.) as a dynamic counterpart to the static position verbs (another possible term being 'placement verbs', as suggested in Tesnière 1976). Both may be further subclassified into automotives, e.g., *walk into*, *run into*, *swim into*, *fly into*, *creep into*, *crawl into*, etc. and *sit down*, *lie down*, etc., and locomotives, e.g., *carry to*, *bring to, take to*, *roll to, chase to*, *etc.* and *lay down*, *put,* etc. The two last mentioned subgroups have important semantico-syntactic parallels, automotives being intransitive and locomotives transitive.

### 3.3.2 Path and Manner revisited

Let us now return to the typological distinction between Manner (Satellite-framed) and Path (Verb-framed) languages presented in Section 1 and see what the present framework can contribute to pinpointing the difference between a (proto)typical Path language, like French, and a (proto)typical Manner language, like Danish (cf. Herslund 1998: 8-9; Smith 2003 and 2006).

In French we find a group of verbs which specify the Path of motion without saying anything about Manner, be it manner of existence or manner of activity: the Figure in question may be walking, crawling, flying, etc. These verbs are motional action verbs, and hence relocation verbs, by their very nature. The verbs *entrer* 'enter', *venir* 'come', *sortir* 'exit', etc. denote a direction by themselves (whereas *aller* 'go' is neutral), as evidenced by the fact that the prepositions that are used are the same as the ones used for states (locations), cf. (18a,b)

(18) a.

| *Il* | *est* | ***à*** | *Paris* |
|---|---|---|---|
| he | is | (Prp) | Paris |
| Figure | State+Site | (Site) | Ground |

'He is in Paris.'

b.

| *Il* | *est allé* | ***à*** | *Paris* |
|---|---|---|---|
| he | is gone | (Prp) | Paris |
| Figure | Motion+Path | (Path) | Ground |

'He has gone to Paris.'

That is to say, in the two sentences – the stative and the dynamic – the same neutral, grammatical preposition *à* is used because French points to the stative location of the resultant state; the preposition does not point to the direction and need not do so, because this has already been taken care of by the Path verb itself. This is true of all other prepositions, i.e. *chez* 'with', *dans* 'in', *sur* 'on'. Path verbs are inherently 'complex-motion' verbs and can only be used as such – their semantics is solely concerned with Conceptual Motion. An even more clear-cut example is found in the Chilean indigenous Path (Verb-framed) language Mapudungun, cf. (18) from Zúñiga (2006: 195):

(18) a. Mülekan ruka **mew**
continue:to:be:1/3ps:ind house (Pop)
State+Site Ground (Site)
'I am still at home.'

b. Amutun waria **mew**
left:1/3ps:ind town (Pop)
Motion+**Goal** Ground (Path)
'I left for the town.'

c. Waria **mew** küpan
town Pop has:come:from:1/3ps:ind
Ground (Path) Motion+**Source**
'He has come from the town.'

Note that not all Path languages behave like French and Mapudungun, Spanish being a clear-cut case in point: in Spanish, there is a sharp distinction between locative vs. allative and ablative prepositions.

Manner of existence and Manner of activity are designated by a completely different group of verbs in French, represented by verbs such as *marcher* 'walk', *courir* 'run', *ramper* 'crawl', *flâner* 'stroll', etc. which do not conflate any Path notion. The function of these verbs is to characterise a motion in its own capacity without relating it to the possible change of location that may eventuate. In other words, they are borne as 'simple-motion' verbs and remain so – as a norm they may not be converted into 'complex-motion' verbs by the addition of a Path Satellite; they all lexicalize Perceptual Motion. Modern Greek, also a Path language, shows that a Manner verb may nevertheless be construed with a Path Satellite, but only when the latter is atelic (meaning e.g. 'towards'), cf. (19b) from Papafragou, Massey & Gleitman (xxx):

(19) a. I bala diesxise to gipedo
the ball crossed the field
Figure Motion+Path Ground
'The ball crossed the field.'

b. I bala kilise pros tin tripa
the ball rolled towards the hole
Figure Motion+Manner Path [–telic] Ground
The ball rolled towards the hole.'

c. *I bala kilise stin tripa
the ball rolled into:the hole
Figure Motion+Manner Path [+telic] Ground
'The ball rolled into the hole.'

Evidently, the Path preposition *pros* 'towards' in (19b) denotes an 'action', but it profiles the 'activity' part, thus denoting a 'process', and thus being compatible with the motional activity denoted be the atelic Manner predicate.

Danish has a very large and diversified group of 'simple-motion' verbs, i.e. verbs that specify Manner (of existence or activity), e.g., *gå* 'walk', *løbe* 'run', *spadsere* 'stroll', *kravle* 'crawl', etc. Just like their French equivalents, they are all inherently activity verbs, but they may be used in constructions to denote motional actions, i.e. complex motions. Danish has

only a few "genuine" Path verbs. The standard procedure to name a complex motion is to take a suitable Manner verb, i.e. a 'simple-motion' verb, and extend it with a Path-specifying *Satellite* (in the shape of a preposition/adverb) which merges with the initial verb into a phrasal verb, a complex predicate. Let us – as also done above – illustrate this by the 'simple-motion' verb *løbe* 'run'. If we add the telic Path Satellite *ud* 'out', the combination denotes a complex motion, i.e. an action. Thus the 'relocational' complex predicate $_{o}$*løbe ud* (e.g. *af haven*) 'run out (e.g of the garden)' denotes an action (theoretically either an ongoing process or an event). By incorporating the Path Satellite, the construction, actually a unitary predicate, as signalled phonologically by the stress reduction of the verb, profiles both the Manner and the Path components of a Motion situation. Accordingly, the important difference between Danish and French is that Manner (of existence or of activity) in Danish cannot be isolated from Path, whereas speakers of French can skip the Manner-related information if it is not deemed relevant.

In Danish and English several Path denoting Satellites may be combined with the same 'simple-motion' Manner verb in the same sentence, as in (20) from Slobin (1997: 438):

(20) a. I ran **out** the kitchen door, [(1) event]
**past** the animal pens, [(2) event]
**towards** Jasón's house. [(3) process]

(20a) is a series of two 'relocational' events (1-2) and one motional process (3). On the level of morphosyntactic *function* it is a sequence of three phrasal lexemes – with the same head, though – but with respect to *technique* they can hardly all be seen as part of one phrasal lexeme. The first Satellite [(1)] is the one that triggers phrasal unification (see also Talmy 2000: 106f, who reserves the term Satellite for that entity only). This line of reasoning finds support in other satellite-framed languages. In German, for instance, the corresponding Satellite would be a prefix, at least in the infinitive, in casu *hinauslaufen*, i.e. part of an independent word, and in Russian this would be the case in all forms, in casu *vybežat'*. While the boundary between lexicon and free syntax may display certain fuzziness as to means of expression across languages (cf. the idea of *distributed semantics* proposed by Sinha & Kuteva 1995), semantically it is still clear-cut. In a Verb-framed, or Path language there would have to be a sequence of three verbs, cf. the Spanish translation of (20a) in (20b) from Slobin ibid.):

(20) b. **Salí** por la puerta de la cocina, [(1) event: 'I exited [by] the kitchen door']
**pasé** por los corrales, [(2) event: 'I passed by the animal pens']
y **me dirigí** a casa de Jasón. [(3) process: 'and I directed myself to Jasón's house']

The difference between (19) and (20) may be *technically* one of clausal grammar vs. text grammar: (19) may be seen as a sentence (macro-clause) and (20) as a paragraph (macro-sentence) – *functionally* they are both 'episodes' (cf. above).

### 3.3.3 Reposition verbs in detail

As we have defined an action verb, its content always includes that of a state verb. This pertains to action verbs in general, cf. e.g. *move to L* which includes the content of *live in L*, and to placement verbs specifically, cf. e.g. *lay down* which includes the content of *lie down*. Although Russian, Danish and English all have four position verbs (in English, for instance, *stand, lie, sit* and *hang*) and corresponding placement verbs (in English, *stand (a table in the*

*corner), lay (a carpet on the floor), set ( a hen on the eggs)* and *hang (a picture on the wall*), the intimate relationship between these two groups of verbs has been more or less blurred in English and Danish, but not so in Russian. Here we observe an almost 100 percent match, in the sense that if (as a subject, x) a noun requires *stojat'* 'x exists vertically on L', it will as a direct object, y, require *stavit'/postavit'* 'x do smth. and y exits vertically on L'.

The asymmetry in English is due to the introduction of abstract verbs for placing something in a position, viz. *put* and *place* that, in fact, repeats the existence focus (as dealt with above) from the position verbs. Instead, English has developed a group of action verbs where the activity itself, not the position, is specified, for instance, *install* and *bandage,* and a group where the Ground location itself is included in the meaning, for instance, *cage* and *imprison***.** The original placement verbs have undergone the same development as the original motion verbs, such as *carry* and *lead*: they have all corresponding phrasal verbs such as *set on, set back, set in, set up* and *set out*, where the particles seem to specify either the direction of the activity, as in *set out,* or the position/the new quality of the direct object, as in *set up.* Thus, it turns out that *set,* which originally included a *sitting-position* in its state description, can be used to specify not only an upright position but also a certain quality, as in *He set up the machine*, though without loosing its activity orientation.

What has been said about English can to a certain extend be claimed to pertain to Danish as well. There are, however, some important differences. First of all, the post-verbal particle of a phrasal verb in English is normally placed immediately after the verb as in, e.g., *set* ***up*** *a machine*, whereas in Danish it is always placed immediately after the direct object, e.g., *₀sætte en maskine* ***op***. The particle in Danish occupies the same position as the *predicative* co-predicate (Nedergaard Thomsen 2002a, 2003), e.g., *₀skrive brevet* ***rent*** '(lit.) write the letter clean (free from imperfections)' = 'make a fair copy of the letter'. This implies that both the Satellite and the predicative have an attributive, *co-predicating* function, and this is signalled by the special word order position – the incorporating character of the verbal nucleus, i.e. the host predicate, is signalled by the stress reduction: just as the clause *han ₀skrev brevet rent* should be read as 'he performed a writing-activity with respect to the letter and as a result of that the letter is in a state of being 'clean'', the clause *han ₀satte maskinen op* should be read as 'he performed a setting-up-activity with respect to the machine and as a result of that the machine is in an upright position, 'up''. Although Danish here applies the dynamic particles *op* 'up'*, ned* 'down'*, af* 'off', etc. (cf. Harder, Heltoft & Nedergaard Thomsen 1996; Nedergaard Thomsen 1998), it should be stressed that when posing questions concerning the state itself, in a situation where the activity is presupposed, the corresponding static particles occur (adding the suffix *-e*), for instance, *er den oppe?* '(lit.) is it up? (= 'has it been set up?)'; *er den nede?* '(lit.) is it down? (= 'has it been put down?)'; *er du a'e* (underlyingly /af-e/)? '(lit.) are you off? (= have you been set down?)', etc. Moreover, it should be taken into consideration that there exists a systematic alternation between the phrasal verb construction, i.e. the verb having a post-verbal particle, and the corresponding prefixed verb construction. Take some illustrative examples of this quite general pattern, which is a characteristic feature of Danish (for further examples, see Durst-Andersen and Herslund 1996; cf. also Nedergaard Thomsen 1992, 2003):

(21) a. Partiet har **op**stillet kandidaterne.

the party has up-put the candidates
'The party has nominated its candidates.'

b. Han 'stillede keglerne **op**.
he put the skittles up
'He set up the skittles.'

c. *Han har **op**stillet keglerne.
**'***He has (= nominated) the skittles.'

d. Han $_{o}$stillede vasen **op** på bordet.
'He put the vase (**up**) on the table.'

Example (21a) denotes an *institution* (cf. Nedergaard Thomsen 1991, 1992), i.e. *opstille*, can only take an Agent who has the social authority or the permission to nominate candidates, while (21b) involves a concrete *locative* meaning, i.e. *'stille op* is concrete and denotes that the skittles are in an upright position. Notice that (21b) designates, not a trans-location (relocation) but a 'contained' movement (Talmy 1975) – and this is underlined by the stress retainment, whereas (22d) denotes a relocation from a position not on the table to a position on the table – this being signalled by the stress reduction of the verb. The fact that Danish has a systematic alternation between a subject-oriented, institutionalized construction (22a) and an object-oriented, concrete locative construction (22b/d) makes Danish and English look alike. However, the focus of the latter construction (22b/d) reminds of the position focus within state verbs, thereby making Danish and English quite different. We concluded above, on the basis of the unmarked status of the position verb *ligge* 'lay' in Danish, that Danish has a naming strategy that focuses on Location. In the case of placement verbs as well as of all other verbs having a post-verbal particle we observe manifestations of the same spatial focus: One cannot place a Figure without having a Ground in the shape of a concrete location, and it is only after having established this relationship between a Figure and a Ground that it is possible to specify a direction.

**4. Concluding**

The proposed typology of (pre-linguistic) situations was based on four kinds of situations, namely two kinds of 'simple' situations: states and activities, and two kinds of 'complex' situations (actions): events and processes. With Reference to this typology we developed a (linguistic) classification of verbs, i.e. lexical items whose prototypical function it is to denote those kinds of situations. It turned out that languages do not lexicalize events and processes in themselves, but leave their differentiation to grammar (grammatical operators, for instance). Languages name their collective concept, i.e. an action, which has no counterpart in perceivable reality. This left us with three verb classes, i.e. state verbs, activity verbs and action verbs. At the same time, and orthogonal to this, we developed a typology of verbs based on the concept of domain of reference that runs across the three verb classes based on situation types, Aktionsarts. The domains were: location, experience, possession, and quality. The resultant cross-classification of verbs enabled us to paraphrase sentences with the aim of pinpointing the different factors that specific languages focus on. With respect to our topic, viz. motion events and related issues, we ended up by proposing the following typology of verbs:

- State verbs
  - Location verbs: e.g. Eng. *be,* i.e. 'x exists on L'
  - Position verbs: e.g. Eng. *stand*, i.e. 'x exists [vertically] on L'

- Activity verbs
  - Movement verbs: e.g. Eng. *wave*
  - 'Simple-motion' verbs
    - Automotives – intransitives: e.g. Eng. *walk*, i.e. 'while [vertically] on L (trajectory), x performs an activity'
    - Locomotives – transitives: e.g. Eng. *carry*, i.e. 'while y is [sitting/ hanging] on x (on trajectory L), x performs a (supportive) activity'
- Action verbs
  - 'Complex-motion' verbs
    - Relocation verbs
      - Automotives – intransitives: e.g. Eng. *walk to L2*, i.e. 'while [vertically] on L1 (trajectory), x performs an activity and then as a result exists on L2 (target)'
      - Locomotives – transitives: e.g. Eng. *carry to L2*, i.e. 'while y is [sitting/hanging] on x on L1 (trajectory), x performs an activity and then as a result y exists on L2 (target)'
    - Reposition verbs
      - Automotives – intransitives: e.g. Eng. *lie down on L*, i.e. 'x performs an activity and then as a result x exists [horizontally] on L'
      - Locomotives – transitives: e.g. Eng. *lay down on L*, i.e. 'x performs an activity with respect to y and then as a result y exists [horizontally] on L'

We took Russian, English, and Danish as our primary sources because they are normally typologized as Manner languages, but nevertheless show out to be typologically divergent. We then tried to show that, indeed, they differ in fundamental respects from one another – and always in the same way. We argued that the differences can be traced back to different strategies of perception and naming which showed out to originate in the extra-linguistic, perceptual basis, what we term 'stable pictures', i.e. in the perceptual impression of absence of motion. Our analysis of (pre-linguistic) situations and of the semantics of the designating verbs made it clear that a distinction should be drawn between Primary and Secondary Figure, and correspondingly between Primary and Secondary Ground, linked to the important notions of stability and instability, respectively. In the same way, we tried to demonstrate that Talmy's notion of Manner should also be similarly subclassified, i.e. into (static) Manner of existence and (dynamic) Manner of activity. And last, but not least, it was argued that Talmyan Path implies an autonomous state situation. This state is not transparently coded in all languages, but in those that have aspect, as Russian and English, or have serial verb constructions, as Chinese and Thai, it could be read off directly. Grammar may put light on lexical items that are borne as pure symbols, but may turn into icons or indexes on the grammatical level.

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