The semantic structure of motion verbs in Jordanian Arabic: Talmy's typology revisited

Doaa K. Riziq[a], Jihad M. Hamdan[b]

[a] Applied Science Private University, Amman, Jordan <d_riziq@asu.edu.jo>
[b] The University of Jordan, Amman, Jordan <j.hamdan@ju.edu.jo>

This study is meant to contribute to the current body of research on motion conceptualization by reexamining Talmy's (1985) typological classification of motion event constructions using data from Jordanian Arabic (**JA**). It presents a contrastive account of the lexicalization patterns of JA motion verbs and their counterparts in English. 50 native speakers of JA contribute to the task of compiling a large list of motion verbs in JA. They are given examples of motion verbs to guide and encourage them to get more motion verbs in this variety. Each verb is used in a short informative sentence to help in identifying its conceptual components in the domain of motion. The data are validated through an Acceptability Judgment Task, which is completed by 20 native speakers of JA. The outcome is also compared with motion verbs in English. The study reveals that both JA and English frequently utilize the satellite-, verb-framed patterns and other patterns to encode Path and other components of motion. Further, many motion verbs do not yield noteworthy differences in both languages. In light of this, the results of the study do not lend support to Talmy's (1985) typology of motion as the semantic and syntactic behavior of the motion verbs in the two languages seem almost similar despite the claim that each language belongs to a different language type as proposed by Talmy (1985).

KEYWORDS: conceptualization, lexicalization, motion verbs, satellite-framed pattern, Talmy's typology, verb-framed pattern.

1. Introduction

The notion of motion has been widely used in connection with the theoretical work of Talmy (1985), which has been a very popular topic in the literature. He explores whether motion is encoded in a variety of lexicalization patterns, a small number of patterns (Typology), or just a single pattern (universal). He examines the conceptual and semantic structure of motion events in addition to the typological patterns crosslinguistically. His studies conclude that in the motion domain, languages exhibit a range of typological patterns. Put another way, the conceptualization of motion is language specific (Talmy 1985; 2000).

To describe motion events, based on Talmy's (2000: 25-27) theory, four obligatory conceptual elements should be highlighted: Figure (F) or

the moving entity, Motion or Move (Mo), Path (P) or the trajectory and Ground (G) which refers to the spatial reference. In addition to these obligatory elements, Manner (Ma) of motion can be optionally encoded in several languages. For the reader's convenience, a complete list of abbreviations used in the study and their referents is provided at the end of the paper. Manner of motion refers to the type of motion described by a particular verb in languages like English, such as running, sliding, walking, crawling, etc. In his typology, Talmy (1985) directed attention to the distribution of Path, which was termed 'directional' in his dissertation (Talmy 1972), considering it as the most important conceptual component in the domain of motion. According to Talmy (1985), languages of the world differ in the way they encode Path and the other conceptual components of the motion; therefore, they are divided into two main categories, namely 'verb-framed languages' (V-languages) and 'satellite-framed languages' (S-languages). Path information in the first group (V-languages) tends to appear in the main verb of the clause whereas it is encoded in a satellite or verb particle that is attached to the main verb of the clause in the second group (S-languages). On the other hand, information about Manner in the first group is contextually encoded at the end of that clause separately from the verb through an adjunct (an adverb, a gerundive form or a prepositional phrase) whereas Manner information in the second group is lexicalized in the main verb.

Typical V-languages are Romance (e.g. Spanish, French, and Italian), Semitic (e.g. Hebrew, Arabic) and Turkic (Turkish) languages (Talmy 1991). An example of this language type can be illustrated in the following Spanish sentence.

(1) *Boris* [F]   *cruzó* [Mo + P]   *Trafalgar Square* [G]   *caminando* [Mo + Ma]
      Boris   crossed   Trafalgar Square   walking
      'Boris crossed Trafalgar Square walking'.

<div align="right">(Feinmann 2020: 4)</div>

In this example, Manner information, *caminando* 'walking', is optional when describing motion events, so speakers of V-languages tend to encode manner only when it is contextually relevant. On the other hand, Path information is encoded in the main verb *cruzó* 'crossed', which expresses the Figure's movement along or through the ground 'Trafalgar Square'.

Typical S-languages are Germanic (e.g. English, German) and Finno-Ugric (Finnish, Hungarian), Slavic (e.g. Russian, Polish) languages, and Sino-Tibetan (e.g. Mandarin Chinese) languages (Talmy 1991). The following English sentence illustrates how S-languages typically encode the same motion event as in (1):

(2)   *Boris* [F] *walked* [Mo + Ma] *across* [P] *Trafalgar Square* [G]

<div align="right">(Feinmann 2020: 4)</div>

In this example, Manner information is expressed in the main verb 'walked' whereas information about Path appears in the satellite 'across'.

It is important to shed light on the two types of motion (i.e. translational and self-contained motion) proposed by Talmy (2000: 35-36):

> In translational motion, an object's basic location shifts from one point to another in space. In self-contained motion, an object keeps its same, or average, location. Self-contained motion generally consists of oscillation, rotation, dilation (expansion and contraction), wiggle, local wander, or rest (Talmy 2000: 35-36).

The conceptualization of motion draws mainly on Talmy's (1985) typological work on motion events which has received considerable consideration in the literature; however, his theory has been revised by many researchers since Talmy (1985) has not confirmed that it is possible for some languages to encode the two patterns when they linguistically describe motion. This can be evidenced in the findings of studies conducted on some Germanic languages (Slobin 1996; 2004; Ibarretxe-Antuñano 2003a; 2003b) and the Arabic language (Saidi 2007; Al Qarni 2010; Louhichi 2015; Alhamdan *et al.* 2018).

Alhamdan *et al.* (2018) state that Talmy's (1985) classifications do not account for morphology-rich world languages like Arabic. Their findings show that co-existence of S-framed and V-framed patterns is possible in Modern Standard Arabic (MSA). Examples (3) and (4) are taken from Alhamdan *et al.* (2018: 4-5) to illustrate V- and S-framed patterns when describing motion events in MSA.

(3)   *ɣa:dara-* [Mo + P]   *lwaladu-* [F]   *lmalʕaba* [G]   *dʒaryan* [Ma] (V-framed pattern)
       left   the boy   the playground   running
       'The boy left the playground running'.

Example (3) presents a V-framed pattern where path lexicalization shows that it is natural in MSA to conflate Move with Path and express them in the main verb of a motion event. In particular, the verb, *ɣa:dara* 'left' does not only convey the meaning of Move, but also Path (away from a place). Manner information is expressed as a gerundive form (*dʒaryan* 'running'). However, Alhamdan *et al.* (2018) show that MSA also has patterns that match English, a typical S-language, in the way motion events are lexicalized.

<div align="right">145</div>

(4)   *ka:na-*   *lwaladu* [F]   *yaʤri* [Mo + Ma]   *fi: ṭari:qi-hi* [P]   *ʔila-l-bajti* [G]
       was   the boy   running   on his way   to the house
       'The boy was running on his way home'.

In (4), the Manner component is conflated with the Move component in the verb *yaʤri* 'run'. Path, on the other hand, is obviously expressed by using the preposition *ʔila* 'to'. Here, Path is expressed separately in the satellite similar to English.

These conflicting results might question Talmy's theoretical framework that each language presents one pattern of lexicalization. As a matter of fact, when creating a sentence, it is not enough to select the appropriate words and link them together. Verbs are universally selective and do not appear with a similar structure in all sentences; verbs specify the number and kind of arguments encoded grammatically in a sentence and indicate what thematic role and grammatical device each argument is (Pinker 2013).

Pinker (2013: 84) states that the term argument structure refers to "a strictly syntactic entity, namely the information that specifies how a verb's arguments are encoded in the syntax". He also points out that "argument structures for a verb can be represented in a variety of ways, so long as there is a precise association between symbols that refer to grammatical entities and symbols that refer to the verb's semantic or logical arguments" (Pinker 2013: 35). In particular, Pinker (2013: 74) confirms that the semantic structures are mapped onto the syntactic argument structures via linking rules; therefore when the verb's meaning changes, its argument structure changes automatically. To demonstrate, the argument structure of the verb (V) 'put' calls for the following grammatical functions: subject (SBJ), object (OBJ), and oblique object (OBL) and the following thematic roles: agent, theme, location. According to Pinker (2013), these grammatical functions are linked with particular kinds of semantic arguments as shown below.

(5)   *Sami put the book on the table.*

Syntactic structure	SBJ (Sami)	Verb (put)	OBJ (the book)	OBL (on the table)
Semantic structure	Agent	Verb	Theme	Location

Figure 1. Argument structure of *put.*

As presented in Figure 1 (Fig. 1), the subject as a grammatical function in this sentence expresses the agent argument of *put, Sami.* The object *the book* expresses the theme argument of *put.* The oblique object

on the table expresses the location argument of *put*. For the reader's convenience, the term 'oblique object' refers to the object of preposition.

Furthermore, Pinker (2013: 46) distinguished arguments from non-arguments (i.e. adjuncts) as in the following example.

(6)   a. *John remained near the store.*
        b. *John sang near the store.*

In (6a), the phrase near the store is a complement (COM) that completes the meaning of the verb remained. In (6b), the meaning is delivered without this phrase. Put another way, the prepositional phrase in (6a) is said to be an argument (ARG) of the verb while in (6b), it is called an adjunct (ADJ).

This discussion might help us better understand the role of verb lexical properties in a particular language in determining its argument structure when describing motion. The domain of motion has been investigated in different languages, yet very few studies have been done in Arabic and none on JA based on insights into Pinker's (2013) theory of argument structure. Therefore, the present study attempts to benefit from this theory while exploring the domain of motion using JA data.

The primary goal of this paper is to reexamine Talmy's descriptive typology with a view to determining the extent to which it can accommodate motion events in JA and to highlight the role of verb lexical properties in a particular language in shaping the sequence of arguments when describing motion. It also aims to present a contrastive account of the lexicalization patterns in JA motion verbs and their counterparts in English. Particularly, this study seeks answers to the following questions:

1. What are the lexicalization patterns available to encode motion events in JA?
2. What are the similarities and differences between JA and English when describing the same motion events?
3. What is the role of verb lexical properties in shaping the surface sequence of the conceptual components when describing motion in JA and English?

2. Literature review

The overall bulk of evidence seems to support the view of Talmy's (1985) Typology of motion in which he argues that world languages exhibit a wide variety of patterns which linguistically describe motion

and that these patterns differ across languages. This has been confirmed by several studies carried out in this respect as shown below.

English and Spanish have been used as data base for many studies because they seem to exhibit different language typologies. Aske (1989) states that Spanish and English belong to different language groups. He tests Path predicates and posits that basic Path predicates appear in the main verb in Spanish unlike English. Giving support to Talmy's (1985), framework, Aske (1989) observes that English and Spanish exhibit a typological contrast when translational motion, which involves a change of location, is encoded.

In the same direction, Ozcaliskan & Slobin (1999) empirically examine Manner of motion in three different languages English, which is an S-language, and Turkish and Spanish, which typically belong to V-languages, using wordless pictures elicited from children's narratives. They select scenes that enhance the production of the Manner of motion from the frog story. In support of Talmy's (1985) theory, their study reveals that children producing narratives in English used Manner verbs at a greater frequency as opposed to Spanish and Turkish. Despite the fact that both Spanish and Turkish belong to the same language type, they express manner at different degrees.

In addition, Navarro-Ortega (2017) states that Talmy's (1985) proposal guided his analysis of the motion events descriptions collected from receptive and productive tasks in English and Spanish. Findings in oral production reveal that although English and Spanish overlap in some lexicalization patterns, they differ in others. Based on the internal mechanism of motion, English speakers tend to lexicalize Manner in the main verb, and Spanish speakers lexicalize Path of motion in the main verb.

In an attempt to test the linguistic relativity hypothesis, many studies have used Talmy's (1985) typology to examine whether differences in non-verbal experiments are causally related to language specific differences between a variety of languages. While some studies provided positive evidence for linguistic relativity (Finkbeiner *et al.* 2002; Hohenstein 2005) others did not (Gennari *et al.* 2002; Cardini 2010; Fienmann 2020).

In some studies, Manner and Path of Motion were tested each at a time. According to Talmy's (1985) framework, V-languages typically encode Manner in a separate element and S-languages in a satellite. However, there are also cases in V-languages where manner conflates with the main verb as in the Spanish verbs *andar* 'walk', *saltar* 'jump', *correr* 'run' and *volar* 'fly'. Alternatively, English has many verbs which encode Path information – e.g. *enter, exit, ascend, descend* and *cross*, implying moving in, out, up, down and through, respectively. This

proves that English and Spanish can encode both lexicalization patterns with the main verb although as mentioned by Talmy (1985) each of the two languages typically belongs to one of the patterns.

Following this line of research, Ibarretxe-Antuñano (2003a) highlighted that Spanish and Basque can be both classified as a V-framed language although their elaborations of Manner and Path are quite different. She used a verbal elicitation task through narrative structures to collect data; the results indicate that in terms of frequency Basque describes Manner much more often than Spanish and thus Basque is closer to S-framed languages. On the other hand, Basque generally offers more paths than Spanish. This also shows that Talmy's (1985) classification is not explanatory enough if we take into consideration the expression of this type of events in narrative discourse.

Talmy's (1985) theory has been taken as a general typological classification of languages, yet it has been revised then gradually modified in order to account for those languages that do not fit into Talmy's (1985) binary classification. In his effort to test Talmy's (1985) framework, Slobin (2004) validated the existence of a variety of patterns used to describe motion events by using data from other languages (S-languages: English, Dutch, German, Icelandic, Swedish, Polish, Russian, Serbo-Croatian; V-languages: French, Portuguese, Spanish, Hebrew, Turkish). He used real-life data in a form of audio and video recordings where speakers of different languages were requested to describe motion events from the frog story through oral narrative constructions. The task involved the description of different types of motion events such as falling, running and climbing. Slobin (2004) concluded that Talmy's (1985) typology is useful in understanding the dimensions that classify languages, but it cannot explain discourse structures which are unconsciously controlled by the speakers and cannot account for some languages in which Path and Manner have roughly equal morphosyntactic status. This has led Slobin (2004) later to suggest alternatives to Talmy's binary typology. Consequently, Slobin proposed the category of Equipollently-framed languages. This category includes languages with bipartite verbs that consist of two morphemes of equal status, one expressing Manner and one expressing Path. Slobin (2004) supported his proposal from an example taken from Talmy (1985: 110) as in *quqú-láhsa* 'gallop-ascend' in Nez Perce (a language spoken in the Northwest of the United States):

(7) *hi-* [F]   *quqú·* [Mo + Ma]   *láhsa -e* [Mo + P] / (= *hiqqoláhsaya*)
     3SG   galloping   go.up PST
     'He galloped uphill'.

In this example, Manner information is expressed in the first morpheme *quqú* 'gallop' whereas information about Path appeared in the second morpheme *láhsa* 'ascend'.

This pattern also includes generic verb languages with Manner preverb + Path preverb + Verb as in *fór-dansandi-yfir* 'go-dance-across' in Jaminjung (Croft *et al.* 2010: 213).

(8) *Ég* [F] *fór-* [Mo]   *dansandi-* [Ma]   *y!r* [P]   *götuna* [G].
I went   dance   across   street
'I went dancing across the street'.

In (8), neither Manner nor Path is encoded in the main verb *fór* 'go' which is a neutral verb of motion. However, information about Manner and Path is expressed in separate verbs *dansandi* 'dance' and *y!r* 'across'.

Languages with serial verbs are also included in this type (i.e. Manner Verb + Path Verb) as in *pǎo chū* 'run-exit' which presents a serial-verb construction in Chinese (Chen & Guo 2009: 1751).

(9) *le wǒ* [F]   *pǎo* [Mo + Ma]   *chū* [Mo + P]   *chúfáng* [G]
I   run   exit   the kitchen
'I ran out of the kitchen'.

Chinese as one of the serializing languages allows for two verb slots in a single clause, one for the Manner verb, and the other for the Path verb. In this example, the first verb *pǎo* 'run' expresses Manner of movement while Path is expressed in the second verb *chu* 'exit'.

Although Talmy's (1985, 2000) theory tended to focus on Path information when classifying world languages, Slobin (2004) confirmed that Manner information is of great importance to all human beings and that V-language speakers do not suppress attention to manner. He added that Manner is accessible and easy to process, for some languages than others. Slobin (2004; 2006) considered variation in Manner salience as a typological cline. Further, Ibarretxe-Antuñano (2009) examined Path salience across languages with different typological patterns. Their studies revealed that ranking languages on continuums of manner and Path salience might turn to be more useful than placing them into dichotomic typological categories outlined by Talmy (1985). Here languages can be classified alongside a continuum that ranges from 'high-Manner salience' to 'low-Manner salience'. Slobin and Ibarretxe-Antuñano's results prove that Talmy's theory of lexicalization patterns does not seem to take into account the fact that languages within the same typological group can also show different degrees of Manner and Path elaborations.

There is still considerable disagreement with regard to using Talmy's (1985) framework to describe motion events in Arabic. Al Qarni (2010) analyzed a variety of motion events in Standard Written Arabic (SWA) [sic] in order to discover how Arabic conforms to the typology that Talmy (1985) proposed for languages in relation to motion expression. Although she found that both patterns V- and S-framed patterns were attested, she concluded that Talmy's (1985) framework proved to be a successful analysis of motion and that it is applicable to SWA in addition to other languages for describing motion conceptualization.

Zeddari (2016) offered a contrastive analysis between the two typological patterns in the V- and S-framed patterns in English and Arabic. The study revealed that both languages exhibit the two motion verb patterns: Manner verbs and Path verbs.

Alhamdan *et al.* (2018) also revealed that Talmy's (1985) typology of motion does not confirm the role of other conceptual components such as Figure, Ground, and Cause in the overall motion event. As their study analyzed motion verbs using MSA, they suggested conflation patterns as a viable alternative to lexicalization patterns proposed by Talmy (1985) and concluded that conflation patterns are more inclusive as they consider those patterns existing in a particular language. Their study attested five major conflation patterns called Path-driven conflation pattern, Manner-driven conflation pattern, Cause-driven conflation pattern, Figure-driven conflation pattern, and Ground-driven conflation pattern.

Arabic has also been investigated through some of its dialects using Talmy's typology of motion. Tunisian Arabic has been studied by Saidi (2007) and Louhichi (2015). Saidi (2007) followed Talmy's (1985; 2000) work in the domain of motion and worked on data from Tunisian Arabic. The study found that although Tunisian Arabic, as a Semitic language, is considered a V-framed language, the collected data do not all fit comfortably into this classification. The researcher suggested that languages seem to be better described in terms of tendencies rather than absolute categories. In support of the previous findings, Louhichi (2015) pointed out that, although Tunisian Arabic is a V-framed language, empirically Tunisian-speaking participants have used different types of Manner constructions when requested to verbally describe a variety of motion events.

As is clear, there has been a growing number of papers analyzing motion events in various fields and languages with reference to Talmy's framework; however, many of the previous findings seem to be somewhat inconclusive. As mentioned earlier, Talmy's (1985) binary typology of motion does not account for all world languages (Slobin 1996; 2004; Ibarretxe-Antuñano 2003a; 2003b; Saidi 2007; Al Qarni

2010; Louhichi 2015; Alhamdan *et al.* 2018). At the same time, Slobin's (2004) third category is language specific. Further, ranking languages on continuums of Manner and Path salience does not confirm the role of other conceptual components such as Figure and Ground as stated by Alhamdan *et al.* (2018). This ranking also ignores the possibility to encode more than one conceptual component in the motion verb (i.e. conflation patterns). Taken as a whole, the previous findings have not brought about comprehensive evidence that can justify how motion is universally conceptualized. It can thus be suggested that Talmy's (1985) framework should be revisited with special attention paid to the inherent lexical properties of motion verbs in JA which play a basic role in shaping verb argument structure as stated by Pinker (2013).

The semantic properties of Arabic motion verbs were examined in MSA. Abdulrahim (2013) analyzed the semantic properties of seven basic motion verbs in MSA. These motion verbs belong to two categories; namely, 'go' verbs (*ðahaba, mada:,* and *ra:ħa*) and 'come' verbs (*ʔata:, ħaḍara, ʤa:ʔa,* and *qadima*). The data of these motion verbs were collected from ArabiCorpus (<arabicorpus.byu.edu>) and analyzed quantitatively and qualitatively. The analyses of these verbs highlighted the morphosyntactic and semantic properties of each of these seven 'go' and 'come' verbs in MSA. The result confirmed the role of the inherent properties of verbs in explaining why the verbs that belong to the same group behave differently in the argument structure. The verb *ðahaba* – from 'go' verbs –, for instance, is most likely to include an end point as in the following example.

(10) *... wasajaðhabu:na ʔila al mada:risi likaj yalʕabu:*
      '… and they will go to schools to play'.

The verb *ʔata:* 'come', on the other hand, is more likely to include a goal than the verb *ʤa:ʔa* although both verbs belong to the same group of 'come' verbs as in the following example.

(11) *… wa ka:na al ʔo:robbiyyu:na yaʔtu:na ʔila: -l- hindi*
      '… and the Europeans used to come to India'.

The study reported here is meant to contribute to the current body of research on motion conceptualization in Arabic by reexamining whether the conceptualization of motion is language specific as suggested by Talmy's (1985) Typology of motion or shows a tendency towards universality by examining data coming from JA, one of the vernaculars of Arabic that has not been tested in this context.

3. Method

3.1 Data collection procedures

The subjects of the study consisted of 50 monolingual speakers of JA. They described their knowledge of English as poor, and thus it is unlikely to impact their conscious or subconscious performance. They are students at Isra University, Jordan. They included 18 males and 32 females, within the age range of 18-35. They were involved in the task of compiling a large list of motion verbs in JA. They were asked individually to provide as many motion verbs as possible in JA and were given examples of motion verbs in sentences to guide and encourage them to provide more and more motion verbs. Once the data were examined in detail, only self-agentive verbs were included in the analysis. In self-agentive motion, figures can move by themselves as in *rakaḏ* 'run', *naṯ* 'jump', *daχal* 'enter'. The amended list of JA motion verbs was handed to three professors of linguistics who are native speakers of JA. They were requested to validate the collected verbs and to suggest further motion verbs, if any. They were able to suggest 22 verbs which were added to the list of JA motion verbs. After the stage of validation, the final version of the list contained 90 JA motion verbs (see Appendix).

The subjects were then requested to use each verb in a short informative sentence to help identify its conceptual components in the domain of motion and to observe how the expressed arguments are encoded semantically and syntactically in a sequence. They were carefully instructed to suggest motion verb sentences including the possible conceptual components. Some of the sentences provided by the subjects needed minor edits by the authors with a view not to making them unnecessarily long. Similar to English, JA has an SVO order (subject, verb, object). El-Yasin (1985) revealed that this order tends to be more natural than the VSO order in classical and/or Standard Arabic. Below is an illustrative example:

(12)   JA: *sa:mi rakaḏ fil- ḥadi:qa.*
        English: *Sami ran in the garden.*

All the collected motion verb sentences were classified into six syntactic argument structures. See table (1) below.

Syntactic Argument Structures	Example
1. SBJ + V	*sa:mi* [SBJ] *rakaʕ* [V] 'Sami kneeled'.
2. SBJ + V + OBJ	*sa:mi* [SBJ] *ʕabar* [V] *ʔi-nnahir* [OBJ] 'Sami crossed the river'.
3. SBJ + V + COM	*sa:mi* [SBJ] *ṭiliʕ* [V] *ʕa-ddaraӡ* [COM]. 'Sami ascended up the stairs'.
4. SBJ + V + ADJ	*sa:mi* [SBJ] *raka<u>d</u>* [V] *fi-ʃʃariʕ* [ADJ] 'Sami ran in the street'.
5. SBJ + V + OBJ + OBL	*sa:mi* [SBJ] *baħħaz* [V] *maka:n* [OBJ] *la ra:mi* [OBL] 'Sami made space for Rami'.
6. SBJ + V + OBJ + ADJ	*sa:mi* [SBJ] *sa:baq* [V] *ra:mi* [OBJ] *fil-malʕab* [ADJ] 'Sami raced Rami in the playground'.

Table 1. Syntactic Argument Structures of Self-agentive JA Verbs.

The motion verb sentences were audiotaped by one of the subjects as spoken in JA and then validated through an Acceptability Judgment Task, which was completed by 20 native speakers of JA who were instructors from the Faculty of Arts at Isra University. They were given a sheet of paper displaying the task instruction written in their native language. This task included a wide range of sentences containing JA motion verbs and distractors. The subjects were requested to listen to the audio recorded sentences to manually record their responses on the given answer sheet by putting a tick next to any sentence they think acceptable and a cross next to any sentence they think unacceptable in JA on the basis of their first thought. They were requested not to change their answers as we were testing their intuition rather than conscious knowledge. Any target sentence that was judged as unacceptable by 10 per cent or more was excluded from the list of data. The task was completed in 20 minutes. The final version of sentences was used in this study as a base for data analysis.

3.2 Data analysis procedures

The compiled data in this study were analyzed to reexamine Talmy's typology; the analysis benefited from Pinker's (2013) framework. In this sense, the JA motion verbs were semantically analyzed by identifying the inherent properties embodied in them. In addition, the outcome of this study was also compared with how motion is encoded in English. For ease of crosslinguistic comparison, the motion sentences in JA were followed by their English counterparts. Particularly, each example representing motion is numbered, and the motion verb sentences are presented in these

languages as follows: *a.* presents JA motion constructions whereas *b.* provides their counterparts in English. For further clarification, the JA motion sentences are followed by transliteration whereas the English motion sentences were validated by a bilingual speaker who natively speaks both English and Arabic. The conceptual components are identified and symbolized as follows: Motion [Mo], Figure [F], Manner [Ma], Path [P] and Ground [G] in the motion events. It is noteworthy that English translations are provided for each JA motion verb where the bare infinitive form is used as the formal equivalent of the JA verbal form.

4. Findings and discussion

A careful analysis of the data that consisted of 90 JA motion verbs revealed that the two framing types proposed by Talmy (1985) (V-framed and S-framed patterns) were attested. Similar to Alhamdan *et al.* (2018), the analysis of JA motion verbs paid considerable attention to the other semantic components, namely Figure and Ground, that can be encoded in the verbs of this variety to present further lexicalization patterns. In this respect, the analysis revealed additional patterns found in JA self-agentive motion verbs (i.e. Motion + Manner + Path, Motion + Manner + Ground, Motion + Manner + Figure and Motion + Manner + Path + Ground). See table (2).

Table (2) presents the lexicalization patterns and general conflations found in the JA motion verbs. These patterns are arranged in light of the number of conceptual components encoded in each verb by their overall frequency and percentages. An example of each verb representing a pattern is also provided.

LEXICALIZATION PATTERNS IN JA	EXAMPLE	FREQUENCY OUT OF 90	PERCENTAGE
1. Motion + Path (V-framed pattern)	*tiliʕ* 'ascend'	38	42.2
2. Motion + Manner (S-framed pattern)	*rakaḍ* 'run'	36	40
3. Motion + Manner + Path	*tsallag* 'climb'	8	8.8
4. Motion + Manner + Ground	*sabaħ* 'swim'	1	1.1
5. Motion + Manner + Figure	*ɣamaz* 'wink'	4	4.4
6. Motion + Manner + Path + Ground	*ṭa:r* 'fly'	3	3.3

Table 2. Lexicalization patterns in JA.

155

The table shows that the greater part of motion verbs in our data encodes Path component in addition to Motion (42.2% of JA motion verbs) which is negligibly higher than verbs conflating Manner with Motion (40%). On the contrary, verbs conflating three semantic components (Motion + Manner + Path 8.9%, Motion + Manner + Ground 1.2%, Motion + Manner + Figure 4.4%) and verbs conflating four semantic components (3.3%) are less representative. It might be concluded that the conflation of Motion plus one semantic component (Manner or Path) is the most typical pattern.

Further, the semantic and syntactic analysis of JA and English verbs has shown no noteworthy differences between these languages. Below is a detailed presentation and discussion of the different sorts of JA lexicalization patterns and their English counterparts embodied in motion verb sentences. The figures presented under each example show the association made between the verb's syntactic arguments and semantic arguments.

4.1 Verb-framed pattern (V-pattern)

Motion + Path: *χaʃʃ* 'enter', *ʕabar* 'cross', *ṭiliʕ* 'ascend', *nizil* 'descend', *raħal* 'leave', *riʤiʕ* 'return', *baħħaz* 'make space', *ʔiʤa* 'come', *ra:ħ* 'go', *ʔintagal* 'move'.

In (13) and (14), the verbs *ʕabar* 'cross' and *ṭiliʕ* 'ascend' are path-conflating verbs in which they adopt the V-framed pattern where both Motion and Path are encoded.

(13) a. *sa:mi* [F]   *ʕabar* [Mo + P]   *i-nnahir* [G]
         Sami   crossed   the river
      b. *Sami* [F]   *crossed* [Mo + P]   *the river* [G]

Syntactic structure	SBJ (*sa:mi* 'Sami')	V (*ʕabar* 'crossed')	OBJ (*i-nnahir* 'the river')
Semantic structure	Agent	V	Location

Figure 2. Argument structure of motion event (13) in JA and English.

The verb *ʕabar* 'cross' expresses both Motion together with Path (i.e. through or along the Ground) in JA and English. It presents the self-movement of the Figure 'Sami' who passes horizontally from one side into another along the Ground (i.e. *i-nnahir* 'the river'). It also depicts translational motion type. *ʕabar* in JA and 'cross' in English behave syntactically the same as they share similar semantic properties. As shown in Fig. 2, the semantic structure of *ʕabar* 'cross' in the two languages has an argument structure which links an agent argument to the subject 'Sami' and a location argument to the direct object *i-nnahir* 'the river'.

(14) a. *sa:mi* [F]   *tiliʕ* [Mo + P]   *ʕa-ddaraʤ* [P + G].
          Sami   ascended   up the stairs
      b. *Sami* [F]   *ascended* [Mo + P] *up the stairs* [P + G].

Syntactic structure	SBJ (*sa:mi* 'Sami')	V (*tiliʕ* 'ascended')	COM (*ʕa-ddaraʤ* 'up the stairs')
Semantic structure	Agent	V	Location

Figure 3. Argument structure of motion event (14) in JA and English.

The verb *tiliʕ* 'ascend' represents a vertical path showing an upward movement with Sami's feet along the Ground *i-ddaraʤ* 'the stairs'. The motion event here describes translational motion as it shows the Figure 'Sami' changing his location from a lower to a higher position. Moreover, the lexical properties of the intransitive verb *tiliʕ* 'ascend' call for two arguments in this motion event in the two languages. The agent argument 'Sami' is linked to the subject, and the prepositional phrase *ʕa-ddaraʤ* 'up the stairs' which is used as a necessary complement representing a location argument (see Fig. 3).

As is clear, the motion events in this pattern are formed with similar constructions across JA and English, and that they semantically adopt the V-framed style (Talmy 1985) encoding Path in the verb itself. In particular, the preposition is not the only option to encode Path in the examples above, and the presence of these motion events without any prepositional phrases does not suppress Path. For instance, *ʕabar* 'cross' encodes a horizontal Path along the ground unlike *tiliʕ* 'ascend' that denotes a vertical trajectory, i.e. upward Path. In addition, Manner is not specified in any of the presented events in this pattern. This is not to underestimate the value of Manner, but because it is not obligatory in the description of these motion events; however, Manner information, if needed, can optionally appear in the satellite position.

Despite these similarities between JA and English, our data reveals a difference between the two languages in this pattern.

(15) a. *sa:mi* [F]   *baħħaz* [Mo + P]   (*maka:n*)   *la ra:mi.*
          Sami   made space   (space)   for Rami
      b. *Sami* [F] *made space* [Mo + P] *for Rami.*

Syntactic structure	SBJ (*sa:mi*)	V (*baħħaz*)	(OBJ) (*maka:n*)	OBL (*la ra:mi*)
Semantic structure	Agent	V	(Location)	Beneficiary

Figure 4. Argument structure of motion event (15) in JA.

Syntactic structure	SBJ (*Sami*)	V (*made*)	OBJ (*space*)	OBL (*for Rami*)
Semantic structure	Agent	V	Location	Beneficiary

Figure 5. Argument structure of motion event (15) in English.

In (15), the verbs *baħħaz* in JA and 'make' in English are not semantically the same. In particular, *baħħaz* is a Path verb whereas 'make' in English does not encode any directional information. To make this clear, there is no lexical verb that replaces the JA verb *baħħaz* in English; therefore, to present directional information, a phrase has to be formed (i.e. 'make space'). It consists of the verb 'make' which requires a sequence of arguments, i.e. an agent that is expressed in the subject position, an internal argument 'space' that represents location in the object position and a beneficiary in the oblique object position (see Fig. 5). Further, the construction of this motion event in English seems similar to JA as both *baħħaz* in JA and 'make' in English are transitive, and they require three arguments, namely: subject, object, oblique object. However, the internal argument *maka:n* 'space' in the object position surfaces optionally in JA. If it is omitted, it can be recovered as it is absorbed in the verb. On the contrary, the verb 'make' cannot stand on its own here and thus requires the internal argument 'space' to surface in the object position. From the semantic perspective, the Path verb *baħħaz* and its phrasal counterpart in English 'make space' all denote moving the Figure (i.e. Sami) horizontally to clear or empty a certain amount of space to allow for someone else (i.e. Rami represented as an oblique object) to sit comfortably. The difference here does not confirm that JA and English are typologically different in motion conceptualization as proposed by Talmy (1985). In fact, *baħħaz* and 'make' do not share semantic properties, but once 'space' is added to the English verb and *maka:n* is recovered in the JA construction, the two verbs do not behave differently neither syntactically nor semantically.

4.2 Satellite-framed pattern (S-pattern)

Motion + Manner: *garmaz* 'squat', *tʃaglab* 'somersault', *battaʔ* 'walk slowly', *tzallaʤ* 'ski', *tgaṣwaʕ* 'meander', *ħaba* 'crawl', *dabak* 'dance dabka', *rakaḏ* 'run', *rakaʕ* 'kneel', *ṭa:f* 'rove', *kazdar* 'stroll', *saʤad* 'prostrate', *miʃi* 'walk', *natt* 'jump', *harwal* 'jog'.

From the semantic perspective, the examples below present a variety of motion events in which Manner-conflating verbs were observed

in both JA and English. Although these Manner verbs share the same lexicalization pattern, they do not encode the same Manner information.

(16) a. *sa:mi* [F] *rakaʕ* [Mo + Ma].
         Sami   kneeled
      b. *Sami* [F] *kneeled* [Mo + Ma].

Syntactic structure	SBJ (*sa:mi* 'Sami')	V (*rakaʕ* 'kneeled')
Semantic structure	Agent	V

Figure 6. Argument structure of motion event (16) in JA and English.

In (16), the motion event is constructed and described similarly across JA and English. *rakaʕ* 'kneel' is intransitive and requires only an agent argument 'Sami' to be occupied in the subject position as presented in Fig. 6. Semantically, it expresses a self-contained motion where the Figure 'Sami' changes his body position only (up-down-up), not his location. Additionally, *rakaʕ* 'kneel' is self-agentive by nature and is performed only by the agent 'Sami' (i.e. individual). The motion event also provides similar Manner information presenting how the Figure 'Sami' bows forward from a standing position in a particular place. In this motion event, the semantic components of Path and Ground can be optionally presented to syntactically indicate an adjunct and to semantically imply a location, but this is not to confirm that they are not important. In fact, they can be inferred from the motion verb if omitted; usually the ground is the place where the speaker is located.

(17) a. *sa:mi* [F]   *rakaḏ* [Mo +Ma]   *fi-ʃʃariʕ* [P + G].
         Sami   ran   in the street
      b. *Sami* [F] *ran* [Mo +Ma] *in the street* [P + G].

Syntactic structure	SBJ (*sa:mi* 'Sami')	V (*rakaḏ* 'ran')	ADJ (*fi-ʃʃariʕ* 'in the street')
Semantic structure	Agent	V	Location

Figure 7. Argument structure of motion event (17) in JA and English.

In (17), the Manner verb *rakaḏ* 'run' is intransitive and presents translational motion. It identically describes a motor pattern across both languages. Specifically, the agent 'Sami' who represents the Figure in this event horizontally moves faster than walking taking quick steps in which each foot is lifted before the next foot touches the ground. As shown in Fig. 7, the phrase *fi-ʃʃariʕ* 'in the street' presenting Path

and Ground (i.e. location) is an adjunct which can be optionally speci-
fied later in the satellite position not lexicalized in the verb. If omitted,
the argument structure continues to be syntactically and semantically
acceptable. More precisely, the verb *raka<u>d</u>* 'run' in the two languages is
linked to one argument only which is semantically the agent argument
'Sami' expressed as a subject.

It is observed that the motion events across JA and English in
this pattern similarly utilized the S-style expressing Path when nec-
essary in the satellite of the clause not in the verb. Although these
verbs in JA belong to the same pattern conflating Manner with the
verbs, their behavior is semantically different and thus appear with
different constructions. Nevertheless, when it comes to the descrip-
tion of the same motion event across languages, no differences
appear. To make this point clear, these verbs share similar semantic
properties, so they are expected to behave syntactically the same.
This may provide a tendency toward universality (Pinker 2013)
against Talmy's (1985) classifications of world languages. That is, it
is not Talmy's binary classification of motion that shapes the concep-
tualization of motion across world languages; it is the verb and its
inherent semantic properties that control the sequence of arguments
in motion events and other events.

Example (18) shows different constructions between JA and English
when the semantic properties of the verbs used to describe the same
motion event are different.

(18) a. *sa:mi* [F] *dabak* [Mo +Ma]   *fi-ssa:ħa* [P + G].
          Sami danced dabka   in the yard
      b. *Sami* [F] *danced dabka* [Mo +Ma]   *in the yard* [P + G].

Syntactic structure	SBJ (*sa:mi*)	V (*dabak*)	ADJ (*fi-ssa:ħa*)
Semantic structure	Agent	V	Location

Figure 8. Argument structure of motion event (18) in JA.

Syntactic structure	SBJ (*Sami*)	V (*danced*)	OBJ (*dabka*)	ADJ (*in the yard*)
Semantic structure	Agent	V	Theme	Location

Figure 9. Argument structure of motion event (18) in English.

In (18), *dabak* in JA describes a circle dance or line dancing that
is widely performed by the Figure 'Sami' in the yard. Conversely, *dabak*
in JA can hardly be identical to what is described in English because

dabak is culture specific. It has originated with Arabs. To describe the same motion event as in JA, 'dabka (n) dance' is alternatively used to represent this style of dancing. As the verbs are semantically different, they exhibit syntactic differences, too. The figures above show different argument structures of this motion event. Fig. 8 shows that *dabak* in JA is linked only to one argument which is an agent in the subject position 'Sami'. As observed, the prepositional phrase *fi-ssa:ħa* 'in the yard' is an adjunct which optionally appears in the sentence to present a location. On the other hand, 'dance' in English has two arguments; an agent in the subject position and a theme in the object position. Similar to the JA construction, the prepositional phrase is an adjunct in the English motion sentence (see Fig. 9).

4.3 Motion + Manner + Path: tsallag *'climb',* tmardʒaħ *'swing',* t̪aʃʃ *'go out for fun',* ʔitsaħsal *'slide',* t̪ammal *'bend over',* liħig *'chase'*

Example (19) presents the semantic components Manner, Path and Motion encoded in the verb *tsallag* in JA and its English counterpart *climb*.

(19) a. *sa:mi* [F]   *tsallag* [Mo + Ma + P]   *i-ʃʃadʒara* [P + G].
          Sami   climbed   the tree
      b. *Sami* [F] *climbed* [Mo + Ma + P] *the tree* [P + G].

Syntactic structure	SBJ (*sa:mi* 'Sami')	V (*tsallag* 'climbed')	OBJ (*i-ʃʃadʒara* 'the tree')
Semantic structure	Agent	V	Location

Figure 10. Argument structure of motion event (19) in JA and English.

In terms of Path, *tsallag* 'climb' depicts an upward trajectory to a higher position along the Ground defined as *i-ʃʃadʒara* 'the tree' in this example. In addition, Manner is also encoded in the verb *tsallag*. It presents the Figure's movement using legs and hands to go up or onto the top of the Ground. The analysis of *tsallag* in JA refutes Al Qarni's (2010) analysis of the verb *tasallaqa* 'climb' in SWA although it is semantically similar to *tsallag* 'climb' in JA. Al Qarni's (2010: 173) claimed that "no indication of the Path is given in the verb" and that "the verb expresses movement plus how this movement is executed" (i.e. Manner). In addition, Fig. 10 shows the association between the semantic and syntactic arguments of the verb *tsallag* 'climb' in the two languages. In particular, the subject expresses the agent argument of *tsallag* 'climb', and the object *i-ʃʃadʒara* 'the tree' expresses the location argument.

4.4 Motion + Manner + Ground: sabaħ *'swim'*

(20)   a. *sa:mi* [F]   *sabaħ* [Mo + M + G]   *fi-nnahir* [P + G].
           Sami   swam   in the river
       b. *Sami* [F] *swam* [Mo + M + G] *in the river* [P + G].

Syntactic structure	SBJ (*sa:mi* 'Sami')	V (*sabaħ* 'swam')	ADJ (*fi-nnahir* 'in the river')
Semantic structure	Agent	V	Location

Figure 11. Argument structure of motion event (20) in JA and English.

In our data, only one verb conflating Motion, Manner and Ground was found. In the two languages, the intransitive verb *sabaħ* 'swim' exhibits translational motion. It presents the movement of the agent 'Sami' (i.e. Figure) through the encoded Ground, water (i.e. *i-nnahir* 'the river'), in a particular Manner moving the body or parts of the body. It is also noted, that when the motion verbs have inherent semantic properties in common, the motion event is formed with similar constructions across languages. According to Fig. 11, the agent argument 'Sami' is expressed in the subject. The prepositional phrase (i.e. *fi-nnahir* 'in the river') is an adjunct in JA and English.

4.5 Motion + Manner + Figure: ɣamaz *'wink'*, ramaʃ *'blink'*, ʃawwaħ *'wave'*, lawwaħ *'wave'*

(21)   a. *sa:mi* [F]   *lawwaħ* [Mo + M + F]   *la ra:mi.*
           Sami   waved   at Rami
       b. *Sami* [F] *waved* [Mo + M + F] *at Rami.*

Syntactic structure	SBJ (*sa:mi* 'Sami')	V (*lawwaħ* 'waved')	ADJ (*la ra:mi* 'for Rami')
Semantic structure	Agent	V	Beneficiary

Figure 12. Argument structure of motion event (21) in JA and English.

The verb *lawwaħ* in JA and *wave* in English conflate the same semantic components Motion, Path and Figure with the verb. They imply a gestural motion as a signal of attention. The motion type in this event is self-contained. It describes the movement of the encoded Figure (i.e. Sami's hand) from side to side with a swaying motion while remaining fixed to one point. More importantly, this motion event is constructed similarly; the intransitive verb *lawwaħ* 'wave' in the two languages is linked to one argument; an agent argument 'Sami' which appears in the subject. The adjunct 'at Rami' expresses a beneficiary.

4.6 *Motion + Manner + Path + Ground:* ṭa:r *'fly',* ɣa:ṣ *'dive',* ɣaṭaṣ *'dive'*

(22) a. *ʔil ʕaṣfu:r* [F]   *ṭa:r* [Mo + M + P + G]   *min-*   *il gafaṣ* [G].
           the bird   flew   out of   the cage [G]

     b.   *The bird* [F] *flew* [Mo + M + P + G] *out of the cage* [G].

Syntactic structure	SBJ (*ʔil ʕaṣfu:r* 'the bird')	V (*ṭa:r* 'flew')	ADJ (*min-il gafaṣ* 'out of the cage')
Semantic structure	Agent	V	Source

Figure 13. Argument structure of motion event (22) in JA and English.

In this pattern, the verb *ṭa:r* 'fly' conflates Motion in addition to the three semantic components, namely: Manner, Path and Ground. As observed, *ṭa:r* in JA and *fly* in English share the same lexical properties, so they have the same kind and number of arguments. Further, the motion type is translational. The Figure *ʔil ʕaṣfu:r* 'the bird' moves upwards to a higher position out of the source *il gafaṣ* 'the cage'. The Ground is conflated with the verb *ṭa:r* 'fly' implying that *ʔil ʕaṣfu:r* 'the bird' moves in the air (i.e. the encoded Ground) by means of wings. As presented in Fig. 13, the agent argument of *ṭa:r* 'fly' is expressed in the subject, and the optional adjunct expresses the source.

From the analysis of motion verbs, the study revealed that Talmy's lexicalization patterns do not constitute a better fit for JA and English data. As is clear, JA and English are a mixed type. That is, they similarly utilize V- and S-framed patterns although the two languages typically belong to one of the binary patterns as classified by Talmy (1985). These findings are consistent with some results reported in the literature (Slobin 1996; 2004; Ibarretxe-Antuñano 2003a; 2003b; Saidi 2007; Al Qarni 2010; Louhichi 2015; Alhamdan *et al.* 2018) and other studies which concluded that placing languages under categories is not an inevitable solution that justifies how motion is universally conceptualized (Slobin 2004; 2006; Ibarretxe-Antuñano 2009; Alhamdan *et al.* 2018).

Unlike other studies carried out in this area, the similarities in the general distribution of motion verbs in the two languages appear to be well supported by Pinker's (2013) theory which emphasized that all verbs are governed by inherent lexical properties that result in forming a particular argument structure. Following the same line, crosslinguistic differences have been expectedly pointed out because of the presence of different semantic properties of verbs when describing similar motion events. This has led us to conclude that Talmy's lexicalization patterns help in understanding the semantic distribution of motion verbs' conceptual components across languages; however, they do not constitute a universal system that applies across the board to all world languages.

5. Conclusion

The study aimed to investigate the lexicalization patterns that are semantically encoded in JA motion verbs. It provided a contrastive account of the lexicalization patterns found in motion verbs in this variety and their counterparts in English to reexamine Talmy's (1985) typology of motion. It also highlighted the importance of the semantic properties of JA motion verbs in shaping the argument structure of motion events crosslinguistically making use of Pinker's (2013) framework.

Based on the analysis of data, it can be concluded that it is not quite precise to conclude that S-framed lexicalization is the typical pattern for describing motion events in English and that the V-framed pattern is the preferred one for rendering motion events in JA. Primarily, both patterns appear in both languages in addition to other minor patterns attested in English and JA. This proves that all languages are better presented as a typologically mixed type. A noticeable disagreement is evident here regarding Talmy's (1985) binary patterns of motion and other results reported in the literature (Slobin 1996; 2004; Ibarretxe-Antuñano 2003a; 2003b; Saidi 2007; Al Qarni 2010; Louhichi 2015; Alhamdan *et al.* 2018). Put another way, it seems that the semantic properties of motion verbs embodied in motion events make their syntactic constructions highly predictable (see also Pinker 2013).

The findings of the study suggest directions for future research. More broadly, research on motion conceptualization with more attention to Pinker (2013) is required to shed more light on the way inherent semantic properties of motion verbs crosslinguistically can influence the human conceptualization system and to examine language specific issues in motion conceptualization. It is valuable to investigate the argument structures of self-agentive, agentive, non-agentive verbs in terms of frequency. As motion is a pervasive concept which can be observed in everyday interaction, the available semantic representations for the JA motion verbs call for empirical studies including real-life data used in a variety of contexts from the Jordanian's life. On a wider level, further studies are also needed on the use of motion verbs as metaphors have been investigated in a variety of domains such as the domain of emotion in Arabic and English (Al-Sharif 2007) and more recently in JA (Zibin & Hamdan 2019) and in English and Spanish (Al-Saleh *et al.* 2020).

Abbreviations

ADJ = Adjunct; ARG = Argument; COM = Complement; F = Figure; G = Ground; JA = Jordanian Arabic; Ma = Manner; Mo = Motion; MSA = Modern Standard Arabic; OBJ = Object; OBL = Oblique Object; P = Path; S = Satellite; SBJ = Subject; SWA = Standard Written Arabic; V =Verb.

Bibliographical References

Abdulrahim, Dana 2013. *A Corpus Study of Basic Motion Verbs in Modern Standard Arabic*. PhD dissertation. University of Alberta, Alberta.

Alhamdan, Bandar; Alenazi, Oudah & Maalej, Zouheir A. 2018. Motion Verbs in Modern Standard Arabic and Their Implications for Talmy's Lexicalization Patterns. *Language Sciences* 69. 43-56.

Al Qarni, Salha 2010. *Conceptualization and Lexical Realization of Motion Verbs in Standard Written Arabic: A Semantico-Syntactic Study*. PhD dissertation. King Abdulaziz University, Saudi Arabia.

Al Saleh, Tasneem; Al-Shuaibi, Jihad; Sharab, Moayad & Al-momani, Renad 2020. A Cognitive Analysis of Head and Heart Metaphors in English and Spanish. *International Journal of Arabic-English Studies (IJAES)* 20,2. 115-132.

Al-Sharif, Ahmad Khair-Allah Omar 2007. *Metaphorical Conceptualization of Happiness and Anger in English and Arabic: A Comparative Study*. MA thesis. Yarmouk University, Jordan.

Aske, Jon 1989. Path Predicates in English and Spanish: A Closer Look. *Proceedings of the Berkeley Linguistics Society* 15. 1-14.

Cardini, Filippo 2008. Manner of Motion Saliency: An Inquiry into Italian. *Cognitive Linguistics* 19,4. 533-570.

Cardini, Filippo 2010. Evidence against Whorfian Effects in Motion Conceptualization. *Journal of Pragmatics* 42. 1442-1459.

Chen, Liang & Guo, Jiansheng 2009. Motion Events in Chinese Novels: Evidence for an Equipollently-Framed Language. *Journal of Pragmatics* 41,9. 1749-1766.

Croft, William; Barðdal, Jóhanna; Hollmann, Willem; Sotirova, Violeta & Taoka, Chiaki 2010. Revising Talmy's Typological Classification of Complex Event Constructions. *Contrastive Studies in Construction Grammar* 10. 201-236.

El-Yasin, Mohammed 1985. Basic Word Order in Classical Arabic and Jordanian Arabic. *Lingua* 65. 107-122.

Feinmann, Diego 2020. Language and Thought in the Motion Domain: Methodological Considerations and New Empirical Evidence. *Journal of Psycholinguistic Research* 49. 1-29.

Finkbeiner, Matthew; Nicol, Janet; Greth, Delia & Nakamura, Kumiko 2002. The Role of Language in Memory for Actions. *Journal of Psycholinguistic Research* 31,5. 447-457.

Gennari, Silvia P.; Sloman, Steven A.; Malt, Barbara C. & Fitch, Tecumseh 2002. Motion Events in Language and Cognition. *Cognition* 83. 49-79.

Hohenstein, Jill M. 2005. Language-related Motion Event Similarities in English- and Spanish-Speaking Children. *Journal of Cognition and Development* 6. 403-425.

Ibarretxe-Antuñano, Iraide 2003a. Motion Events in Basque Narratives. In Strömqvist, Sven & Verhoeven, Ludo (eds.), *Relating Events in Narrative: Typological and Contextual Perspectives*. Mahwah, NJ: Lawrence Erlbaum Associates. 89-111.

Ibarretxe-Antuñano, Iraide 2003b. What Translation Tells Us about Motion: A Contrastive Study of Typologically Different Languages. *International Journal of English Studies* 3,2. 151-176.

Ibarretxe-Antuñano, Iraide 2009. Path Salience in Motion Events. In Guo, Jiansheng; Lieven, Elena; Budwig, Nancy; Ervin-Tripp, Susan; Nakamura, Kei & Őzçalişkan, Seyda (eds.), *Crosslinguistic Approaches to the Psychology of Language: Research in the Tradition of Dan Isaac Slobin*. 403-414.

Louhichi, Imed 2015. *The 'motionisation' of verbs: A contrastive study of thinking-for-speaking in English and Tunisian Arabic*. PhD dissertation. University of Sussex, UK.

Navarro-Ortega, Samuel A. 2017. The Linguistic Expression of Motion in Language. *Comprehending and Speaking about Motion in L2 Spanish*. Palgrave Macmillan, Cham. 27-53.

Ozcaliskan, Şeyda & Slobin, Dan I. 1999. Learning How to Search for the Frog: Expression of Manner of Motion in English, Spanish, and Turkish. *Proceedings of the 23rd Annual Boston University Conference on Language Development* (issue 2). Sommerville, MA: Cascadilla Press. 541-552.

Pinker, Steven 2013. *Learnability and Cognition: The Acquisition of Argument Structure.* 2nd ed. Cambridge, MA: MIT Press. (Originally published in 1989) <doi: 10.7551/mitpress/9700.001.0001>.

Saidi, Darine 2007. Typology of Motion Event in Tunisian Arabic. *Proceedings of Lingo* 196,23.

Slobin, Dan I. 1996. Two Ways to Travel: Verbs of Motion in English and Spanish. In Shibatani, Masayoshi & Thompson, Sandra A. (eds.), *Grammatical Constructions: Their Form and Meaning*. Oxford: Clarendon Press. 195-220.

Slobin, Dan I. 2004. The Many Ways to Search for a Frog: Linguistic Typology and the Expression of Motion Events. In Strömqvist, Sven & Verhoeven, Ludo (eds.), *Relating Events in Narrative: Typological and Contextual Perspectives*. Mahwah, NJ: Lawrence Erlbaum Associates. 219-257.

Slobin, Dan I. 2006. What Makes Manner of Motion Salient? In Hickmann, Maya & Robert, Stéphane (eds.), *Space in Languages: Linguistic Systems and Cognitive Categories*. 59-82. Amsterdam / Philadelphia: John Benjamins.

Talmy, Leonard 1972. *Semantic Structures in English and Atsugewi*. PhD dissertation. University of California, United States.

Talmy, Leonard 1985. Lexicalization patterns: Semantic structure in lexical forms. In Shopen, Timothy (ed.), *Language Typology and Lexical Description, vol. 3: Grammatical Categories and the Lexicon*. Cambridge University Press, Cambridge. 36-149.

Talmy, Leonard 1991. Path to Realization: A Typology of Event Conflation. *Proceedings of the Berkeley Linguistic Society* 17. 480-519.

Talmy, Leonard 2000. *Toward a Cognitive Semantics, vol. 2: Typology and Process in Concept Structuring*. Cambridge, MA: MIT Press.

Zeddari, Ikbal 2016. A Comparative Analysis of Locative and Directional Motion Events in English and Arabic. *International Journal of Linguistics* 8,4.

Zibin, Aseel & Hamdan, Jihad 2019. The Conceptualization of Fear through Conceptual Metonymy and Metaphor in Jordanian Arabic. *International Journal of Arabic-English Studies (IJAES)* 19,2. 243-266.

Appendix

The classifications of JA motion verbs

JA MOTION VERBS	TRANSLITERATION	ENGLISH TRANSLATION	MOTION TYPE	SEMANTIC COMPONENTS ENCODED IN THE VERB
استعجل	staʕdʒdʒal	hurry	translational	motion + manner
التم	ltam	gather	self-contained	motion + path
انتقل	ʔintagal	move	translational	motion + path
انحنى	ʔinħana	bend	self-contained	motion + manner
انقلع	ʔingalaʕ	leave	translational	motion + path
إجا	ʔidʒa	come	translational	motion + path
بحَز	baħħaz	make space	translational	motion + path
بطَأ	batˍtˍaʔ	walk slowly	translational	motion + manner
بعَد	baʕʔad	move away	translational	motion + path
تجمّع	tjammaʕ	hung around	self-contained	motion + path
تزلّج	tzalladʒ	ski	translational	motion + manner
تسابق	tsa:bag	race	translational	motion + manner
تسحسل	tsaħsal	slide	translational	motion + manner + path
تسلّق	tsallag	climb	translational	motion + manner + path
تشقلب	tʃaglab	somersault	self-contained	motion + manner
تعربش	tʕarbaʃ	climb	translational	motion + manner + path
تفرّق	tfarrg	go away	self-contained	motion + path
تقصوع	tgasˍwaʕ	meander	translational	motion + manner
تمايل	tma:jal	sway	self-contained	motion + manner + path
تمرجح	tmardʒaħ	swing	translational	motion + manner
حام	ħa:m	encircle	self-contained	motion + manner
حبا	ħaba	crawl	translational	motion + manner
خشَّ	χaʃʃ	enter	translational	motion + path
خطا	χatˍa	step	translational	motion + manner
دبك	dabak	dance dabka	translational	motion + manner
دخل	daχal	enter	translational	motion + path

دشر	daʃar	go for fun	translational	motion + manner + path
راح	ra:ħ	go	translational	motion + path
رجع	ridʒiʕ	come back	translational	motion + path
رحل	raħal	move	translational	motion + path
رقص	ragaṣ	dance	self-contained	motion + manner
ركب	rikib	ride	translational	motion + manner
ركض	raka<u>d</u>	run	translational	motion + manner
ركع	rakaʔ	kneel	self-contained	motion + manner
رمح	ramaħ	run	translational	motion + manner
رمش	ramaʃ	blink	self-contained	motion + manner + figure
روّح	rawwaħ	go back	translational	motion + path
زحف	zaħaf	crawl	translational	motion + manner
زرق	zarag	sneak	translational	motion + manner + path
سابق	sa:bag	race	translational	motion + manner
سافر	sa:far	travel	translational	motion + path
سبح	sabaħ	swim	translational	motion + manner + ground
سبق	sabag	race	translational	motion + manner
سجد	sadʒad	prostrate	self-contained	motion + manner
شرّف	ʃarraf	come	translational	motion + path
شرد	ʃarad	escape	translational	motion + path
شوّح	ʃawwaħ	wave	self-contained	motion + manner + figure
طار	ta:r	fly	translational	motion + manner + path + ground
طاف	taff	rove	translational	motion + manner
طشَّ	taʃʃ	hang out	translational	motion + manner + path
طلع1	tiliʕ	go out	translational	motion + path
طلع2	tiliʕ	ascend / go up	translational	motion + path
طلع3	tiliʕ	left	translational	motion + path
طمَّل	tammal	bend down	self-contained	motion + manner
عبر	ʕabar	cross	translational	motion + path
عرج	ʕaradʒ	limp	translational	motion + manner
غاص	ɣa:ṣ	dive	translational	motion + manner + path + ground
غطس	ɣaṭaṣ	cause to dive	translational	motion + manner + path + ground
غمز	ɣamaz	wink	self-contained	motion + manner + figure
فات	fa:t	enter	translational	motion + path
فزَّ	fazz	rush / jump	self-contained	motion + manner
فشّق	faʃʃag	pass over	translational	motion + path
فطأ	fatt	rush / jump	self-contained	motion + manner
فكح	fakaħ	escape	translational	motion + path
فلَّ	fall	escape	translational	motion + path
قام	ga:m	get up	translational	motion + path
قرَّب	garrab	approach	translational	motion + path
قرمز	garmaz	squat	self-contained	motion + manner

The semantic structure of motion verbs in Jordanian Arabic

قَلب	galab	somersault	self-contained	motion + manner
قَلفع	galfaʕ	leave	translational	motion + path
قمبز	gambaz	squat	self-contained	motion + manner
كزدر	kazdar	stroll	translational	motion + manner
لحق	liħig	chase	translational	motion + manner + path
لزَّ	lazz	approach	self-contained	motion + manner
لفَّ	laff	turn around	self-contained	motion + manner
لوَّح	lawwaħ	wave	self-contained	motion + manner + figure
مال	maːl	lean	self-contained	motion + manner
مرق	marag	pass by	translational	motion + path
مشي	miʃī	walk	translational	motion + manner
ميَّل	majjal	pass by	translational	motion + path
نزل	nizil	descend / go down	translational	motion + path
نطَّ	naṭṭ	jump	translational	motion + manner
نقز	nagaz	flinch	self-contained	motion + manner
نقل1	nagal	move	translational	motion + path
هاجر	haːdʒar	migrate	translational	motion + path
هجَّ	hadʒdʒ	left	translational	motion + path
هجر	hadʒar	leave	translational	motion + path
هرب	harab	escape	translational	motion + path
هرول	harwal	jog	translational	motion + manner
وسَّع	wassaʕ	make space	translational	motion + path
وصل	wiṣil	arrive	self-contained	motion + path