Chapter 4

The conceptualisation of the route: Non-directed and directed motion verbs in Bulgarian and English

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This chapter offers an analysis of non-directed and directed motion verbs from a frame semantics perspective through exploring the semantic description and syntactic realisation of the frame elements of several semantic frames in FrameNet. The study is focused on the conceptualisation and syntactic expression of the elements of the route along which motion occurs: GOAL (the final part of the route), SOURCE (the initial part of the route) and PATH (the middle part of the route) in English and Bulgarian by studying the syntactic expression of the corresponding frame elements in FrameNet. The research questions explored in the chapter deal with the prominent aspects in the semantics of the verbs evoking a particular semantic frame, the syntactic expression of the relevant frame elements, syntactic explicitness and implicitness. The empirical evidence provided by the FrameNet corpus is compared with a sample of annotated Bulgarian examples. The observations made throughout the chapter are brought in the perspective of linguistic hypotheses put forward in the literature: in particular, the goal-over-source hypothesis and the proposal that motion verbs tend to co-occur with expressions that align with the part of the trajectory of motion that is most prominent in their semantics.

1 Introduction

This chapter deals with the semantic and syntactic description of motion verbs in Bulgarian (as compared with English) with respect to: their semantics as de-

scribed in terms of semantic frames; the conceptualisation of parts of the trajectory of motion and the corresponding frame elements; the syntactic realisation of the major frame elements as reflected in corpora.

The study is based on the description of verbs in FrameNet (Fillmore et al. 1998) as lexical units evoking particular frames, defined themselves as schematic representations of situations in terms of the configurations of participants and props that constitute their meaning. The syntactic description will be focused on the main patterns of syntactic expression of the most essential frame elements in and across the selected motion frames. The proposed account aims at capturing the semantic and syntactic properties of Bulgarian verbs of motion against a more universal background.

The analysed verbs are selected from the Bulgarian WordNet (Koeva 2021a), which were associated with FrameNet frames (Leseva & Stoyanova 2020a) and further aligned with verbs in other resources where possible (Leseva & Stoyanova 2022a). As a result, the verb synsets in the Bulgarian WordNet are mapped to FrameNet frames (one frame per synset), making it possible for observations to be made on the basis of the semantic representation available for English verbs. The FrameNet model has been widely adopted for building similar descriptions of the lexis of a number of typologically diverse languages – German (Burchardt et al. 2006), Dutch (Vossen et al. 2018), Danish (Pedersen et al. 2018), Swedish (Borin et al. 2010), Latvian (Gruzitis et al. 2018), French (Candito et al. 2014), Spanish (Subirats 2009), Brazilian Portuguese (Torrent et al. 2018), Chinese (You & Liu 2005), Japanese (Ohara et al. 2004), Korean (Hahm et al. 2014), among others. For a more comprehensive description of the existing framenets and the Multilingual FrameNet annotation initiative,[1] cf. Gilardi & Baker (2018). FrameNet's theoretical framework has been adopted for Bulgarian and extended into a model accounting for language-specific features, including verb aspect, semantic and syntactic diatheses and syntactic alternations. The concept was implemented in the development of the Bulgarian FrameNet (Koeva 2008, 2010, 2021b).

This chapter will specifically address: (i) those aspects in the semantics of the verbs evoking the studied frames that are cast as any of the frame elements describing the motion of an entity along a trajectory; (ii) the syntactic expression of the relevant frame elements and the conditions predetermining their syntactic explicitness or implicitness. The empirical evidence provided by the examples in the FrameNet corpus will be studied against a sample of annotated Bulgarian examples, thus testing the cross-lingual validity of the theoretical and practical observations and drawing parallels or distinctions where appropriate. The observations made throughout the chapter will be analysed from the perspective

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[1]https://www.globalframenet.org/

of linguistic hypotheses that have been put forward in the literature: in particular: the goal-over-source hypothesis and the proposal that motion verbs tend to co-occur with expressions that align with the most prominent aspect of the trajectory of motion encoded in their semantics.

2 Motion verbs

The semantic representation of motion verbs has been the focus of a multitude of studies. One of the major distinctions in the verb lexis is the one between manner and result, which are usually viewed as complementary notions, i.e. verbs lexicalise either one or the other (Levin 2015). In the domain of motion this differentiation criterion takes the form of a distinction between the expression (and possibly the conflation) of manner and path. It has been extensively studied by Talmy (1985, 1991, 2000), who offered a typology characterising languages in terms of the lexicalisation patterns of motion events: in satellite-framed languages, verbs usually encode manner, while the path of the movement is encoded outside the verb (base) by satellites such as adverbial particles (but also prepositions and prefixes); in verb-framed languages, the path is expressed by the verbs, and manner is either omitted or realised by means of an adverbial expression. The discovery of finer typological distinctions across languages with respect to motion expressions has led to the refinement of the original Talmian typology in the works of a number of authors (Aske 1989, Slobin 1996, Papafragou et al. 2002, Ibarretxe-Antuñano 2004, Slobin 2004, Filipović 2007, Beavers et al. 2010, Croft et al. 2010, among others). The interest in the elements that make up the trajectory, or path, of the motion (Jackendoff 1983: 162, Talmy 1985: 57, Lakoff 1987: 275) has been reflected in numerous studies on the lexical encoding and syntactic expression of these elements in co-occurrence with the verb (Rohde 2001, Rakhilina 2004, Stefanowitsch & Rohde 2004, Cristobal 2010, Kopecka 2010, to mention but a few). A related line of research has been the study of the bias with respect to the expression of one path element over another in and across languages (Ikegami 1987, Dirven & Verspoor 1998, Stefanowitsch & Rohde 2004, Wälchli & Zúñiga 2006, Verkerk 2017, among others).

The distinction between manner and path of motion and the expression and profiling of different sections of the path, have been the prime focus of many other studies. For instance, Viberg (2015) proposes a verb typology with respect to the expression of the endpoint of motion in Swedish in comparison with English, German, French and Finnish. In her study Kopecka (2010) explores lexicalisation patterns of manner of motion verbs in Polish, while Łozinska (2018) delves

into the expression of path and manner in Polish and Russian in contrastive terms. Taremaa (2017, 2021) has explored motion verbs in Estonian, focusing on the expression of source, goal, path, location and direction with both manner of motion verbs and source- and goal-profiling verbs.

Various authors have previously adopted the FrameNet approach in the analysis of motion verbs. Viberg (2008) proposes a study of Swedish verbs of motion in a vehicle; the verbs have been analysed from a cross-linguistic perspective and with respect to their encoding in FrameNet. Cristobal (2010) provides a detailed analysis of `Arriving` verbs in English and Spanish. Imani & Naeini (2020) study a selection of manner of motion verbs in English and contrast them with their counterparts in Persian.

A number of studies in these lines of research have been dedicated to Bulgarian motion verbs. Tchizmarova (2015) analyses several verbs with respect to the way they divide the space of linear motion, including the co-occurrence with directional phrases. Lindsey (2011) and Speed (2015) explore the preference for and distribution of manner and path verbs in Bulgarian in contrast with other Balkan and Slavic (Balkan and non-Balkan) languages and come to the conclusion that, as suggested for Modern Greek, Bulgarian does not conform to one of the two Talmian typological patterns of conflating motion. In her work Pantcheva (2007a,b) centres on prefixation involving directional prefixes in Bulgarian and how this process affects event structure and syntactic structure, as part of a cross-linguistic study on directional expressions (Pantcheva 2011).

A small number of FrameNet-based studies dealing with Bulgarian motion verbs have also been published, usually focusing on a small selection of predicates and their description in FrameNet, possibly supported by corpus data. For instance, Dekova & Nestorova (2010) offer an analysis of Bulgarian verbs of non-directed motion, while Nestorova (2009) discusses several transitive verbs involving the relocation of masses of people (*populate* verbs).

This chapter's contribution lies in delivering an analysis of a selection of a non-directed and directed motion verbs in Bulgarian as compared with their English counterparts implemented through the adoption of the descriptive devices developed within the Berkeley FrameNet project and applying them to Bulgarian. The proposed methodology provides a solid foundation for cross-linguistic study of the semantic and syntactic properties of verbs.

3 The organisation of FrameNet

3.1 Semantic frames and frame elements

FrameNet (Fillmore et al. 1998, Baker 2008) is a lexical resource which couches lexical and conceptual knowledge in the theory of Frame Semantics (Johnson et al. 2001, Fillmore 2003, Ruppenhofer et al. 2016). A semantic frame is a "script-like structure of inferences, linked by linguistic convention to the meanings of linguistic units – in our case, lexical items. Each frame identifies a set of frame elements (FEs) – participants and props in the frame. A frame semantic description of a lexical item identifies the frames which underlie a given meaning and specifies the ways in which FEs, and constellations of FEs, are realised in structures headed by the word" (Johnson et al. 2001: 9). Each frame in FrameNet is represented by means of a definition that describes schematically the situation and the way in which at least the most essential FEs are involved in it. Each FE is also supplied with a definition that further clarifies its semantics and its interaction with other FEs. Frame elements have different status reflecting their role in the description of a given semantic frame: core, peripheral or extra-thematic (Ruppenhofer et al. 2016: 19–20). A core FE is "one that instantiates a conceptually necessary component of a frame, while making the frame unique and different from other frames" (Ruppenhofer et al. 2016: 23). Peripheral FEs make reference to notions such as Time, Place, Manner, Means, Degree, etc. Extra-thematic FEs characterise an event against a backdrop of another state of affairs, either of an actual event or state of the same type (e.g. the FE Iteration), or by evoking a larger frame within which the reported state of affairs is embedded. A frame in FrameNet is linked to the meanings of a set of linguistic items, called lexical units (LUs). Each LU is thus a pairing of a word and a meaning whose conceptual semantics is represented by the frame (so that the LU is said to evoke the relevant frame). Below, reference will be made mainly to core FEs as the ones that are most essential to the description of the different frames.

The observations presented below are based on the data in the Berkeley Frame-Net requested in 2017. For the sake of consistency, in the course of this work the data have been checked against the online version of the resource.[2]

3.2 Frame-to-frame relations

FrameNet frames are organised in a network by means of a number of hierarchical and non-hierarchical frame-to-frame relations (Ruppenhofer et al. 2016:

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[2]The official Berkeley FrameNet has migrated to: http://berkeleyfn.framenetbr.ufjf.br/. The online searchable database is available for browsing at https://framenet2.icsi.berkeley.edu/.

81–84). Four of them denote hierarchical relationships that bear relevance to the internal organisation of a particular semantic domain of the lexis and will be discussed below. *Inheritance* is a relation between a more general (parent) frame and a more specific (child) frame where "each semantic fact about the parent must correspond to an equally specific or more specific fact about the child" (Ruppenhofer et al. 2016: 81–82), i.e. there should be a strict correspondence between entities, frame elements, frame relations and semantic characteristics in the parent and the child frame (Petruck 2015). Examples of this relation in the context of the studied domain are represented by the frames `Self_motion`, `Fluidic_motion`, etc. (see Fig. 1, p. 186), which share the main configuration of frame elements defined for the parent frame `Motion`, but in addition provide a further specification of the THEME as an entity moving under its own power and will, i.e. a SELF_MOVER (in `Self_motion`), or as a FLUID (in `Fluidic_motion`). *Using*, also defined as weak *Inheritance* (Petruck 2015), is a relation between a parent frame and a child frame in which only some of the FEs in the parent have a corresponding entity in the child, and if such exist, they are more specific (Petruck & de Melo 2012). In the studied domain, an instance of such a relation exists between `Motion` and its child `Operate_vehicle`. Like `Motion`, the more specific frame describes the translational motion of a THEME from a SOURCE to a GOAL along a PATH, but elaborates on it by introducing further frame elements: an AGENT, who controls the movement, and a CARRIER, which is the actual object carrying the THEME. *Perspective* is a relation where a more abstract situation viewed as neutral may be specified by means of perspectivised semantic frames that represent "different possible points-of-view on the neutral frame" (Ruppenhofer et al. 2016: 82). For instance, the frames `Operate_vehicle` and `Ride_vehicle` perspectivise different facets of the idea of moving by means of a vehicle described in `Using_vehicle` according to the involvement of a person, who is being transported, as either the driver/operator or as a passenger. *Subframe* captures the relationship between a complex frame referring to "sequences of states and transitions, each of which can itself be separately described as a frame" and the frames denoting these states or transitions (Ruppenhofer et al. 2016: 83–84). For example, the frames `Arriving` and `Departing` are defined as subframes of `Traversing`, as they describe the initial and the final stage of the translational movement that results in a moving entity's change of location.

A comprehensive description of all the frame-to-frame relations with more examples is provided in Ruppenhofer et al. (2016).

4 English and Bulgarian data employed in the study

4.1 FrameNet and WordNet as a source for the inventory of motion verbs

The inventory of English verbs and their semantic and syntactic description used in the study is directly derived from the description of the lexical units in the studied semantic frames in the Berkeley FrameNet, as well as the lattices summarising the valence patterns attested in the FrameNet corpus, including the particular syntactic realisation of the FEs in terms of their syntactic category and syntactic function. The corpus is also used as a source for the examples illustrating the realisation of the English verbs.[3]

The semantic frames are adopted from the Berkeley FrameNet without changes, but where relevant, comments regarding the set of frame elements are made. The Bulgarian verbs are studied independently but in comparison with their English counterparts, taking as a point of departure the relevant motion frames and the valence patterns described in the Berkeley FrameNet. This approach has been adopted to facilitate the description of the motion verbs in the Bulgarian FrameNet whose original concept was laid out in Koeva (2008, 2010) and further elaborated in Koeva (2021b), as well as in Chapter 1, this volume. The Bulgarian FrameNet is implemented within BulFrameNet (Koeva & Doychev 2022), a dedicated web-based system allowing the comprehensive description of the semantic and syntactic properties of verbs. The study of the valence patterns of the motion verbs and the syntactic expression of their semantic participants presented below was undertaken specifically as part of the work on the Bulgarian FrameNet.

The set of Bulgarian motion verbs discussed in the chapter is extracted from the Bulgarian WordNet, a lexical-semantic net modelled on the Princeton WordNet (PWN). PWN (Miller 1995, Fellbaum 1998) is a large lexical database for English that comprehensively represents conceptual and lexical knowledge in the form of a network whose nodes denote cognitive synonyms (synsets) connected through a number of conceptual-semantic and lexical relations such as hypernymy, meronymy, antonymy, etc. The synsets in the Bulgarian Wordnet have been developed by translation and adaptation of the PWN counterparts, and the corresponding synsets in the two wordnets are related to each other through unique interlingual identifiers (which also provide links to the respective synsets in all other wordnets that support them). Thus, the lexical and conceptual knowledge is aligned cross-linguistically. In the course of its creation the Bulgarian WordNet has been expanded so as to cover all the synsets included

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[3]For brevity some of the examples throughout the paper will be adapted.

in PWN (117,659 in total) by means of automatic translation followed by manual editing and enrichment (currently 85,954 synsets have been manually validated). The Bulgarian WordNet includes language-specific lexicalisations (synsets with no correspondence in PWN) as well as synsets describing closed-class words: prepositions, conjunctions, pronouns, particles, interjections; as a result it has amounted to 121,282 synsets altogether. It thus provides substantial coverage of the language's lexis, including verbs (forming a total of 14,103 synsets). In addition, BulNet has developed a number of language-specific characteristics, including notation of verb aspect. The current state of the Bulgarian WordNet is detailed in Koeva (2021a).[4]

WordNet and FrameNet were aligned automatically using several previous mappings coupled with additional procedures for expansion and validation. In particular, the following were employed: (i) direct mappings provided within FrameNet (Baker & Fellbaum 2009), eXtendedWordFrameNet (Laparra & Rigau 2010) and MapNet (Tonelli & Pighin 2009), supplemented with (ii) indirect mapping through VerbNet (Palmer 2009, Palmer et al. 2014). This resulted in 4,306 unique WordNet synsets to FrameNet frame mappings, a coverage of 30.5% of the verb synsets (Leseva & Stoyanova 2020b: 110). A number of procedures inspired by ideas proposed in de Lacalle et al. (2014) and especially in Burchardt et al. (2005) were implemented towards the improvement and extension of the mapping coverage. These procedures, described in Leseva et al. (2018) and further refined in Leseva & Stoyanova (2019, 2020a), are specifically based on exploring the structural properties of the two resources, such as: (i) the assumption that as verbs in a synset denote the same or very similar meaning, they are likely to evoke the same semantic frame; (ii) the hierarchical relational structure of the two resources based on the notion of inheritance from a more general to a more specific synset or frame. As a result, in general, more specific concepts should be associated with the frame of their hypernym(s) or with more specific frames elaborating on (and possibly inheriting from) this frame, although various divergences occur in practice. Part of the other relations among frames and among synsets were also cast as validation procedures. The main mapping mechanism involved: (i) manual assignment of semantic frames to root verb synset to ensure greater accuracy at the highest hierarchical level and to reduce error propagation down the tree; (ii) automatic assignment of the hypernym's frame onto hyponyms which were not previously mapped; and (iii) verification and improvement of the assignments by applying the validation procedures. In this way, the coverage of the automatic mapping has been gradually increased to 94%

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[4]The Bulgarian WordNet may be browsed at: dcl.bas.bg/bulnet/.

(Leseva & Stoyanova 2020b: 115–116). Due to various peculiarities of the structure of WordNet or lack of appropriate frames in FrameNet (as part of the lexis has not yet been described by frames), the automatic assignment has been undergoing manual validation, so far covering almost 50% of the mapping (over 6,000 synsets).

The FrameNet-to-WordNet alignment together with the alignment between the Princeton WordNet and the Bulgarian WordNet has enabled the association of Bulgarian verbs with a FrameNet semantic description. This possibility is founded on the assumption that although the construal of the semantic description of situations across languages (as well as across resources) often differs, the major semantic aspects represent shared conceptual knowledge. Such an assumption underlies the development of both wordnets and framenets for other languages besides English, as well as the Global FrameNet initiative and Shared Annotation Task (cf. Section 1). The genealogical and typological similarities between English and Bulgarian have also made it possible to base the syntactic description of the Bulgarian verbs of motion on the one provided for their English counterparts in the Berkeley FrameNet. Similar ideas have been pursued by other authors who have adopted a FrameNet-oriented approach to the semantic and syntactic analysis for languages other than English (cf. Section 2). The analysis below has been specifically informed by previous work on Bulgarian change (Leseva & Stoyanova 2021) and stative verbs (Leseva & Stoyanova 2022b).

The English and the Bulgarian verbs included in the analysis are members of synsets that have been assigned one of several FrameNet frames belonging to the motion domain. In order to be selected, they had to meet the following requirements: (i) pertain to the general lexis; (ii) have a corresponding LU in FrameNet with a sufficient number of annotated sentences (20+). This means that synsets such as {walk:1} 'use one's feet to advance; advance by steps' and {run:34} 'move fast by using one's feet, with one foot off the ground at any given time', which have as correspondences the LUs *walk.v* and *run.v* in the Self_motion frame are included in the analysis, while ones such as {lollop:1} 'walk clumsily and with a bounce' and {hare:1} 'run quickly, like a hare' are not. These requirements have been adopted for the following reasons: general-lexis verbs are more likely to be represented in BulSemCor (see Section 4.2), hence more Bulgarian examples would be available for them; the representation in the FrameNet corpus provides the pool of examples for English.

4.2 Annotated examples

The statistics and analysis for English are based on the annotated sentences available for the respective verbs in the Berkeley FrameNet.

The examples of the usage of the selected Bulgarian verbs are extracted from BulSemCor (Koeva et al. 2006, 2011) – a 100,000-word corpus designed according to the overall methodology of the English SemCor (Miller et al. 1993, 1994, Landes et al. 1998), further adapted by using criteria for ensuring an appropriate coverage of contemporary Bulgarian general lexis. As BulSemCor is manually annotated with wordnet senses, it provides disambiguated examples for the studied verbs. Where the number of examples is not sufficient, they have been supplemented with sentences from the Bulgarian National Corpus, a corpus of 1.2 billion words of running Bulgarian text distributed in 240,000 text samples spanning the second half of the 20th century and the beginning of the 21st century (Koeva et al. 2012). As the corpus is not sense-disambiguated, the examples have been selected manually so as to correspond to the studied senses.

The Bulgarian examples extracted from the different corpora have been annotated so that the sentence components that syntactically realise the core frame elements related to motion are explicitly marked in a similar fashion to the annotation in the Berkeley FrameNet corpus. The selection covers 893 annotated clauses or sentences distributed as follows across the selected semantic frames: `Motion` – 149; `Self_motion` – 262; `Arriving` – 182; `Departing` – 178; `Traversing` – 122.

5 The domain of Motion

5.1 Organising semantic domains

As suggested by Johnson et al. (2001: 16), the lexicon pertaining to a semantic domain is hierarchically organised in a number of semantic frames of different abstraction and specialisation related through the frame-to-frame relations that capture semantic generalisations existing across frames. Thus, as pointed out in the work cited, for many semantic domains, there is one general frame that describes the common aspects of the more specific frames. It may be posited that at the conceptual level all (or most) frames in a domain share this basic structure consisting of a configuration of FEs that defines the distinctive meaning of the domain. The mechanisms that organise such a part of the lexis involve various changes in this prototypical structure that reflect the various ways in which specialisation within the domain occurs: (i) not all frames allow the overt expression

of all FEs – some of them may be blocked from overt expression, although they are conceptually necessary and implied in the meaning of the lexical units; (ii) more specific frames may exclude some FEs or demote them to non-core status; for instance, in the Goal-profiling `Arriving` and the Source-profiling `Depart-ing` frames the FEs describing the remaining parts of the route are regarded as non-core; (iii) more specific frames may further narrow down the semantic properties of one or more of the FEs as compared with their counterparts in the more general frame (for instance, impose stricter selectional restrictions on the expressions realising the FEs): e.g. the moving entity is defined as the FE Fluid in the `Fluidic_motion` frame, and as Mass_theme in the `Mass_motion` frame which both inherit from the `Motion` frame (Fig. 1, p. 186); (iv) more specific frames may include other FEs besides the ones describing the general frame, may change perspective, incorporate or profile a certain FE. An example of a semantic elaboration resulting in the introduction of a new FE is the specification of the vehicle which "holds or conveys" the traveller (the FE Mode_of_transportation) in the `Travel` frame (Fig. 1).

The observations below are based on the theoretical and practical motivations described in Johnson et al. (2001), Petruck & de Melo (2012), Petruck (2015), Ruppenhofer et al. (2016) and the definitions, comments and frame-to-frame relations in FrameNet.

5.2 General organisation of the domain of motion

The lexis denoting movement is most broadly divided between translational and non-translational (or self-contained) motion with respect to some background or location. Based on the definitions in FrameNet,[5] in the first case a moving entity typically starts at some location, moves through space along a trajectory and ends up in another location. Non-translational motion[6] involves the movement of an entity or parts of it with respect to some fixed location or landmark, without undergoing motion in space or without a significant alteration of configuration or shape. Translational motion is most broadly described by the non-lexicalised frame `Motion_scenario`, which is further perspectivised by several frames, two of which, `Motion` and `Traversing`, form the core of the translational motion domain. Non-translational movement is described by the `Moving_in_place` frame and its causative counterpart `Cause_to_move_in_place`, which are evoked by LUs such as *rock, shake, twirl*, e.g. *The earth shook* vs. *He shook the remote control.* In what follows below, the focus will be on translational motion.

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[5]http://framenet2.icsi.berkeley.edu/fnReports/data/frameIndex.xml?frame=Motion
[6]https://framenet2.icsi.berkeley.edu/fnReports/data/frameIndex.xml?frame=Moving_in_place

Another major division in the domain of motion is between (i) self-induced motion that a moving entity undergoes on its own – under its own physical power, due to some internal cause, physical forces, features of the relief, etc., and (ii) caused motion that is brought about by an external participant that may be an animate, volitional AGENT or a non-animate CAUSE. The prototypical semantic frame that organises the lexis of this type of translational motion is `Cause_motion`, which is indirectly integrated in the `Motion_scenario` through its causative relation to `Motion` (i.e. `Cause_motion Is_causative_of Motion`). The frames related to `Cause_motion` include `Bringing` (e.g. *bring, carry, transport*), `Placing` (e.g. *bottle, load, pocket*), `Filling` (e.g. *fill, flood*), `Removing` (e.g. *extract, remove*), `Emptying` (e.g. *empty, purge*), as well as some frames (e.g. `Cause_fluidic_motion`) that have counterparts in the non-causative domain (`Fluidic_motion`).

As suggested in the description of the `Motion` frame, a complex area in the vocabulary of motion is the depiction of the relation of VEHICLES to the moving entity and other participants. In the cases where the moving entity cannot be expressed, the LUs denoting the motion of vehicles are treated as evoking the `Self_motion` frame and the vehicles are annotated as SELF_MOVERS. When the VEHICLE is profiled as being operated by a DRIVER, the relevant LUs evoke the frame `Operate_vehicle`; the DRIVER may be construed very generally as the one controlling the vehicle, as attested by verbs such as *bicycle, canoe, paddle, skate*, along with verbs involving special qualifications or skills such as *drive, fly, sail, taxi*. The situation where the moving entities are passengers that are transported by means of the VEHICLE which is not under their control, is described by the `Ride_vehicle` frame (*bus, hitchhike, ride, sail*).

Another type of elaboration in the motion domain described in the definition of the frame or reflected in the frame-to-frame relational structure refers to properties of the manner of motion, which basically stem from prominent features of the moving entity. One such feature is the requirement for the moving entity to be a living being whose body moves on its own, using its own energy, as in `Self_motion` (e.g. *jog, limp, run, walk*), and semantic frames inheriting from it such as `Cotheme` (*accompany, lead, track*) and `Travel` (*journey, tour, voyage*). Further salient distinctions based on the types of entities involved in the motion and the specific manner of motion typical of them is reflected in the definition of several frames such as: `Fluidic_motion` (e.g. *cascade, ooze, stream*), describing the motion of liquids; `Mass_motion` (e.g. *crowd, swarm, throng*), which refers to the motion of a collective of individuals (a MASS_THEME) as one entity; `Motion_noise` (e.g. *buzz, roar, whir*), specified according to the type of noise the moving entity produces; `Light_movement` (e.g. *gleam, shine, twinkle*), describing the emission and movement of light, etc.

Another facet of motion has to do with the feature of directionality, which is lexically encoded in some LUs (e.g. *descend, fall, rise* in the `Motion_directional` frame). Directed motion is also described in semantic frames that profile parts of the path along which an entity moves, such as its initial (`Departing`) or final stage (`Arriving`).

In the remaining part of the chapter the analysis will be focused specifically on non-directed and directed motion verbs as represented by semantic frames such as `Motion` and `Self_motion` on the one hand, and `Traversing`, `Arriving` and `Departing` on the other, drawing parallels between the semantics and syntactic expression of the relevant frame elements.

The overall organisation of the domain of self-induced translational motion is partially represented in Figure 1.

5.3 `Motion`

5.3.1 Semantic description of the `Motion` frame

The `Motion` frame describes the changing of spatial location of a THEME understood in the classical sense of Gruber (Gruber 1965: 27–31, Jackendoff 1972: 29) as an entity that moves. More precisely, the LUs in this frame involve the translational motion of entities that are either not (capable of) moving under their own power or are underspecified for this feature. Therefore, many of the definitions of the motion frames for which this property is relevant note that the THEME is frequently a living being moving on its own but need not be. Generalising over FrameNet examples such as the following, one can infer that the motion may be induced by various factors: (i) an outside force: [*The black dust*]$_{THM}$ *began* **BLOWING OFF** [*the tailings lake*]$_{SRC}$; (ii) the THEME's own momentum: *It fell on the floor and* [_]$_{THM}$ **ROLLED** [*towards Uncle Mick's feet*]$_{GOAL}$; (iii) some internal process: [*Tears*]$_{THM}$ **ROLLED** [*down my cheeks*]$_{PATH}$, etc., but it is represented with respect to the involvement of the THEME in it, regardless of the cause that has brought it about. Volitional or self-directed motion is elaborated in some of the frames inheriting from `Motion`, `Self_motion` and its descendants in particular. The remaining core FEs of the `Motion` frame describe various elements or properties of the path[7] that the moving entity moves along.

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[7]When used with a capital letter, PATH would mean the frame element; in small letters, path would be used in its accepted meaning in the literature, i.e. the medial part of the route traversed by a **Figure** (Fillmore 1971: 26, Lakoff 1987: 275, among others). The term "route" will be used instead of "path" to refer to the line of movement that comprises all the three elements: SOURCE, PATH and GOAL.
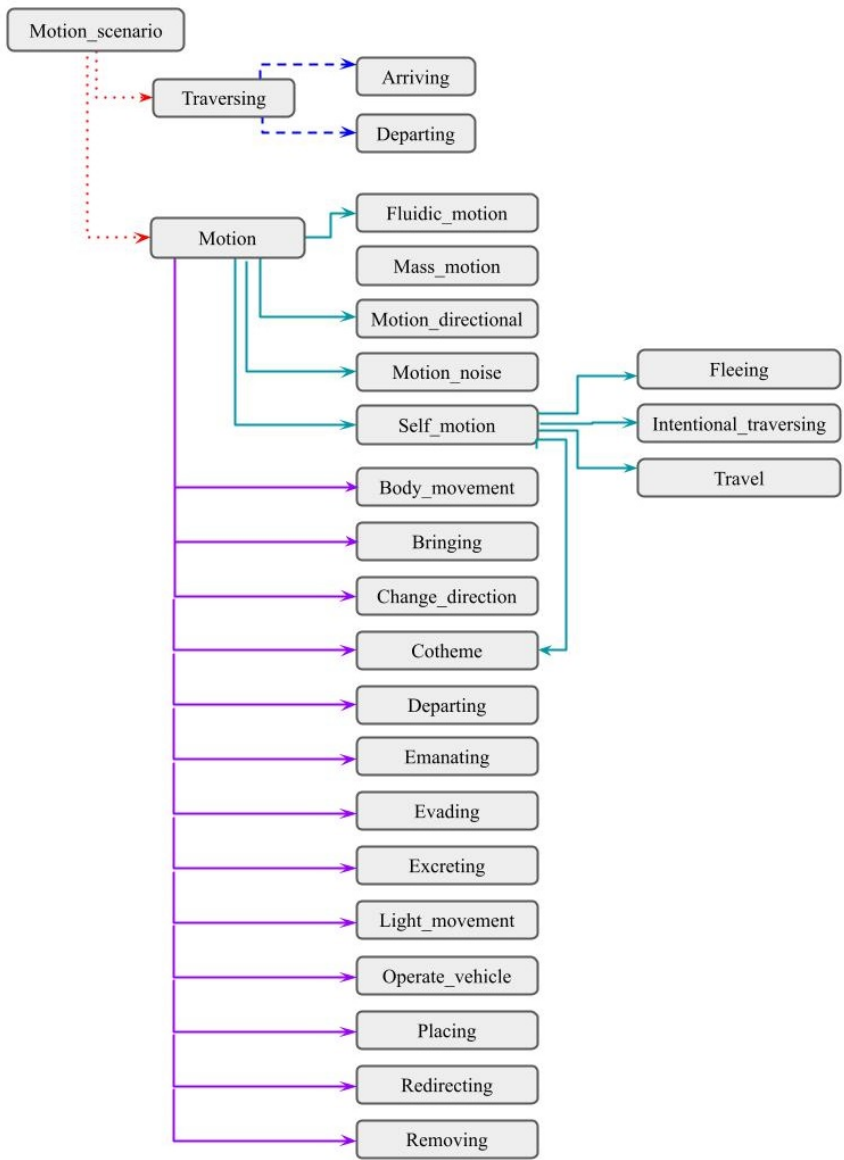
Figure 1: The Motion hierarchy: green lines denote the relation of *Inheritance*; red lines show the relation *Perspectivises*; blue lines correspond to the *Subframe of* relation; magenta lines denote the relation *Using*.

Definition of the `Motion` frame: Some entity, the Theme, starts out in one place
(Source), and ends up in some other place (Goal), having covered some
space between the two (Path). Alternatively, the Area or Direction in
which the Theme moves or the Distance covered may be mentioned.[8]

Core FEs in the `Motion` frame: Theme, Source, Goal, Path, Area, Direction,
Distance.

The Theme[9] is defined as "the entity that changes location". An important
feature of this FE noted in the FrameNet description is that it need not be a
Self_mover, that is, it need not be capable of moving on its own and by its
own power or will. Its semantic specification includes animate beings, physical
objects, substances, etc.

The Source is "the location the Theme occupies initially before its change of
location". It may refer to geological and other natural formations, geographical
points, celestial bodies; physical objects, including man-made structures, such as
buildings, constructions, facilities, other objects occupying space, etc.

The Goal is "the location the Theme ends up in" as a result of the motion. It
has the same semantic specification as the Source.

The Path refers to "(a part of) the ground over which the Theme travels or to
a landmark by which the Theme travels". Its semantic specification encompasses
locations, including geological and other natural formations, geographical points,
celestial bodies; physical objects, including man-made structures and other ob-
jects occupying space that may be construed as having extent along which the
motion takes place; extents of various media, such as water, air, etc.

The Area identifies the setting where "the Theme's movement takes place
without a specified Path". A notable consequence of the lack of a single linear
trajectory is that the Area cannot co-occur with Source, Goal and Path, i.e. it is
defined in an 'excludes' relation to each of them as well as to the FEs Distance
and Direction which provide additional details referring to the translational
motion in space. Like Path, the semantic specification of Area refers to locations,
physical objects, other objects occupying space, various media, such as water, air,
etc., which, however, may be construed as comprising some spatial expanse in,
over or around which the motion takes place in an irregular fashion.

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[8]The frame definitions are taken from FrameNet: https://framenet.icsi.berkeley.edu/framenet_
search.

[9]The definitions of the FEs are taken from the description of the `Motion` frame, with further
elaboration on their semantic specification informed by the annotated examples studied in the
paper.

The Direction indicates "motion along a line from the deitic center towards a reference point (which may be implicit) that is neither the Goal of the posture change nor a landmark along the way of the moving part of the body. Often Direction is defined with reference to the canonical orientation of the Protagonist, or the orientation imposed by an implicit observer". The semantic specification of this FE includes directions, such as compass points (north, east, south, west), body relative directions (left, right, back, front, backward, forward, up, down), coordinates, etc.

The Distance encompasses expressions that characterise "the extent of the motion" covered by the Theme. Its semantic specification includes distance denotations expressed either in various systems of measurement or as relative distances (farther, closer), etc.

The basic configuration of the core FEs of the Motion frame and the interaction among them determines the overall semantic specification of the prototypical notion of motion, which is subject to various modifications and elaborations in the more specific motion frames.

The syntactic expression of the semantic configuration of the Motion frame will be discussed in terms of: (i) the (typical) syntactic projections of each core FE, in particular its syntactic (phrasal) category and grammatical relation; (ii) the most frequent valence patterns, i.e. the various frequent combinations in which the core FEs co-occur in the annotated FrameNet corpus. For English, both types of data are extracted from the summaries provided for each LU in FrameNet; the Bulgarian counterparts are analysed in comparison with the descriptions available for English and tested against the corpus of annotated examples created for Bulgarian (see Section 4.2 above).

5.3.2 Verbs evoking the Motion frame

The Motion frame is evoked by a couple of basic verbs of inherently directed motion (Levin 1993), such as *come* and *go*, as well as by verbs of non-directed motion. Within the second class, some predicates, such as *move* and *travel*, describe the general idea of moving through space, while others, for instance *blow*, *drift*, *float*, *circle*, *roll*, denote various types of manner of motion; part of these verbs, e.g. *meander*, *spiral*, *weave*, *wind*, *zigzag*, involve complex trajectories.

5.3.3 Syntactic realisation of the frame elements in the Motion frame

Table 1 below illustrates the syntactic realisation of several verbs evoking the Motion frame, chosen according to the following criteria: (i) having a sufficient

number of attestations in the FrameNet corpus, thus allowing for more reliable observations; (ii) illustrating distinct syntactic patterns with respect to the expression of the FEs denoting the different parts or features of the route of movement.

The THEME is typically projected in the subject position and the remaining core FEs are expressed primarily as prepositional (PP) or, more rarely, as adverbial phrases (marked as AVP). Some of the verbs also allow object NPs, especially as a realisation of PATH: [*She*]$_{\text{THM}}$ **CIRCLES** [*the taxi*]$_{\text{PATH}}$. In addition, the core FEs expressing elements or aspects of the route, may be conceptually present but left syntactically non-overt if they are known or retrievable from the previous text (definite null instantiations, DNIs) or implied from a broader context but without a referent in the previous text (indefinite null instantiations, INIs) or if the grammatical construction requires them to be left non-explicit (constructional null instantiations, CNIs), cf. (Ruppenhofer et al. 2016: 28–30).

Several preliminary observations are relevant at this point. Usually, the route is conceived as a tripartite spatial extent consisting of an initial part, SOURCE, a medial part, PATH[10], and a final part, GOAL (Jackendoff 1983: 162, Talmy 1985: 57, Lakoff 1987: 275). As mentioned in Section 2, studies on the co-occurrence of directional phrases with motion verbs have shown that verbs tend to express the element of the route that is most prominent in their semantics. It has been convincingly demonstrated for many languages that GOAL-oriented verbs tend to co-occur with GOAL phrases (Rakhilina 2004: 22–24, Stefanowitsch & Rohde 2004: 255-257, Taremaa 2017: 174–178, among others), and SOURCE-oriented verbs co-occur with SOURCE phrases (Rakhilina 2004: 22–23, Stefanowitsch & Rohde 2004: 255-257, Taremaa 2017: 160–164), see also the analyses proposed in studies such as the ones by Cristobal (2010), Kopecka (2010).

In addition, it has been posited that there is a marked cross-lingual asymmetry with respect to the expression of the SOURCE and the GOAL, known as the goal-over-source principle. This proposition suggests that GOALS are expressed more frequently, using more fine-grained linguistic devices than SOURCES (Ikegami 1987, Wälchli & Zúñiga 2006, Verkerk 2017, among others). One of the explanations for this peculiarity offered in the literature is that GOALS bear higher information value with respect to the complete conceptualisation of motion (Stefanowitsch & Rohde 2004: 249); for an extensive overview of the discussion, see Verkerk (2017). However, as noted above, the preference for one type of phrase over another depends on the semantics of the verb, specifically, whether the verb

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[10]Various names have been applied to this part; here I adopt the name of the relevant FrameNet frame element.

conceptualises the motion in terms of a route or not (Stefanowitsch & Rohde 2004).

Unlike Source- and Goal-phrases, Path-phrases do not express directionality (see also Pantcheva 2011: 31). Considering that many of the verbs in the Motion frame describe non-directed motion, the Path should be the most prominent phase of motion inherent in their semantics and hence will be favoured for syntactic expression, unless some other aspect of motion turns out to be more prominent. Respectively, we should expect that the inherently directed-motion verbs – *go* and *come* – favour Goal-phrases. Table 1 confirms these expectations, which are further corroborated by the co-occurrence patterns in Table 2: the ones involving Paths are the most frequent among the top ranking patterns (Column 1) and have the greatest number of occurrences (Column 2) across the greatest number of verbs (Column 3).

Looking at individual verbs, a couple of trends may be noted with respect to the prevalence of expression of the route-related FEs (i.e. all the core FEs, excluding the Theme) (Table 1).

Path: Several verbs show marked preference for expressing syntactically Paths over any other route-related FEs. These include *move* as well as a number of manner of motion verbs: *weave*, *circle*, *glide*, *meander*, *wind*, *zigzag*. Among them *glide* denotes qualitative features of the movement (effortlessness) and the contact with the surface along which the motion takes place. *Weave*, *wind*, *meander* and *zigzag*[11] describe complex vacillating or snake-like movement along a more or less linear route or general direction, while *circle* refers to a circular trajectory. In all these cases the Path – including its form, landmarks, etc. – is the default spatial dimension according to which the movement is characterised.

The second most prominent aspect of motion with the verbs in the Motion frame is the end-point of the route, the Goal. It is usually less frequent than Path, to the exception of the inherently directed motion verb *go* (cf. also Stefanowitsch & Rohde (2004: 253–254), for which the prevalence of Goal- over Path-phrases is roughly 4:1.

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[11]There are other verbs, e.g. *undulate* and *spiral*, that possibly behave in a like manner, but the number of occurrences is too small to make a judgment.

Table 1: Syntactic expression of the Motion FEs in FrameNet

	NP.Ext	NP.Obj	PP	AVP	NI	Clause	Other	Total
move								
THEME	67							67
AREA			2					2
SOURCE			5	2				7
PATH		3	30	5	21			59
GOAL			5		1			6
DIRECTION				1				1
DISTANCE							1	1
go								
THEME	64				1			65
AREA		1	1					2
SOURCE			1	1	3			5
PATH			8	2	1			11
GOAL	1	2	30	8	6	1		48
DIRECTION			1	5			1	7
DISTANCE			1	1	1			3
drift								
THEME	39							39
AREA			2					2
SOURCE			9					9
PATH			15	4	4			23
GOAL			8	1			1	10
DISTANCE				1			1	2
float								
THEME	43							43
AREA			13	1				14
SOURCE			4	1				5
PATH			13	3	2			18
GOAL			8					8
DISTANCE				1				1
roll								
THEME	31							31
AREA			1					1
SOURCE			1	1				2
PATH		3	17	2				22
GOAL			9	1		1		11

	NP.Ext	NP.Obj	PP	AVP	NI	Clause	Other	Total
slide								
Theme	26							26
Area			3					3
Source			1				1	2
Path			9					9
Goal			10					10
Direction			1	5				6
swerve								
Theme	27							27
Area			2		4			6
Source			4					4
Path			10					10
Goal			2					2
Direction			5	2				7
weave								
Theme	27							27
Area			3					3
Source			1					1
Path		1	20		1			22
Goal			1					1
Direction			4					4

The other verbs tend to express either the Path or another aspect of the route, usually with prevalence of the former.

Path or Goal: The preference of either Path- or Goal-phrases (but not any other type of phrase) is typical of the verb *roll*: the Path-expressions outnumber the Goal-expressions by two to one.

Path, Goal or Source: *Blow* and *drift* exhibit preference for either Path- or Goal-phrases but also tend to express the Source more often than most of the remaining verbs evoking the Motion frame. However, with *drift*, Path is the predominant type of expression, with Goals and Sources being half as few, while with *blow* the three parts of the route are represented equally.

The three other motion FEs – Direction, Distance and Area – are not usually discussed separately in the literature. By virtue of its definition, Area occurs in competition with the elements of the route. The rationale is that it describes motion encompassing an expanse that is not construed in terms of a discreet trajectory. Areas are not equally represented across manner of motion verbs

as a whole, but are typical for some of them. Direction and Distance are represented by just a few examples across different verbs and have much poorer inventories. They still do need to be considered as separate FEs, as (i) some verbs incorporate them (e.g. *descend*, *rise* incorporate Direction), and (ii) they may be independently expressed syntactically (Example 1).

(1)   [*The storm*]$_{\text{Thm}}$ **was MOVING** [*north*]$_{\text{Dir}}$ [*along the coast*]$_{\text{Path}}$.

Path, Direction or Area: This pattern is represented by the verb *swerve*, which describes motion involving a complex route characterised by an abrupt change in direction from an imaginary straight line or course. Respectively, it tends to co-occur with Path-expressions as well as with ones denoting the newly assumed Direction. As this kind of motion may encompass a broader spatial region, the FE Area is also more frequently expressed than with other verbs.

Path, Area or Goal: The verb *float* denotes a manner of motion which is brought about by the movement of a fluid. As this type of motion tends to encompass an expanse of the medium where it takes place, Area-expressions are much more typical than with the rest of the verbs evoking the frame – almost on a par with Paths and more than Goals.

Path, Goal or Direction: This pattern is exemplified by the verb *slide*. While it is expected to co-occur with Path (like *glide*), the verb also shows a tendency to express directionality either by means of Goal-phrases, which in the data are represented on par with Paths, or by means of the FE Direction.

5.3.4 FrameNet valence patterns

Table 2 sums up the most frequent valence patterns represented among verbs evoking the `Motion` frame, understood as combinations of FEs which co-occur syntactically, including null instantiations.[12]

The patterns corroborate the prominence of the Path FE expressed predominantly as a prepositional phrase, followed by indefinite null instantiations (INIs), noun phrases and adverbial phrases. The second most frequent pattern involves the Goal, followed by Area- and Source-phrases. It is also notable that the simultaneous expression of two route-related FEs is much rarer.

5.3.5 Syntactic realisation of `Motion` verbs in Bulgarian

The list of Bulgarian verbs evoking the `Motion` frame includes the Bulgarian counterparts of the verbs considered above. In particular, it features (i) a couple

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[12]Non-core FEs are not considered in the analysis.

Table 2: FrameNet valence patterns of Motion verbs

Pattern	#	Verbs
[NP.Ext]$_{\text{THM}}$ [PP]$_{\text{PATH}}$	134	*move, meander, go, roll, snake, float, undulate, zigzag, coast, fly, slide, swerve, glide, blow, circle, weave, drift, wind*
[NP.Ext]$_{\text{THM}}$ [PP]$_{\text{GOAL}}$	60	*move, fly, slide, meander, go, roll, soar, swerve, come, blow, float, drift*
[NP.Ext]$_{\text{THM}}$ [_]$_{\text{PATH-INI}}$	40	*coast, move, go, soar, glide, blow, float, circle, weave, drift, zigzag*
[NP.Ext]$_{\text{THM}}$ [PP]$_{\text{AREA}}$	29	*move, fly, slide, go, roll, snake, swerve, blow, float, weave, drift*
[NP.Ext]$_{\text{THM}}$ [PP]$_{\text{SRC}}$	28	*move, slide, snake, swerve, come, glide, blow, float, drift, zigzag*
[NP.Ext]$_{\text{THM}}$ [NP.Obj]$_{\text{PATH}}$	14	*coast, move, roll, soar, circle, weave*
[NP.Ext]$_{\text{THM}}$ [PP]$_{\text{DIR}}$	11	*swerve, come, weave*
[NP.Ext]$_{\text{THM}}$ [AVP]$_{\text{PATH}}$	11	*move, soar, glide, blow, float, drift*
[NP.Ext]$_{\text{THM}}$ [AVP]$_{\text{GOAL}}$	9	*go, roll, blow*

of verbs of directed motion which belong to the central part of the motion lexis – *идвам* 'come', *отивам* 'go' and their perfective aspect counterparts[13] (on the deictic aspects of these verbs, cf. Nitsolova 1984, Trifonova 1982, Stanisheva 1985, among others), and (ii) a number of non-directed motion verbs, predominantly ones describing various manners of motion, such as *вия се* 'wind', 'weave', *духам* 'blow', *летя* 'fly', *лъкатуша* 'meander', *нося се* 'drift', 'float', *плувам, плавам* 'float', *кръжа, обикалям* 'circle', *търкалям се* 'roll', etc., as well as ones denoting the general idea of moving through space, such as *движа се* 'move', 'locomote' and *пътувам* 'travel'.

A selection of corpus examples has been collected for several of them (verbs having correspondences among the English predicates represented in Table 1), and annotated with the core FEs: *вия се* 'wind', 'weave', *движа се* 'move', *нося се* 'drift', 'float', *отивам* 'go', *търкалям се* 'roll'. Although on a smaller scale, the results, shown in Table 3, are consistent with the observations on the FrameNet corpus. In particular, *отивам* shows a very strong preference for GOAL-phrases similarly to *go* (Example 2), while the rest of the verbs (Examples 3–6) favour

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[13]For brevity only the imperfective members of aspectual pairs will be listed in the text. The annotated examples include verbs of both aspects, where such exist.

PATHS, with different proportions of other FEs, in particular AREAS for *нося се* 'float', 'drift' and GOALS for *търкалям се* 'roll'.

(2) *[Те]*_{THM} **ОТИВАТ** *право* *[в печатницата]*_{GOAL}.
They go-PRS.3PL straight to printer's-DEF.
'They are going straight to the printer's.'

(3) *[Кучетата]*_{THM} **СЕ ДВИЖАТ** *[по мекия сняг]*_{PATH}.
Dogs-DEF move-PRS.3PL across soft-DEF snow.
'The dogs are moving across the soft snow.'

(4) *[Топката]*_{THM} **СЕ ТЪРКАЛЯ** *[по тревата]*_{PATH}.
Ball-DEF roll-PRS.3PL across grass-DEF.
'The ball is rolling across the grass.'

(5) *[Колата]*_{THM} **СЕ ВИЕШЕ** *[по завоите]*_{PATH}.
Car-DEF wind-PST.3SG along turns-DEF.
'The car was winding along the turns of the road.'

(6) *[Туфа водорасли]*_{THM} **СЕ НОСИ** *[във водата]*_{AREA}.
Clump-INDF seaweed float-PRS.3SG on

water-DEF.
'A clump of seaweed is floating on the water.'

Table 3: Syntactic expression of the Motion FEs in Bulgarian

	NP.Ext	NP.Obj	PP	AVP	NI	Clause	Other	Total
вия се 'wind', 'weave'								
THEME	26							26
AREA			5					5
SOURCE			4					4
PATH			10					10
GOAL			3					3
DIRECTION				1				1

	NP.Ext	NP.Obj	PP	AVP	NI	Clause	Other	Total
нося се 'float', 'drift'								
Theme	32							32
Area			9					9
Source			5	1				6
Path			8	1				9
Goal			6					6
Direction			2	1				3
движа се 'move'								
Theme	31							31
Area			1					1
Source			1					1
Path			18	1				19
Goal			2					2
Direction			3					3
търкалям се 'roll'								
Theme	30							30
Source			2					2
Path			19					19
Goal			7					7
Direction				2				2
отивам/отида 'go'								
Theme	28							28
Source			1					1
Path			2					2
Goal			15	4	1			20
Direction				3				3
Distance				2				2

5.3.6 Valence patterns in the Bulgarian dataset

The valence patterns in the Bulgarian dataset, represented in Table 4, show similar results to the ones in the FrameNet corpus: in particular, a prevalence of patterns exhibiting PP Paths, followed by a more modest representation of Goals and Areas. Among the several top valence patterns, combinations of Sources and Goals are also found.

Table 4: FrameNet valence patterns of Motion verbs in Bulgarian

Pattern	#	Verbs
[NP.Ext]_{THM} [PP]_{PATH}	55	*вия се, въртя се, движа се, нося се, търкалям се, отивам/отида*
[NP.Ext]_{THM} [PP]_{GOAL}	25	*вия се, движа се, нося се, търкалям се, отивам/отида*
[NP.Ext]_{THM} [PP]_{AREA}	15	*вия се, движа се, нося се*
[NP.Ext]_{THM} [_]_{PATH-INI}	10	*вия се, движа се, нося се, отивам/отида, търкалям се*
[NP.Ext]_{THM} [PP]_{SRC}	6	*вия се, нося се*
[NP.Ext]_{THM} [AVP]_{DIR}	5	*нося се, търкалям се, отивам/отида*
[NP.Ext]_{THM} [PP]_{GOAL} [PP]_{SRC}	5	*движа се, нося се, търкалям се, отивам/отида*
[NP.Ext]_{THM} [PP]_{DIR}	4	*движа се, нося се*
[NP.Ext]_{THM} [AVP]_{GOAL}	4	*отивам/отида*

5.4 Self_motion

Self_motion is an elaboration of the Motion frame (and related to it by means of an **Inheritance** relation) which involves a similar configuration of core FEs with some further restrictions.

5.4.1 Semantic description of the Self_Motion frame

Frame definition: The SELF_MOVER, a living being, moves under its own direction along a PATH. Alternatively or in addition to PATH, an AREA, DIRECTION, SOURCE, or GOAL for the movement may be mentioned.

The most important distinction and the one that primarily motivates the differentiation between Motion and Self_motion is the capability of the SELF_MOVER to change location by exercising their own will and power by the coordinated movement of their bodies,[14] which is not a necessity with the Motion THEME. By metaphorical extension, SELF_MOVERS may be self-directed entities such as vehicles. The remaining core FEs in this frame are the ones defining the elements and aspects of the route of movement.[15]

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[14]https://framenet2.icsi.berkeley.edu/fnReports/data/frameIndex.xml?frame=Self_motion

[15]DISTANCE is not defined as a core FE, but will be treated on a par with its equivalent in the mother frame.

Core FEs in the `Self_motion` frame: Self_mover, Source, Goal, Path, Area, Direction, Distance. Self_mover is the entity (living being or a vehicle) that changes location under its own power and direction. Its semantic specification includes **animate beings** and **vehicles**. The remaining core FEs have the same semantic specification as their counterparts in the `Motion` frame from which they are inherited.

5.4.2 Verbs evoking the `Self_motion` frame

Unlike its parent frame, `Self_motion` prototypically describes individuals capable of applying their own will and bodies to perform the motion. The verbs thus encode various aspects of motion impossible for inanimate beings. These involve modes of motion: (i) characteristic of different organisms, e.g. *fly*, *swim*, *crawl*, *slither*, *walk*, etc.; (ii) requiring different configuration of the body: *slouch*, *shoulder*; (iii) (lack of) purposefulness: *roam*, *saunter*, *wander*; (iv) intent: *prowl*, *hike*, *hitchhike*; (v) different kinds of steps, speed, weight or force applied: *mince*, *scurry*, *shuffle*, *plod*, *trample*, *run*, *jog*, *hop*, etc.

5.4.3 Syntactic realisation of the frame elements in the `Self_motion` frame

The expression of the core FEs according to syntactic categories and syntactic function is similar to those of the corresponding FEs in the `Motion` frame. The Self_mover is realised as the external argument; the remaining core FEs are typically realised as prepositional or adverbial phrases.

Table 5 illustrates the syntactic expression of the core FEs for several English verbs with the highest number of attestations in the FrameNet corpus. The verbs evoking these semantic frames further extend the observations made for the `Motion` frame with respect to the tendency for the various verbs to co-occur with motion expressions. Overall, the Path is the prevalent FE to be expressed, followed by Goals, Areas and Sources in descending order (see the valence patterns in Table 6).

Path: Several verbs exhibit a strong preference for Paths over any other core FE: *amble*, *drive*, *make*, *plod*.

Path or Goal: Verbs that show preference to co-occur with either of these FEs can be further distinguished into two patterns.

The first one is Path > Goal: In this case, the examples with Path show prevalence, amounting to around or even more than half of the examples, and

GOALS usually account for a quarter to a third, rarely more, see *hop* in Table 5. This pattern is further illustrated by *hurry, jog, limp, lumber, lunge, lurch, proceed, skip, stagger, stroll, stumble, swagger, totter, trot, trumble, trek.*

PATH = GOAL: With the second pattern, there is no marked preference for one FE over the other, as exemplified by *walk* (Table 5). Other verbs which pattern in a similar way are: *barge, clamber, dash, head, hasten, pad, romp, sidle, toddle, wade.*

PATH, GOAL or SOURCE: This pattern is distinguished from the second subgroup of the previous one empirically on the basis of the greater ratio of SOURCES against the overall number of examples for each of the verbs. The verbs in this group tend to co-occur with expressions denoting any of the three parts of the route more consistently than the remaining verbs evoking the `Self_motion` frame. As already shown in the `Motion` frame, the frequency of each of these FEs is not equal across verbs. In this group one finds that PATHS account for half to up to two-thirds of the examples, GOALS – for a quarter to a third of the examples, SOURCES – usually for a fifth to a quarter of the examples, as illustrated by *crawl* (Table 5), *creep, dart, march, saunter, scamper, scramble, shuffle, spring, sprint, stride, trudge.* Another variation is represented by the verbs *lope, leap, jump*, where PATHS account for half or more of the examples, and GOALS and SOURCES are on a par, about one third of the instances.

PATHS = GOALS or SOURCE: This pattern shows no marked difference between PATHS and GOALS with a weaker preference for SOURCES: *climb* (Table 5), *rush, scuttle.*

GOAL: A couple of verbs, such as *file* and *pounce* show marked preference for GOAL-expressions over all other motion-related FEs.

GOAL or PATH: These verbs tend to co-occur with both GOALS and PATHS with a prevalence of the former (about a half of the examples) to the latter (around a third of the examples): *steal, run* (Table 5).

GOAL, PATH or SOURCE: This combination is exemplified by verbs such as *troop, sneak* (Table 5), *stalk*. The GOALS amount to half or more of the instances, while the PATHS and SOURCES are fewer: around one-third of the examples for PATH and a quarter for SOURCE with *troop*, and equally distributed between the two FEs for *sneak* and *stalk*.

The FE Area usually alternates with expressions denoting one or another element or aspect of the route of a moving entity and as a whole accounts for far fewer cases than Paths and Goals in the frame. For some verbs, however, it is either the preferred motion expression or is much more frequent than with most verbs. This characteristic is typical of verbs that describe motion that encompasses or spreads over a larger region or expanse.

Area: The verbs *traipse* and *skulk* show a much more marked preference for Areas than for other motion-related FEs: half of the instances for *traipse*, two-thirds for *skulk*.

Area or Path: Other verbs tend to co-occur with either Areas or Paths with a prevalence of the former (half or more of the examples) to the latter (around one-third of the examples): *prance*, *prowl*, *roam* (Table 5).

Path or Area: The opposite is observed with *strut* and *flit* where Paths are preferred (between half and two-thirds of the examples) to Areas (a quarter of the examples).

Path, Area or Goal: This pattern shows prevalence of Paths (with half or more of the instances), a substantial number (a quarter to one-third) of Areas and a smaller number (one-sixth to one-fifth of the examples) of Goals: *dance*, *pace*, *swim* (Table 5), *tread*, *tramp*. In the case of *fly* the number of Areas and Goals is equal.

Path, Goal, Area or Source: This pattern shows prevalence of Paths (around half of the examples), with various distributions (between one-fifth and one-third) of the other three FEs: *scurry*, *slither*, *waddle*, *wander* (Table 5).

A couple of verbs, such as *flounce* and *storm*, show preference to Sources over other motion-related FEs.

Table 5: Syntactic expression of the `Self_motion` FEs in FrameNet

	NP.Ext	NP.Obj	PP	AVP	NI	Clause	Other	Total
climb								
Self_mover	115							115
Area		1	2		2			5
Source			21					21
Path		1	46	3	4			54
Goal			59	1				60
crawl								
Self_mover	140							140
Area			18		4			22
Source			23	6				29
Path			58	7	9		1	75
Goal			31	4		1		36
hop								
Self_mover	103							103
Area			14		1			15
Source			9	2				11
Path			50	8	2		2	62
Goal			28	4				32
hurry								
Self_mover	74							74
Source			10	2				12
Path			41	7	2			50
Goal			28	8				36
roam								
Self_mover	66							66
Area		13	26	1	5			45
Source			1					1
Path			13	2	3			18
Goal			2	2				4
run								
Self_mover	64							64
Area			1	3	2			6
Source			3	1	2			6
Path			16		3			19
Goal			16	3	9			28
Direction			4	2	2			8

	NP.Ext	NP.Obj	PP	AVP	NI	Clause	Other	Total
sneak								
SELF_MOVER	68							68
AREA			2					2
SOURCE			17	4				21
PATH			20					20
GOAL		1	37	6				44
swim								
SELF_MOVER	259				1			260
AREA	1	2	54	3	1			61
SOURCE			19	14				33
PATH		5	95	25	42			167
GOAL		1	45	3	1	1		51
DIRECTION				1				1
walk								
SELF_MOVER	102							102
AREA			9	2	4		1	16
SOURCE			17		1			18
PATH		2	36		6		1	45
GOAL			29	2	1	3	7	42
DIRECTION			3	3	1			7
wander								
SELF_MOVER	81							81
AREA			17		3			20
SOURCE			12	5				17
PATH			33	4	4			41
GOAL			27	2				29

5.4.4 FrameNet valence patterns

The valence patterns exhibited in the `Motion` frame are confirmed on a larger scale by `Self_motion`, in particular the prevalence of PATH-expressions over GOALS, AREAS and SOURCES in descending order. It is worth noting that the number of the second most frequent pattern as compared with the most frequent one is higher than for `Motion` verbs (66% and 45%, respectively) i.e. GOAL expressions are found more frequently as compared to PATH expressions with `Self_motion` verbs. In addition, the most frequent patterns involving two motion-related FEs are GOAL + PATH and GOAL + SOURCE representing about 19% and 11% of the number of the most frequent pattern; this ratio is much greater than for `Motion`, where the pattern GOAL + PATH amounts to 6% of the most frequent one. An interesting

hypothesis to test on this amount of data would be whether this observation ties with animacy and/or agentivity.

5.4.5 Verbs evoking the `Self_motion` frame in Bulgarian

Many of the Bulgarian verbs that evoke the `Self_motion` frame are manner of motion simplex verbs. This aligns with the fact that, overall, Self_motion describes the idea of movement without profiling any of the route-related aspects of motion. Other verbs, such as *втурвам се* 'rush', *отправям се* 'head', 'make', *спускам се* 'dash', 'dart', *налитам*, *хвърлям се* 'barge', etc., involve directed motion or the initial phase of motion rather than manner. Such verbs usually come in aspectual pairs.

5.4.6 Syntactic realisation of `Self_motion` verbs in Bulgarian

Table 7 shows the results for several frequent Bulgarian verbs with correspondence in Table 5. For the English data Goals are found in competition with Paths and other motion-related FEs, either in fewer numbers, but still well-represented across many verbs, or in greater numbers than the other FEs co-occurring with the respective predicates. The most notable difference found in the Bulgarian sample is the lower frequency of Goals as compared with the data in the FrameNet corpus.

The verbs *бродя* 'roam', 'wander', *вървя* 'walk', *катеря се* 'climb', *плувам* 'swim', *пълзя* 'crawl', *тичам* 'run' (Examples 7–12) all show a lower occurrence of Goals, whereas in English *climb* and *walk* co-occur equally with both FEs and *run* shows preference for Goals over Paths.

(7) [*Ноа*]$_{\text{SMov}}$ ***ТИЧАШЕ*** [*към него*]$_{\text{Goal}}$.
Noah run-PST.3SG towards him.
'Noah was running towards him.'

(8) [*Той*]$_{\text{SMov}}$ ***ТИЧАШЕ*** [*по дългия коридор*]$_{\text{Path}}$.
He run-PST.3SG down long-DEF hall.
'He was running down the long hall.'

(9) [*Той*]$_{\text{SMov}}$ ***СЕ КАТЕРИ*** [*по хълма*]$_{\text{Path}}$.
He climb-PRS.3SG up hill-DEF.
'He is climbing up the hill.'

(10) [*Те*]$_{\text{SMov}}$ ***БРОДЕХА*** [*по коридорите*]$_{\text{Path}}$.
They wander-PST.3PL along corridors-DEF.
'They wandered along the corridors.'

Table 6: FrameNet valence patterns of `Self_Motion` verbs

Pattern	#	Verbs
[NP.Ext]_{SMov} [PP]_{PATH}	1576	*stumble, mince, lurch, frolic, stride, climb, tramp, scurry, trip, stalk, rip, burrow, strut, roam, dance, prowl, jump*
[NP.Ext]_{SMov} [PP]_{GOAL}	1035	*stumble, mince, lurch, stride, climb, tramp, scurry, trip, stalk, rip, burrow, strut, roam, press*
[NP.Ext]_{SMov} [PP]_{AREA}	599	*stumble, hobble, mince, lurch, lope, frolic, stroll, bustle, stride, swagger, crawl, scramble, climb, spring, tramp*
[NP.Ext]_{SMov} [PP]_{SRC}	415	*stumble, hobble, mince, lurch, sprint, lope, run, lunge, stroll, bustle, stride, slosh, swagger, crawl, scramble*
[NP.Ext]_{SMov} [_]_{PATH-INI}	375	*stumble, hobble, lurch, sprint, run, lunge, stroll, stride, swagger, crawl, scramble, climb, spring, tramp, pad*
[NP.Ext]_{SMov} [PP]_{GOAL} [PP]_{PATH}	297	*stumble, hobble, mince, lurch, sprint, lope, stroll, stride, swagger, crawl, scramble, climb, spring, tramp, pad*
[NP.Ext]_{SMov} [AVP]_{PATH}	187	*stumble, lurch, frolic, lunge, stroll, bustle, stride, swagger, crawl, climb, spring, tread, trek, scurry, trip, trundle, strut*
[NP.Ext]_{SMov} [PP]_{GOAL} [PP]_{SRC}	175	*stumble, hobble, lurch, sprint, lope, lunge, stroll, bustle, stride, crawl, scramble, climb, spring, pad, trek, edge*
[NP.Ext]_{SMov} [AVP]_{GOAL}	149	*stumble, hobble, lurch, sprint, lope, run, lunge, stroll, bustle, crawl, scramble, climb, spring, tramp, pad, edge*
[NP.Ext]_{SMov} [AVP]_{SRC}	113	*stumble, hobble, sprint, lope, stroll, bustle, stride, swagger, crawl, scramble, tramp, pad, scurry, romp, stalk, sneak*
[NP.Ext]_{SMov} [PP]_{PATH} [PP]_{PATH}	107	*stumble, hobble, lurch, sprint, lope, lunge, stroll, bustle, stride, crawl, scramble, climb, spring, tramp, pad, trek*
[NP.Ext]_{SMov} [PP]_{PATH} [PP]_{SRC}	96	*jog, prance, clamber, trudge, lurch, scamper, sprint, hop, lope, troop, stagger, stroll, bustle, stride, swagger, crawl, climb*

(11) [*Назгулите*]_{SMov} **БРОДЯТ**   [*по*   *земята*]_{AREA}.
      Nazgul-DEF   roam-PRS.3PL across earth-DEF.
      'The Nazgul roam the earth.'

(12) [*Той*]_{SMov} **ПЛУВАШЕ**   [*из*   *бурното*   *море*]_{AREA}.
      He   swim-PST.3SG across stormy-DEF sea.
      'He was swimming in the stormy seas.'

This is at least partly predictable: while English manner of motion verbs express directionality by means of GOAL- or SOURCE-phrases or particles with a similar meaning, the corresponding Slavic (Bulgarian) simplex verbs may also derive new verbs with a directional meaning through prefixation (Beavers et al. 2010, Lindsey 2011, Pantcheva 2007a,b, 2011, Speed 2015, among many others). While simplex verbs can realise directionality by means of route-related phrases, the derived prefixed verbs profile the relevant aspect of the route and encode it in their lexical structure; the two types of verbs may be used interchangeably in certain contexts, but not in others. As a cursory illustration of this point, consider the verb in (Example 13a), whose directional meaning cannot be expressed by the simplex verb it is derived from; hence the expression *в стаята* in (Example 13b) cannot be interpreted as the GOAL (marked by an asterisk); still, it will have an English correspondence of manner of motion verb + a directional phrase.

(13) a. [*Птицата*]_{SMov} **ВЛИТА**   [*в*   *стаята*]_{GOAL}.
          Bird-DEF   fly-PRS.3SG into room-DEF.
          'The bird flies into the room.'

      b. *[*Птицата*]_{SMov} **ЛЕТИ**   [*в*   *стаята*]_{GOAL}.
          Bird-DEF   fly-PRS.3SG into room-DEF.
          'The bird flies into the room.'

Table 7: Syntactic expression of the `Self_motion` FEs in Bulgarian

	NP.Ext	NP.Obj	PP	AVP	NI	Clause	Other	Total
пълзя 'crawl'								
SELF_MOVER	40							40
AREA			4	2				6
PATH			19	1				20
GOAL			8	1				9
DIRECTION				2				2

	NP.Ext	NP.Obj	PP	AVP	NI	Clause	Other	Total
катеря се 'climb'								
SELF_MOVER	48							48
AREA			2					2
SOURCE			1					1
PATH			22	1				23
GOAL			14	2				16
бродя 'roam', 'wander'								
SELF_MOVER	39							39
AREA			18	2				20
SOURCE			1					1
PATH			13					13
GOAL			1					1
плувам 'swim'								
SELF_MOVER	37							37
AREA			9	3				12
PATH			6	1				7
GOAL			5					5
тичам 'run'								
SELF_MOVER	42							42
AREA			3					3
SOURCE			1					1
PATH			23	1				24
GOAL			11	1				12
вървя 'walk'								
SELF_MOVER	40							40
AREA				1				1
PATH			16	2				18
GOAL			2	3				5
DIRECTION			1	1				2

The above observations are confirmed by the distribution of the patterns involving PATHS, GOALS and AREAS in the Bulgarian dataset (Table 8).

5.5 `Traversing`, `Arriving`, `Departing`

These semantic frames narrow down the idea of motion through profiling aspects of the general motion schema corresponding to elements of the route along which the moving object changes location: the initial stage of the motion corresponding to the SOURCE; the end-stage – associated with the GOAL, or the middle stage – corresponding to the PATH, cf. (Johnson et al. 2001: 16). Borrowed

Table 8: Valence patterns of `Self_motion` verbs in Bulgarian

Pattern	#	Verbs
[NP.Ext]$_{\text{SMov}}$ [PP]$_{\text{PATH}}$	86	*вървя, плувам, пълзя, бродя, тичам, катеря се*
[NP.Ext]$_{\text{SMov}}$ [_]$_{\text{PATH-INI}}$	45	*вървя, плувам, пълзя, бродя, тичам, катеря се*
[NP.Ext]$_{\text{SMov}}$ [PP]$_{\text{AREA}}$	37	*плувам, пълзя, бродя, тичам, катеря се*
[NP.Ext]$_{\text{SMov}}$ [PP]$_{\text{GOAL}}$	35	*вървя, плувам, пълзя, тичам, катеря се*
[NP.Ext]$_{\text{SMov}}$ [AVP]$_{\text{AREA}}$	6	*плувам, пълзя, бродя*
[NP.Ext]$_{\text{SMov}}$ [AVP]$_{\text{GOAL}}$	6	*вървя, пълзя, катеря се*
[NP.Ext]$_{\text{SMov}}$ [AVP]$_{\text{PATH}}$	5	*вървя, плувам, пълзя, катеря се*

from Langacker (1987), profiling is understood as "the representation of the fore-grounded part of a frame, the participant, prop, phase or moment which figures centrally in the semantic interpretation of the sentence within which the frame is evoked" (Fillmore et al. 2001: 16).

GOAL-profiling LUs (e.g., *arrive*, *reach*) evoke the semantic frame `Arriving`; SOURCE-profiling LUs (e.g. *leave*, *depart*) evoke the `Departing` frame; PATH-profiling LUs, such as *traverse*, *cross* correspond to the `Traversing` frame. `Arriving` and `Departing` are defined as subframes of `Traversing`: as such, each of them describes a state or transition in the conceptualisation of a complex situation referring to the sequence of transitions from the SOURCE, through the PATH, to the GOAL. `Departing` and `Arriving` are related to each other by means of the Precedes relation.

The profiling of a given FE is associated with the fact that the respective FE is central to the meaning and is always conceptually implied even if not necessarily overtly realised. In such cases it is often retrievable from the context and is thus understood and annotated as a definite null instantiation (DNI).

5.5.1 `Arriving`

5.5.2 Semantic description of the `Arriving` frame

`Arriving` describes directed motion towards an end point which is part of the lexical encoding of the relevant LUs: i.e. the verbs evoking the frame are GOAL-oriented verbs of inherently directed motion.

Definition of the frame `Arriving`: An object, Theme, moves in the direction of a Goal. The Goal may be expressed or it may be understood from the context, but it is always implied by the verb itself.

Core frame elements: Theme, Goal. The core FEs of the `Arriving` frame represent a subset of the core FEs of the `Traversing` frame of which it is a subframe. The FEs share the definition and semantic properties of their correspondences in the `Motion` frame. The profiling of the Goal results in the backgrounding or exclusion of the remaining elements that form part of the core FEs of `Traversing`. Source and Path become peripheral, while Path_shape, Distance, Direction, Area, as defined in FrameNet, are not conceptually present in the scenario described by this frame.

5.5.3 Verbs evoking the `Arriving` frame

The verbs evoking the `Arriving` frame form a central part of the lexis of Goal-directed motion: *appear*, *approach*, *arrive*, *come*, *crest*, *descend (on)*, *enter*, *get*, *hit*, *make it*, *make*, *reach*, *return*, *visit*.

5.5.4 Syntactic realisation of the frame elements in the `Arriving` frame

The syntactic realisation of the frame elements in the `Arriving` frame as represented in the FrameNet corpus are illustrated in Table 9. The Theme is projected as a subject, while depending on the verb, the Goal may be expressed as either a prepositional or adverbial phrase – e.g. *arrive*, *come*, *return*, *get*, *make it*, or as a direct object (NP.Obj) – e.g. *approach*, *enter*, *reach*, *visit*.

Table 9: Syntactic expression of the `Arriving` FEs in FrameNet

	NP.Ext	NP.Obj	PP	AVP	NI	Clause	Other	Total
approach								
Theme	36		1					37
Goal	1	29		1	6			37
arrive								
Theme	81							81
Goal	1		31	11	35			78
come								
Theme	119							119
Goal		2	44	16	50	3	2	117

	NP.Ext	NP.Obj	PP	AVP	NI	Clause	Other	Total
enter								
Theme	30	1			3			34
Goal	3	17			10		1	31
return								
Theme	48				3			48
Goal		1	17	9	21	1		49
visit								
Theme	24		3		2			29
Goal	5	14	2		7	1	1	29
reach								
Theme	50	1			7			58
Goal	7	48		1				56
get								
Theme	35							35
Goal			16	12	7		1	36
make it								
Theme	22							22
Goal			12	1	9			22

The possibility for leaving the Goal non-overt as reflected in the considerable number of definite null instantiations (NIs in the table), stems from the fact that with some verbs this FE often receives a definite interpretation as the deictic centre and its identity is thus implied even without previous reference. This is typical for *come* and to a lesser degree for *arrive* due to their deictic nature. In this respect they are clearly distinct from *reach*, *approach*, *visit*, *get* and *make it*, which usually express the Goal, as it need not be identical to the deictic centre. Examples (14a, 14b) illustrate this point.

(14)   a.   [*She*]$_{\text{THM}}$ **REACHED** [*Rome*]$_{\text{GOAL}}$ [*via Assisi*]$_{\text{PATH}}$.
        b.   * [*She*]$_{\text{THM}}$ **REACHED**.

5.5.5 FrameNet valence patterns

In line with the above observations, syntactically implicit Goals represent half of the aggregated number of the Goal-phrases (Table 10). There is a considerable number of NP Goals, which accounts for the fact that a great deal of the verbs are transitive. In addition, AVPs are much more prominent: they make up for a third of the prepositional Goal-phrases, while in `Self_motion` their number is 15% of the number of Goal-PPs.

Table 10: FrameNet valence patterns of `Arriving` verbs

Pattern	#	Verbs
[NP]_{THM} [ ]_{GOAL-DNI}	144	*appear, approach, arrive, come, enter, return, visit, get, make it*
[NP]_{THM} [NP]_{GOAL}	126	*approach, enter, visit, reach, make, crest, hit*
[NP]_{THM} [PP]_{GOAL}	121	*arrive, come, return, visit, get, make it, descend (on), appear*
[NP]_{THM} [AVP]_{GOAL}	46	*approach, arrive, come, return, reach, get, make it*

5.5.6 Syntactic realisation of `Arriving` verbs in Bulgarian

The basic verbs evoking the `Arriving` frame form a small but central part of the lexis of directed motion: *влизам* 'enter', *връщам се* 'return', *добирам се* 'make it', *доближавам, доближавам се* 'approach', *достигам* 'reach', *завръщам се* 'return', *наближавам, приближавам, приближавам се* 'approach', *идвам, ида* 'come', *пристигам* 'arrive', *стигам* 'reach', *посещавам* 'visit', *прибирам се* 'go home'. To the exception of *посещавам*, which requires object NP `Goals`, and *доближавам, наближавам, приближавам, достигам, стигам* – which take either an object NP or a PP/AVP, the rest of the verbs select a PP/AVP complement. In this respect the Bulgarian verbs differ from their English counterparts, many of which take an object `Goal` complement.

Table 11: Syntactic expression of the `Arriving` FEs in Bulgarian

	NP.Ext	NP.Obj	PP	AVP	NI	Clause	Other	Total
отивам/отида 'go'								
THEME	10							10
GOAL			6	1	3			10
достигам/достигна 'reach'								
THEME	4							4
GOAL		2	2					4
идвам/дойда 'come'								
THEME	20							20
GOAL			11		9			20

	NP.Ext	NP.Obj	PP	AVP	NI	Clause	Other	Total
пристигам/пристигна 'arrive'								
Theme	21							21
Goal			10		11			21
стигам/стигна 'reach'								
Theme	15							15
Goal		2	11	2				15
влизам/вляза 'enter'								
Theme	23							23
Goal			13		10			23
връщам се/върна се 'return'								
Theme	14							14
Goal			7	4	3			14

As expected, the Goal-PPs (Example 15a) predominate over NPs (Example 15b) and AVPs (Example 15c) as shown in Table 12. The possibility of leaving the Goal syntactically unexpressed if it is construable from the context (Example 15d) is underrepresented in the sample of annotated examples.

(15) a. [*Вражески кораби*]$_{\text{Thm}}$ ***ИДВАТ*** [*към вас*]$_{\text{Goal}}$.
        Hostile   aircraft   come-PRS.3PL towards you.
        'Hostile spacecraft are coming your way.'

    b. *Следобед* [*те*]$_{\text{Thm}}$ ***ДОСТИГНАХА*** [*брега*]$_{\text{Goal}}$.
        In-afternoon-DEF they   reach-PST.3PL   coast-DEF.
        'They reached the coast in the afternoon.'

    c. [*Никой*]$_{\text{Thm}}$ *не* ***СЕ ВРЪЩА*** [*тук*]$_{\text{Goal}}$.
        Nobody   not REFL return-PRS.3SG-NEG here.
        'No one returns here.'

    d. [ ]$_{\text{Thm}}$ ***ПРИСТИГАТЕ*** [ ]$_{\text{Goal}}$ *точно навреме, докторе*!
           Arrive-PRS.2PL   just   on time, doctor!
        'You arrive just on time, doctor!'

Table 12: FrameNet valence patterns of `Arriving` verbs in Bulgarian

Pattern	#	Verbs
[NP.Ext]$_{\text{THM}}$ [PP]$_{\text{GOAL}}$	78	*влизам/вляза, връщам се/върна се, добирам се/добера се, доближавам (се)/доближа (се), идвам/дойда, достигам/достигна, завръщам се, завърна се, ида, навлизам/навляза, отивам/отида, прибирам се/прибера се, приближавам (се)/приближа (се), пристигам/пристигна, стигам/стигна*
[NP.Ext]$_{\text{THM}}$ [_]$_{\text{GOAL}}$	36	*влизам/вляза, връщам се/върна се, идвам/дойда, отивам/отида*
[NP.Ext]$_{\text{THM}}$ [AVP]$_{\text{GOAL}}$	9	*връщам се/върна се, ида, отивам/отида, прибирам се/прибера се, стигам/стигна*
[NP.Ext]$_{\text{THM}}$ [NP]$_{\text{GOAL}}$	7	*доближавам/доближа, достигам/достигна, наближавам/наближа, посещавам/посетя, стигам/стигна*

5.5.7 `Departing`

5.5.8 Semantic description of the `Departing` frame

`Departing` describes directed motion away from a starting point, which is encoded in the lexical meaning of the respective LUs.

Definition of the frame `Departing`: An object (the THEME) moves away from a SOURCE. The SOURCE may be expressed or it may be understood from context, but its existence is always implied by the departing word itself.

Core frame elements: THEME, SOURCE

   Being a subframe of `Traversing` that describes the other end point of translational motion, the description of the `Departing` frame mirrors that of `Arriving`, but the profiled FE is the SOURCE. The profiling results in the backgrounding of the GOAL and the PATH to peripheral FEs and the removal of the remaining route FEs present in the description of `Traversing` (PATH_SHAPE, DISTANCE, DIRECTION, AREA) from the scenario described by `Departing`.

5.5.9 Verbs evoking the `Departing` frame

The basic verbs that evoke the `Departing` frame form a central part of the lexis of Source-oriented directed motion: *decamp*, *depart*, *disappear*, *emerge*, *escape*, *exit*, *leave*, *skedaddle*, *vamoose*, *vanish*.

5.5.10 Syntactic realisation of the frame elements in the `Departing` frame

The syntactic realisation of the frame elements in the `Departing` frame as represented in the FrameNet corpus examples are illustrated in Table 13. The Theme is projected as a subject (NP.Ext), while depending on the verb the Source may be expressed as either a prepositional or an adverbial phrase, e.g. *disappear*, *emerge*, *vanish*, on the one hand, or as a direct object (NP.Obj), on the other: *depart*, *escape*, *exit*, *leave*.

Unlike `Arriving` predicates, which show a distinct preference to either NP or PP/AVP Goals, the FrameNet data for `Departing` point to different distribution of NP and PP Sources across the verbs (Table 13), compare *depart*, where the two types of phrases are equally distributed and *leave*, which favours NP.Obj.

The `Departing` verbs show a similar tendency to leave the profiled element unexpressed (less prominent for the verb *leave*) if it is retrievable from the wider context and/or the movement away takes place with reference to the speaker (i.e. the deictic centre).

While some `Arriving` verbs, such as *arrive*, *come*, *get* and *return* tend to express the Goal as either a PP or an AVP, the `Departing` verbs hardly opt for AVPs, at least in the FrameNet corpus.

5.5.11 FrameNet valence patterns

While the Goal-DNIs of the `Arriving` verbs represent 33% of the overall number of Goals, syntactically implicit Sources are the prevalent pattern, making up for 63% of the aggregated number of the patterns with Source-phrases (Table 14). In other words, judging from these data, Goal-profiling verbs express syntactically the profiled element twice as frequently as do Source-profiling verbs. This observation supports the goal-over-source asymmetry.

The number of the patterns with NP and PP Sources is similar, while, as noted above, AVPs, are poorly represented (Table 14).

5.5.12 Syntactic realisation of `Departing` verbs in Bulgarian

The Bulgarian verbs evoking the `Departing` frame represent the central lexis of Source-oriented directed motion verbs: *заминавам* 'depart', *избягвам* 'escape',

Table 13: Syntactic expression of the `Departing` FEs in FrameNet

	NP.Ext	NP.Obj	PP	AVP	NI	Clause	Other	Total
depart								
Theme	77			1				78
Source		14	11		52			77
disappear								
Theme	120							120
Source			8		111			119
escape								
Theme	16							16
Source		4	2	1	9			16
vanish								
Theme	69		1					70
Source			12		57			69
exit								
Theme	32							32
Source		5	5		21	1		32
leave								
Theme	90	1						91
Source		45	7	4	29		3	88

Table 14: FrameNet valence patterns of `Departing` verbs

Pattern	#	Verbs
[NP.Ext]$_{THM}$ [_]$_{SRC-DNI}$	312	*decamp, exit, leave, emerge, disappear, depart, escape, vanish*
[NP.Ext]$_{THM}$ [NP.Obj]$_{SRC}$	68	*exit, leave, depart, escape*
[NP.Ext]$_{THM}$ [PP]$_{SRC}$	58	*decamp, exit, leave, emerge, disappear, depart, escape, vanish*
[NP.Ext]$_{THM}$ [AVP]$_{SRC}$	5	*leave, escape*

излизам 'exit', *изчезвам* 'disappear', *напускам* 'leave', *отивам си* 'leave', 'go home', *тръгвам* 'leave', 'depart', *отдалечавам се* 'move away', etc. Most of the Bulgarian `Departing` verbs take a PP or an AVP complement, with few exceptions, such as *напускам* 'leave', which takes an NP.Obj complement.

Table 15: Syntactic expression of the `Departing` FEs in Bulgarian

	NP.Ext	NP.Obj	PP	AVP	NI	Clause	Other	Total
напускам/напусна 'leave'								
Theme	39							39
Source		38			1			39
тръгвам/тръгна 'leave'								
Theme	36							36
Source					36			36
Goal			10	1				11
Direction			1	1				2
заминавам/замина 'depart'								
Theme	40							40
Source			1	1	38			40
Path			1					1
Goal			20					20
Distance			1					1
излизам/изляза 'exit'								
Theme	39							39
Source			15	1	23			39
Goal			6	3		2		11

The data in Table 16 support the observations that apart from NP Sources (Example 16c), the profiled element of the `Departing` frame (Example 16a) tends to be left out, i.e. it is usually interpreted from the previous or the general context (Example 16b).

In addition, while the peripheral frame element Source in the `Arriving` frame is rarely expressed (in fact not present in the data), the peripheral frame element Goal in the `Departing` frame (Example 16d) was found to be quite frequently expressed and was thus annotated in the Bulgarian examples: in fact, it has as many occurrences as the profiled FE Source (Table 16).

Table 16: FrameNet valence patterns of `Departing` verbs in Bulgarian

Pattern	#	Verbs
[NP.Ext]_{THM} [_]_{SRC-DNI}	53	*заминавам/замина, излизам/изляза, напускам/напусна, тръгвам/тръгна*
[NP.Ext]_{THM} [NP]_{SRC}	38	*напускам/напусна*
[NP.Ext]_{THM} [PP]_{GOAL} [_]_{SRC-DNI}	35	*заминавам/замина, излизам/изляза, тръгвам/тръгна*
[NP.Ext]_{THM} [PP]_{SRC}	15	*заминавам/замина, излизам/изляза*
[NP.Ext]_{THM} [AVP]_{GOAL} [_]_{SRC-DNI}	4	*излизам/изляза, тръгвам/тръгна*

(16)   a.   [ ]_{THM} *Не* **ИЗЛИЗАЙ**   [*от   къщи*]_{SRC}.
                 Not go-out-IMP.2SG out-of house-DEF.

      'Don't leave the house.'

   b.   [*Той*]_{THM} **ЗАМИНА**   [ ]_{SRC} *на сутринта*.
         He   leave-PST.3SG   on morning-DEF.

      'He departed on the following morning.'

   c.   [*Тя*]_{THM} **НАПУСНА**   [*града*]_{SRC} *завинаги*.
         She   leave-PST.3SG city-DEF   for good.

      'She left the city for good.'

   d.   *След завършването* [*той*]_{THM} **ЗАМИНА**   [ ]_{SRC} [*за*
         After graduating,   he   leave-PST.3SG   for

      Париж]_{GOAL}.
         Paris.

      'After his graduation he left for Paris.'

    Another fact that emerged from the data is that, even though DIRECTION and DISTANCE are not specified in the `Arriving` and the `Departing` frame, there are examples that suggest that these FEs are part of the description of the two semantic frames, even if with a peripheral status (Example 17 and Example 18, respectively).

(17) a. [*Корабът*]_{THM} **ЗАМИНАВА** [ ]_{SRC} [*на юг*]_{DIR}.
          Ship-DEF   leave-PRS.3SG   to south.
          'The ship leaves south.'

   b. [*Тя*]_{THM} **ЗАМИНА**   [*на 3000 км*]_{DIST} [*от дома*]_{SRC}.
          She   leave-PST.3SG to   3000 km   from home.
          'She went (to live) 3,000 km away from home.'

(18) a. [*Те*]_{THM} **ПРИСТИГАТ** [ ]_{GOAL} [*от юг*]_{DIR}.
          They   arrive-PRS.3PL   from south.
          'They arrive from the south.'

   b. [ ]_{THM} **ИДВАХА**   [*тук*]_{GOAL} [*отдалече*]_{DIST}.
          They   come-PST.3PL here   from far away.
          'They came here from far away.'

5.5.13 Traversing

5.5.14 Semantic description of the `Traversing` frame

Traversing represents the complex situation of the motion of a THEME with respect to the different locations constituting the route.

Definition of the frame `Traversing`: A THEME changes location with respect to a salient place, which can be expressed by a SOURCE, PATH, GOAL, AREA, DIRECTION, PATH_shape, or DISTANCE.

The frame profiles the middle section of the trajectory of motion of a moving entity, i.e. the PATH. Its core FEs include the PATH itself, as well as elements that represent either an alternative expression of the idea of space covered by the moving entity (such as AREA) or a characteristic feature of the PATH. These features may include: DIRECTION, which adds the dimension of spatial orientation to the non-directional PATH; DISTANCE, i.e. the length or extent of the trajectory between the starting and the end point; PATH_shape – the form of the PATH. All of the core FEs that describe the `Traversing` frame are inherited from the most abstract motion frame `Motion_scenario` which is perspectivised by `Traversing`.

5.5.15 Verbs evoking the `Traversing` frame

As with `Arriving` and `Departing`, there are just a small number of mainly non-derived verbs that evoke the frame: *ascend, circle, crisscross, cross, descend, hop, jump, leap, mount, pass, skirt, traverse.*

5.5.16 Syntactic realisation of the frame elements in the `Traversing` frame

Table 17 illustrates the syntactic expression for a selection of `Traversing` verbs. The THEME is projected as the subject. Among the motion-related FEs, usually it is the profiled PATH that is expressed syntactically; its favoured realisation is either as a direct object NP, e.g. *ascend, cross, descend, skirt*, or as a prepositional (or adverbial) phrase, e.g. *pass* and *leap*. It can also be left unexpressed (DNI), although the number of unexpressed PATHs is much fewer than that of the profiled FEs of the `Arriving` and the `Departing` frame.

When the AREA is expressed, it may also take the place of the direct object: for most of the verbs, these are single occurrences, except for *circle* and *crisscross*: their semantics are consistent with motion along an irregular trajectory over an extended region, which predetermines their preference for the AREA over the PATH.

SOURCES and GOALS are expressed as prepositional or adverbial phrases; DIRECTION, DISTANCE, sometimes AREA (when not an object), although represented by just a few examples, are realised likewise. A small number of exceptions is found with *descend*, where some DISTANCES and DIRECTIONS are annotated as NP objects (e.g. *descended 300 m*).

PATH_SHAPES are almost always implied in the semantics of the verbs but are rarely expressed (as PPs/AVPs).

5.5.17 FrameNet valence patterns

The most frequent valence patterns (Table 18) show in even more explicit terms that across the different verbs evoking the frame, the non-overt realisation of the PATH is much rarer, especially when compared with the profiled elements of `Traversing`'s subframes, while NPs and PPs are both well-represented, with variations across the different verbs. Another fact worth noting is that out of the remaining FEs, the GOAL is the preferred one to be expressed.

5.5.18 Syntactic realisation of `Traversing` verbs in Bulgarian

The central part of the Bulgarian verbs evoking the `Traversing` frame includes predicates such as *минавам* 'pass', *кръстосвам* 'crisscross', *качвам се, качвам* 'ascend', *слизам, спускам се* 'descend', as well as several verbs produced through derivation, though not necessarily transparent in the contemporary language: *изкачвам се, изкачвам* 'ascend', *обикалям, заобикалям* 'circle', 'skirt', *пресичам, прекосявам* 'cross', 'traverse', *преминавам* 'pass', 'pass over'.

In addition, there are a lot of Bulgarian verbs that represent lexicalisations of PATH-profiling formed by means of prefixation primarily from manner of motion

Table 17: Syntactic expression of the `Traversing` FEs in FrameNet

	NP.Ext	NP.Obj	PP	AVP	NI	Clause	Other	Total
traverse								
THEME	13		2		2			17
AREA		1						1
SOURCE			2					2
PATH	4	4	3		4	1		16
GOAL			6					6
PATH_SHAPE					17			17
DISTANCE							1	1
descend								
THEME	35				1			36
SOURCE			5					5
PATH	1	17	8		3			29
GOAL			9					9
PATH_SHAPE			1					1
DIRECTION			1	1				2
DISTANCE		1		1			1	3
cross								
THEME	53		2		2			57
AREA		1						1
SOURCE			4					4
PATH	4	26	6	4	16			56
GOAL			16				1	17
DIRECTION			4	1				5
pass								
THEME	20							20
AREA		1						1
SOURCE			1					1
PATH		3	14					17
DIRECTION			1					1
circle								
THEME	22							22
AREA		9			6			15
PATH		1	3					4
DIRECTION			1	1				2

Table 18: FrameNet valence patterns of `Traversing` verbs

Pattern	#	Verbs
[NP.Ext]_THM [NP.Obj]_PATH	48	*descend, ascend, skirt, pass, cross, circle, mount*
[NP.Ext]_THM [PP]_PATH	40	*descend, ascend, skirt, pass, cross, hop, leap, circle, jump*
[NP.Ext]_THM [PP]_GOAL [NP.Obj]_PATH	14	*descend, ascend, skirt, cross*
[NP.Ext]_THM [NP.Obj]_AREA [_]_PATH_SHAPE-INC	13	*crisscross*
[NP.Ext]_THM [_]_PATH-DNI	11	*descend, ascend, cross*
[NP.Ext]_THM [NP.Obj]_AREA	10	*pass, circle, jump*
[NP.Ext]_THM [PP]_SRC	6	*descend, hop, jump*
[NP.Ext]_THM [_]_AREA-DNI	6	*circle*
[NP.Ext]_THM [PP]_GOAL [_]_PATH-DNI	5	*cross*

verbs, which will be discussed in the next subsection along with similarly formed GOAL-profiling and SOURCE-profiling verbs.

Table 19 illustrates the syntactic realisation of several Bulgarian verbs evoking the frame `Traversing`. It can be noted that, like in English, for different verbs the preferred expression of the PATH may either be a direct object NP, e.g. *пресичам, прекосявам* 'cross', 'traverse' or a prepositional (or adverbial) phrase (Example 19a), e.g. *пресека* 'cross'. Table 20 shows that some of the verbs that may be used both transitively and intransitively, favour the transitive (NP.Obj) realisation. The profiled element tends to be syntactically expressed, rather than left non-overt.

The verbs *качвам, изкачвам* 'ascend' are always transitive (Example 19b), while *качвам се, изкачвам се* 'ascend' and *спускам се, слизам* 'descend' are always intransitive (Examples 19c, 19d).

(19) a. [*Те*]_THM ***ПРЕСЯКОХА*** [*(през)   двора*]_PATH.
          They   cross-PST.3PL (through) yard-DEF.
          'The boys crossed the yard.'

      b. [*Те*]_THM ***ИЗКАЧИХА*** [*планината*]_PATH.
          They   climb-PST.3PL mountain-DEF.
          'They climbed the mountain.'

Table 19: Syntactic expression of the Traversing FEs in Bulgarian

	NP.Ext	NP.Obj	PP	AVP	NI	Clause	Other	Total
пресичам/пресека 'traverse'								
Theme	39							39
Path		33	5		1			39
Goal			2					2
изкачвам/изкача 'ascend'								
Theme	12							12
Path		12						12
Goal			4					4
прекосявам/прекося 'cross'								
Theme	40							40
Path		36	4					40
преминавам/премина 'pass'								
Theme	15							15
Path		4	11					15
изкачвам се/изкача се 'ascend'								
Theme	9							9
Path			4		5			9
Goal			6					6

c. [*Те*]_{Thm} *СЕ ИЗКАЧИХА* [*по планината*]_{Path}.
   They climb-REFL.PST.3PL on mountain-DEF.
   'They climbed the mountain.'

d. [*Те*]_{Thm} *СЛИЗАТ* [*по стълбите*]_{Path}.
   They climb-PRS.3PL down stairs-DEF.
   'They descended the stairs.'

Although on a very small scale due to the size of the sample, the valence patterns show that Goals are also realised syntactically (Table 20 and Example 20a). Sources (Example 20c) and Directions (Example 20b) as well as combinations of motion-related FEs (Example 20c) are also attested as individual occurrences in the data.

Table 20: FrameNet valence patterns of Traversing verbs in Bulgarian

Pattern	#	Verbs
[NP.Ext]_{THM} [NP.Obj]_{PATH}	79	*прекосявам/прекося, пресичам/пресека, преминавам/премина, изкачвам/изкача*
[NP.Ext]_{THM} [PP]_{PATH}	23	*прекосявам/прекося, пресичам/пресека, преминавам/премина, изкачвам се/изкача се*
[NP.Ext]_{THM} [NP.Obj]_{PATH} [PP]_{GOAL}	6	*пресичам/пресека, изкачвам/изкача*
[NP.Ext]_{THM} [PP]_{GOAL} [_]_{PATH-DNI}	5	*изкачвам се/изкача се*

(20) a. [*Тя*]_{THM} **ПРЕКОСИ**   [*полето*]_{PATH} [*до крепостта*]_{GOAL}.
           She   cross-PST.3SG field-DEF   to fortress-DEF.
           'She crossed the field towards the fortress.'

     b. [*Той*]_{THM} **ПРЕКОСИ**   [*залата*]_{PATH} [*по посока   на*
           He   cross-PST.3SG hall-DEF   in   direction of
           вратата]_{DIR}.
           door-DEF.
           'He crossed the hall towards the door.'

     c. [*Тя*]_{THM} **ПРЕСЕЧЕ**   [*моста*]_{PATH} [*от мидълсекския*]_{SRC} [*към*
           Тя   traverse-PST.3SG bridge-DEF   from Middlesex-DEF   to
           сърейския   бряг]_{GOAL}.
           Surrey-DEF shore.
           'She traversed the bridge from the Middlesex to the Surrey shore.'

The verb *слизам* 'descend' can also co-occur with Distances that may be expressed as measurement NPs (Example 21).

(21) [*Те*]_{THM} **СЕ СПУСКАТ**   [*300 м*]_{DIST}.
       They   climb-PRS.3PL down 300 m.
       'They descend 300 m.'

5.5.19 Derivation of directional motion verbs

It has been well-established in the literature that part of the verbal prefixes in the Slavic languages yield (resultative) prefixed verbs when attached to unprefixed (simplex) verbs (Beavers et al. 2010, Pantcheva 2007a,b, 2011, Palmer 2009, Spencer & Zaretskaya 1998, Svenonius 2005, among many others), see also Van Valin & LaPolla (1997: 178–184) for other languages. Regardless of the theoretical framework adopted and the specifics of the treatment of such verbs, the mechanism involves a verb with a simple internal (event, lexical semantic, logical) structure to which a prefix is attached so as to add a resultative subevent, thus producing a verb describing a more complex eventuality.

A typical example in the domain of motion is the prefixation of manner of motion verbs using directional prefixes, which, depending on the prefix, leads to the formation of Goal-profiled, Source-profiled or Path-profiled predicates. As noted earlier, besides the verbs discussed in the previous sections, most of which are underived verbs with a primary directional motion meaning, there are a number of prefixed predicates derived mainly from simplex manner of motion verbs (belonging themselves to frames such as `Motion`, `Self_motion`, `Fluidic_motion`, among others), which also evoke the frames `Traversing`, `Arriving` and `Departing`, and possibly other frames profiling the elements of the route of motion.

Table 21 shows the productivity of this pattern. The inventory of verbs evoking semantic frames profiling different elements of the route, is much richer than in English, where similar meanings may be encoded either by manner of motion verbs which have developed a more complex event structure and meaning (Example 22a) or by means of certain syntactic constructions (Example 22b).

(22)   a.   [*He*]$_{\text{SMov}}$ *was the first to* **FLY** [*the Atlantic*]$_{\text{PATH}}$.
       b.   [*He*]$_{\text{SMov}}$ **LIMPED** [*to the store*]$_{\text{GOAL}}$.

6 Conclusions

In this chapter particular attention has been paid to the expression of the FEs that define the elements of the route traversed (Source, Goal, Path) or region covered (Area) by the moving entity and prominent aspects of the route such as the Distance it spans, the Direction it takes or the form it has (Path_shape).

I showed and commented on the semantic specification, syntactic expression and valence patterns typical of manner of motion and directed motion verbs by analysing the examples in the FrameNet corpus and expanding the observations to Bulgarian examples.

Table 21: Prefixal derivation of directed motion verbs from manner of motion verbs in Bulgarian

Self_motion	Source-profiled	Goal-profiled	Path-profiled
летя 'fly'	*отлитам* 'fly away', *излитам, политам* 'fly off', 'take off'	*долитам* 'fly (up) to', *влитам* 'fly into'	*прелитам* 'fly over'
хвърча 'fly'	*отхвърчавам* 'fly away', *изхвърчавам* 'fly off'	*дохвърчавам* 'fly (up) to'	*прехвърчавам* 'fly over'
бягам 'run'	*избягвам* 'run away'	*добягвам* 'run (up) to' (dialect)	*пробягвам, пребягвам* 'run', 'cover distance by running' *пребягвам* 'run across'
тичам 'run'	*изтичвам* 'run out of'	*дотичвам* 'run (up) to'	*претичвам* 'cover distance by running'
пълзя 'crawl'	*изпълзявам* 'crawl out'	*допълзявам* 'crawl (up) to' *пропълзявам* 'crawl in', 'crawl onto' *впълзявам* 'crawl into'	*препълзявам, пропълзявам* 'crawl across', *пропълзявам* 'cover distance by crawling'
скачам 'jump'	*изскачам* 'jump out'	*доскачам* 'jump (up) to'	*прескачам* 'jump', 'pass over'
плувам 'swim'	*изплувам* 'swim up', 'swim to the surface'	*доплувам* 'swim (up) to' *вплувам* 'swim into'	*преплувам* 'swim across' *пропливам* 'cover distance by swimming'
нижа се 'file'	*изнизвам се* 'file out'		
газя 'wade'		*догазвам* 'wade (up) to'	*изгазвам, прегазвам* 'pass through some substance by wading' *изгазвам* 'cross by wading'
танцувам 'dance'		*дотанцувам* 'dance (up) to'	
клатушкам се 'totter'		*доклатушквам се* 'totter (up) to'	
куцам, куцукам 'limp'		*докуцвам, докуцуквам* 'limp (up) to'	

Manner of motion verbs tend to express the PATH over the GOAL and especially over the SOURCE, but the particular distribution of the various patterns varies across verbs. PATH is especially prominent where complex notions of motion or trajectory are involved.

The data corroborate the observations made in the literature, that all other things being equal, there is a bias for expressing GOALS over SOURCES, a tendency which has been studied for many typologically distinct languages. In particular, if the verbs do not profile a particular aspect of the route, they tend to express GOALS over SOURCES, the intuition being that motion through space involves getting to some place, even with manner of motion verbs, and that, in this respect, the end point of the motion is a more salient feature than the starting point.

Across verbs that profile a particular aspect of the route, the profiled FE is the one that tends to be expressed, i.e. SOURCE-profiling verbs co-occur more frequently with SOURCE expressions than verbs that do not profile this FE, GOAL-profiling verbs co-occur with GOAL expressions. While these two aspects have been of primary interest in the linguistic literature, similar observations may be made for PATH and to a lesser extent for AREA (as the examples are fewer), judging from the data.

DISTANCES and DIRECTIONS are rarely expressed and at least in some cases they show to be syntactically, as well as semantically dependent on the PATH, as they represent elaborations on certain aspects of it (deictic or geographical orientation or the length of the route covered).

Other elements of the route may be expressed besides or instead of the profiled one. SOURCE-profiling (`Departing`) verbs tend to realise GOALS or PATHS, but the preference for one over the other varies across verbs and the examples are not always definitive. PATH-profiling verbs tend to favour GOALS over SOURCES. In addition, the following was observed in the Bulgarian data: peripheral GOALS may be expressed on a par with profiled SOURCES. Each of these observations warrants further investigation, especially with respect to the frequency and means of expression (including the available inventories) of various FE combinations within and across verbs and frames.

While only marked in passing, the productivity of prefixal derivation as a mechanism of deriving directed motion verbs from other motion verbs, especially from manner verbs, in Bulgarian (and other Slavic and non-Slavic languages) points to the need for these verbs to be systematically addressed within the FrameNet structure. This may also result in the definition of frame-to-frame relations that account for this systematicity.

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Abbreviations

AVP	Adverbial phrase	NP	Noun phrase
CNI	Constructional null instantiation	NP.Ext	Subject NP
		NP.Obj	Object NP
DEF	Definite form	PL	Plural
Dir	Direction	PP	Prepositional phrase
Dist	Distance	PRS	Present tense
DNI	Definite null instantiation	PST	Past tense
FE	frame element	PWN	Princeton WordNet
IMPF	Imperfective aspect	SG	Singular
INDF	Indefinite form	SMov	Self_mover
INI	Indefinite null instantiation	Src	Source
LU	Lexical unit	Thm	Theme
NEG	Negative form		

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