

# **The typology of motion expressions revisited<sup>1</sup>**

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(Received 20 March 2008; revised 15 January 2009)

This paper provides a new perspective on the options available to languages for encoding directed motion events. Talmy (2000) introduces an influential two-way typology, proposing that languages adopt either verb- or satellite-framed encoding of motion events. This typology is augmented by Slobin (2004b) and Zlatev & Yangklang (2004) with a third class of equipollently-framed languages. We propose that the observed options can instead be attributed to: (i) motion-independent morphological, lexical, and syntactic resources languages make available for encoding manner and path of motion, (ii) the role of the verb as the single clause-obligatory lexical category that can encode either manner or path, and (iii) extra-grammatical factors that yield preferences for certain options. Our approach accommodates the growing recognition that most languages straddle more than one of the previously proposed typological categories: a language may show both verb- and satellite-framed patterns, or if it allows equipollent-framing, even all three patterns. We further show that even purported verb-framed languages may not only allow, but actually prefer satellite-framed patterns where appropriate contextual support is available, a situation unexpected if a two- or three-way typology is assumed. Finally, we explain the appeal of previously proposed two- and three-way typologies: they capture the encoding options predicted to be preferred once certain external factors are recognized, including complexity of expression and biases in lexical inventories.

1. INTRODUCTION

From a typological standpoint, motion events have received more attention than almost any other type of event. The reason, undoubtedly, is Leonard Talmy's (1975, 1985, 1991, 2000) intriguing proposal that languages fall into two types with respect to how they encode directed motion events. This pioneering research has inspired a plethora of studies of an increasingly diverse set of languages. However, various recent studies have revealed further options for encoding directed motion events that do not fit easily into Talmy's typology, as well as options for motion event encoding in many languages that go against their purported Talmy type. With this work as a backdrop, we propose a reconceptualization of the space of possibilities for encoding motion events, wherein no single parameter governs the options for how motion is encoded across languages. Instead, crosslinguistic variation falls out of a series of MOTION-INDEPENDENT properties of languages which govern the morphological, lexical, and syntactic resources that are in principle available to encode motion, predicting a much larger number of language types than Talmy's typology.

In contrast, many other recent approaches have tried to retain Talmy's typology despite problematic data. They attempt to accommodate exceptional behavior via refinements or extensions to the typology, or by minimizing its significance, thus taking it not to invalidate larger generalizations. Such strategies are tempting since overall languages do appear to fit Talmy's typology, and the typology itself has tantalizing implications for universal grammar. However, while it is often possible to accommodate any particular exception, we suggest that the increasing number of exceptions cited, taken together with the varied nature of the lexical and structural devices for motion event encoding revealed in recent work, calls for a more fundamental reevaluation of how best to describe crosslinguistic variation in this area. Nevertheless, any viable account should illuminate why Talmy's typology is so close to being right. Therefore, we show that on our approach both Talmy's apparent typology and its exceptions emerge from the space of possible language types.

Following Talmy, research on motion events has been concerned with directed motion events, investigating how their two major semantic components – path and manner of motion – are encoded and combined in a single clause across languages. Most recently, Talmy (2000) posits a two-way typology depending on where a language characteristically encodes path.<sup>2</sup> In S(atellite)-framed languages manner is characteristically encoded in the verb and path in a satellite to the verb, where satellites subsume primarily particles and verb affixes (see section 2). Conversely, in

V(erb)-framed languages path is characteristically encoded in the verb, with manner encoded via a separate adjunct clause or a satellite. More recent work extends Talmy's typology to include a third class of 'E(quipollently)-framed languages', encompassing languages in which 'path and manner are expressed by equivalent grammatical forms' (Slobin 2004b: 249; see also Slobin & Hoiting 1994, Zlatev & Yangklang 2004, Ameka & Essegbey in press). This class primarily accommodates languages with serial verb constructions in which one verb may encode manner and one or more may encode path. Examples are given in (1).

- (1) (a) *S(atellite)-framed*: Manner is encoded as a MAIN VERB; path must be a satellite.  
 John limped in the house. (English; also Russian, German)
- (b) *V(erb)-framed*: Path is encoded as a MAIN VERB; manner must be a subordinate adjunct.  
 Je suis entré dans la maison (en boitant).  
 I am entered in the house in limping  
 'I entered the house (limping).' (French; also Spanish, Turkish, Japanese, Hebrew)
- (c) *E(quipollently)-framed*: Manner and path are both encoded as MAIN VERBS.  
 ɔli ɔmɔhe la o vbi oa  
 the man run enter at house  
 'The man ran into the house.' (Emai – Schaefer 1986: 181; also Thai)

Crucial to this approach is the assumption that crosslinguistic variation in motion event encoding reflects a single parameter that classifies languages according to their prototypical behavior. However, we take seriously the increasing number of observations that putative S-framed languages often show V-framed behavior and vice versa, and that many putatively E-framed languages show S- and/or V-framed behavior outside of multiple verb constructions (see Jones 1983, Cummins 1996, Fong 1997, Folli & Ramchand 2005, Filipović 2007: 23ff., Son 2007, Asbury et al. 2008b: 22–23, Beavers 2008a, Gehrke 2008, Mateu 2008: 245, Croft et al. in press, *inter alia*, and sections 2–3). Thus, nearly all languages straddle two or three classes in (1). Furthermore, some researchers propose that these classes are usefully subdivided, for example due to differences in preposition or verb inventories (Bohnenmeyer et al. 2007, Croft et al. in press). In addition, manner

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and path may be expressed using morphosyntactic means such as adjunct clauses or PPs that are neither verbs nor satellites (on Talmy's definition), introducing further variation. The emerging picture suggests that observed variation cannot be reduced to a simple two- or three-way typology.

We come at the diversity of motion event encoding from a different perspective. Our starting point is the null hypothesis: that the resources available to a particular language for expressing manner and path are drawn from a larger set of grammatical devices and processes, such as those in (2), none of which is dedicated to motion event encoding. Rather, the relevant resources are those semantically compatible with the encoding of the components of motion events and thus can, if available in a language, be deployed to encode such events.

- (2) (a) *Lexical*: manner and result verb roots/stems/affixes, spatial adpositions and particles, boundary markers
- (b) *Morphological*: case markers, applicative affixes, aspectual affixes, compounding
- (c) *Syntactic*: adjunction, verb serialization, subordination

Languages vary as to which options in (2) they have available, with the options available to a particular language reflecting its basic typological profile. The set of options in (2), taken together, determines that IN PRINCIPLE languages should fall into many crosscutting types, as many as there are allowable combinations of the options in (2), explaining attested crosslinguistic diversity. Thus, what from a Talmyan perspective are exceptional data are now predicted to occur. Their apparent exceptionality arises instead from other properties of the languages in question, not specific to motion event encoding, that make certain possible options rare or unattested, so that the most commonly attested language types nearly give rise to Talmy's typology or its descendants.

First, in setting out the picture of attested options, we highlight the critical role of the verb in determining how manner and path are encoded, and we organize subsequent sections to reflect this. The importance of the verb stems from the following two properties:

- (3) (a) Verb is the only clause-obligatory lexical category.
- (b) A verb may lexicalize only one of manner and path.

Although verb is one of several lexical categories that can encode either manner or path, it is unique in being the only one that is clause obligatory (since it heads the VP that forms the nucleus of the clause, 'verbless' copular clauses aside). Thus,

(3a) follows independently from the syntax. The property in (3b) is a consequence of a general constraint on the complexity of non-stative verb meanings proposed by Levin & Rappaport Hovav (Levin & Rappaport Hovav 1991, 1992, 1998, Rappaport Hovav & Levin to appear): a verb cannot lexicalize both manner and result meaning components,<sup>3</sup> where we take path to be a subtype of result (rather than vice versa, as in Aske 1989, Talmy 1991, 2000; see section 2.3.1 and section 4). In a given clause, either manner or path always has the option of verbal encoding, making the verb the single common element across all clausal descriptions of motion events and thus central to how path and manner are encoded and combined crosslinguistically.<sup>4</sup> Languages rarely encode motion without making use of the verb for encoding either component (though see section 4). This effectively limits the space of possible language types to those that characteristically lexicalize manner in the verb, path in the verb, or allow both a path verb and a manner verb in the same clause; any additional semantic components would be expressed via other categories. The assumption that descriptions of motion events include a verb, which serves as the lynchpin of motion event encoding, is implicit in previous work, but it is worth examining more closely to understand its ramifications for clauses where both path and manner are specified.

Second, we argue that there are preferences for certain language types over others due to preferences for morphosyntactically less complex expressions of motion events over more complex expressions – a markedness consideration. Many languages that allow encoding possibilities ‘against’ their Talmyan type may in practice disprefer them as they are more complex than other available options. However, we also show that other factors, especially pragmatic factors, may sometimes cause the more complex types to be favored, an outcome that is only expected if, as on our approach, such options are in principle available.

Thus, we aim to explain the diversity in how languages encode motion events via their basic morphosyntactic and lexical properties in (2) and their interaction with independent constraints such as (3) and preferences for simplicity in event encoding. We begin by examining the considerable variation in how motion is encoded both within and across languages through a critical case-by-case survey of recently discussed data. This survey is essential to supporting our proposal: to (re)view the entire range of relevant data and thereby fundamentally reevaluate Talmy’s typology. In section 2 we look at clauses with a single verb – the core class of data in the literature on motion event encoding. We consider first well-known patterns cited in support of a two-way typology, and review parallels between these patterns and those used to encode change of state to highlight that these patterns are

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not exclusive to encoding motion – they are motion independent. We then turn to data that, while not unfamiliar, on closer scrutiny raise questions about the adequacy of such a typology. In section 3 we turn to clauses with multiple verbs – a form of encoding which has received increasing attention in recent years – and show that these patterns cause even more problems for standard typologies than previously acknowledged. With these problematic data in mind, in section 4 we show how much of the attested variation follows naturally from the factors outlined in (2) and (3), so that what appears to be variation specific to motion events can be reduced to more basic, motion-independent factors. In section 5 we return to a particularly worrying set of exceptions to Talmy’s typology – cases of canonical S-framed behavior in V-framed languages – and argue that context and pragmatics can play a crucial role in ruling in or out certain encoding options in a language, a possibility our approach allows as pragmatics is just another factor that can influence the motion event encoding. Finally, in section 6 we reexamine previously proposed typologies in light of (2) and (3), and argue that they reflect those language types that are preferred once external factors such as morphosyntactic complexity and biases in lexical inventories are considered.

### 2. ENCODING DIRECTED MOTION WITH ONE VERB ONLY

We first consider the encoding options available for describing directed motion events in clauses with only one verb. We begin in section 2.1 with constructions in which the verb encodes manner, and enumerate the possibilities for how path can be encoded. We also highlight non-motion uses of some of these path encoding resources, especially in encoding aspect and results. In section 2.2 we turn to constructions in which the verb encodes path, and enumerate the ways manner is encoded, again drawing parallels with non-motion events. These two classes of data constitute the primary evidence used by Talmy and others to support a two-way typology. This is unsurprising, since if a clause has only one verb which can encode either path or manner, but not both, two language types should arise. In section 2.3 we summarize and review a range of attested motion event encoding options with a single verb that do not clearly fit Talmy’s typology, mostly involving types of satellites (in the broad sense), which again have non-motion uses. The picture that emerges is that (a) motion event encoding devices are rarely if ever dedicated to encoding such events and (b) the range and diversity of exceptional data is sufficient to warrant a larger reassessment of the two-way typology.

Before we begin, we briefly reevaluate Talmy's notion of satellite. We start with his definition:

[S]atellites are certain immediate constituents of a verb root other than inflections, auxiliaries, or nominal arguments. They relate to the verb root as periphery (or modifiers) to a head. A verb root together with its satellites forms a constituent in its own right, the 'verb complex' ... In some cases, elements that are encountered acting as satellites to a verb root otherwise belong to particular recognizable grammatical categories; therefore, it seems better to consider the satellite role not as a grammatical category in its own right but as a new kind of grammatical relation. (Talmy 1985: 102)

Satellites on this conception include English particles, Germanic (in)separable prefixes, Russian verb prefixes, Chinese coverbs, and Atsugewi non-inflectional affixes. For example, Talmy considers each element marked by a ◀ to be a satellite in the following English sentence:

- (4) Come ◀right ◀back ◀down ◀out from up in there! (Talmy 1985: 102, ex. (60))

Crucially, the satellite is distinct from the preposition, which often occurs with the satellite or verb and takes as its object the ground element with respect to which the path is defined. For example, in (5) *out* is a satellite, while *of* is a preposition (indicated by > by Talmy):

- (5) I ran ◀*out of*> the house. (Talmy 1985: 103, ex. (62a))

Talmy (1985:105) proposes a single diagnostic for distinguishing a preposition from a satellite: the ground is optional with a satellite, but not with a preposition. Thus, some English satellites also double as prepositions (e.g. *in (the house)*, *on (the roof)*), while some prepositions are only prepositions (e.g. *into \*(the house)*), and some satellites are only satellites (e.g. *forth \*(the house)*). A satellite, then, is a sister to the verb root and does not require the obligatory presence of a ground element. Although the directional affixes of some languages may meet this criterion, we now suggest that more generally it fails to pick out a natural class of elements across languages. (For further, partially overlapping discussion see Filipović 2007: 33ff..)

First, the English elements that Talmy labels satellites are not always sisters to the verb, at least not to the exclusion of the ground. Applying the *it*-clefting constituency test to (5) shows that the satellite+ground PP combination *out of the house* is a constituent excluding the verb:

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- (6) (a) ?It was out of the house that I ran, not into the house.  
 (b) \*It was out that I ran of the house, not in.

The slight oddness of (6a) most likely arises because goal phrases are preferred right after manner of motion verbs (Nikitina 2008). In the comparable sentences with a path verb in (7) the different status of the two sentences with respect to *it*-clefting is clear:

- (7) (a) It was out of the house that I went, not into the house.  
 (b) \*It was out that I went of the house, not in.

By this diagnostic, *out of the house* is a constituent. Thus, *out* alone is not a sister to the verb root; rather, *of the house* is a complement of *out*, and the entire PP *out of the house* is a sister to *run*, effectively nullifying the distinction between satellites and prepositions. In fact, particles have been subsumed under the class of prepositions, as in Jackendoff's (1973) proposal that they are 'intransitive' prepositions; see also Emonds (1972) and Svenonius (2007), among others.

Second, it seems semantically unmotivated to distinguish obligatory vs. optional ground elements. In *John ran in*, though a specific ground is not expressed, one is understood. In (8), both *in (the house)* (a satellite+ground) and *to the store* (a preposition+ground) indicate the goal of motion and often they are apparently alternate expressions of the same semantic content (Nikitina 2008):

- (8) (a) John ran in (the house).  
 (b) John ran to the store.

However, for Talmy (8a) and (8b) represent typologically distinct methods of encoding path: as a satellite and as non-verb non-satellite, suggesting that in addition to V-framed and S-framed languages, there might also be A(dposition)-framed languages, something surely not intended. Thus, we suggest that PP not be excluded from the notion of satellite, thereby recognizing a wider range of path encoding options than under a strict interpretation of Talmy's typology.

Talmy's definition also has implications for manner satellites. Talmy (2000: 222) notes that V-framed languages 'map [manner] either onto a satellite or into an adjunct, typically an adpositional phrase or a gerundive-type constituent'. For example, Talmy (1985: 111) contrasts manner satellites in Nez Perce, which are verbal affixes, with gerundive manner clauses in Spanish:

- (9) ?*ipsqi*- 'walking', *wilé*- 'running', *wat*- 'wading', *siwi*- 'swimming-on-surface', *tuk<sup>w</sup>e*- 'swimming-within-liquid', *we*- 'flying' (Nez Perce – cf. Talmy 1985: 111, (82))

- (10) Entró corriendo/volando/nadando/... a la cueva.<sup>5</sup>  
 enter.3SG.PAST running/flying/swimming/... to the cave  
 ‘S/he entered running/flying/swimming/... the cave.’ (Spanish – cf. Talmy  
 1985: 111, ex. (83))

However, there is no apparent reason to distinguish the two: syntactically neither is the main verb (root) and semantically both indicate manner. Thus, in what follows, we employ the term ‘satellite’ in a broader sense: any constituent sister to or adjoined to the verb (root). When this notion and Talmy’s narrower notion need to be distinguished, we will indicate it overtly.

### 2.1 *The verb encodes manner: canonically cited patterns*

We first examine motion constructions with a single verb that encodes the manner of motion, while the path is encoded as a satellite (i.e. S-framed behavior). As such verbs do not themselves entail a specific path of motion, when they are used in the description of directed motion events, a path needs to be explicitly introduced and expressed outside the verb. Languages provide various options for expressing the path, and we examine several well-known from the literature.

#### 2.1.1 *Path particles/affixes*

A common option is to encode the path of motion as a particle or affix, as in (11). These examples from various S-framed languages indicate the path via a particle/affix meaning ‘out’ (e.g. English *out*, German *raus-*, Russian *vy-*, all canonical Talmyan satellites).

- (11) (a) An owl popped out. (English)  
 (b) ... weil da eine Eule plötzlich raus-flattert.  
 ... because there an owl suddenly out-flaps  
 ‘... because an owl suddenly flapped out.’ (German – Slobin 2004b)  
 (c) Tam vy-skočila sova.  
 there out-jumped owl  
 ‘An owl jumped out.’ (Russian – Slobin 2004b)

This option is attested outside of Europe: Mokilese (Micronesian) also uses directional affixes with manner verbs, such as *-dah-* ‘up’ in (12).

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- (12) Ih aluh-dah-la in dollo.  
 he walk-up-PERF LOC mountain  
 ‘He walked up to the mountain.’ (Mokilese – Harrison 1976: 206, exx.  
 (61a,b), 204, ex. (47))

In general, such particles and affixes are not found solely in motion constructions, but rather have additional result-denoting uses (Aske 1989, Talmy 1991, 2000, McIntyre 2004). For example, English *out* is also found in change of state expressions such as *John blew the candle out*. Similarly, the Russian prefix *vy-* can also have a result reading, as in (13), where the understood result is determined partly lexically and partly pragmatically/conventionally.

- (13) Ona vy-tjorla stol.  
 she VY-wiped table.ACC  
 ‘She wiped the table (clean).’ (Russian – Spencer & Zaretskaya 1998: 15,  
 ex. (44))

Furthermore, particles and affixes often have purely aspectual uses (Talmy 2000). For example, English *up* has a completive use (e.g. *sweep up*), as do many Russian affixes (e.g. *na-*; Spencer & Zaretskaya 1998: 24–25). The connection between goal/result-marking and completion is not surprising: predicates that entail arrival or change are typically telic (Dowty 1979), suggesting that certain particles and affixes share an independent completive semantics. In fact, as Declerck & Cappelle (2005) show thoroughly (see also Folli & Harley 2006: 125, 132), these parallels are more extensive, involving the whole range of spatial particles and prepositions, with the boundedness of an element on its path use reflected in whether it in turn contributes temporal boundedness.<sup>6</sup>

### 2.1.2 Goal/path-marking XPs

Another common type of path satellite (in the broad sense) is represented by goal XPs, including PPs and DPs marked by appropriate semantic cases. These options are exemplified by the English *to* and *onto* PPs in (14) and the Finnish allative (*-lle*) and illative (*-hVn/seen/siin*) DPs in (15).

- (14) (a) John ran to the store.  
 (b) I went onto the balcony. (English)
- (15) (a) Menen parvekkeelle.  
 go.PRES.1ST balcony-ALL

‘I am going onto the balcony.’

- (b) Isä            ajaa            auto-n    autotalli-in.  
 father.NOM drive.PRES.3SG car-GEN garage-ILL

‘Father drives the car into the garage.’ (Finnish – Karlsson 1983: 108, 104)

Like affixes and particles, such adpositions and case markers can also indicate result states in various types of resultative constructions. For example, English *to* (as well as *into*, *out of*, etc.) can head XPs that add or further specify a result state for some action described by the main verb (Simpson 1983, Hoekstra 1998), as in *The nurse roused Pat to consciousness* or *Kelly slapped Sam into silence*. So can certain semantic cases in Finnish, including the translative case (*-ksi*).

- (16) Ravist-i-n        mato-n        puhtaa-ksi.  
 shake-PAST-1SG carpet-GEN clean-TRA

‘I shook a/the carpet clean.’ (Finnish – Fong 2003: ex. (10))

Familiar from the literature is the observation that XPs introducing goals comparable to those in (14)–(15) are not typically found in V-framed languages with manner of motion verbs – an observation antedating Talmy’s work (e.g. Bergh 1940, Vinay & Darbelnet 1958). This observation is based on pairs of sentences from V-framed languages such as those in (17)–(19) from French, Spanish, and Japanese, where the XP contributing a goal with a path verb, as in the (a) sentences, is at best marginally acceptable understood as a goal phrase with a manner verb, as in the (b) sentences. (Some (b) examples may be acceptable if the XP is understood to describe the location of the event – a reading that is not of interest here.)

- (17) (a) Je suis allé à la librairie.  
 I am gone to the bookstore

‘I went to the bookstore.’

- (b) ??J’ai boité à la librairie.  
 I-have limped to the bookstore

‘I limped to the bookstore.’

(French)

- (18) (a) La botella fue a la cueva.  
 the bottle went to the cave

‘The bottle went to the cave.’

- (b) ??La botella flotó a la cueva.  
 the bottle floated to the cave

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‘The bottle floated to the cave.’ (Spanish)

(19) (a) John-wa kishi-ni itta.  
John-TOP shore-to went

‘John went to the shore.’

(b) ??John-wa kishi-ni oyoida/tadayotta/hatta.  
John-TOP shore-to swam/drifted/crawled

‘John swam/drifted/crawled to the shore.’ (Japanese)

Concomitantly, French *à*, Spanish *a*, and Japanese *-ni* are taken to convey the goal of motion and often glossed ‘to’, because of their uses with path verbs as in the (a) sentences. (For this reason we gloss them ‘to’ here and below.) The conclusion drawn, then, is that manner of motion verbs do not take phrases indicating goals, leading to the observation basic to defining the S- vs. V-framed language dichotomy. Yet the prepositions in (17)–(19) also have locative uses with other, non-motion verbs. For this reason, studies by Jones (1983, 1996), Dini & Tomaso (1995), Cummins (1996, 1998), Song (1997), Song & Levin (1998), Fábregas (2007), Son (2007), *inter alia*, have suggested that such prepositions are inherently locative and best glossed ‘at’.<sup>7</sup> When these elements occur with a path verb, the directional interpretation is attributed to the verb, but when they occur with a manner verb, the adposition or case marker alone is unable to predicate a result location, explaining the oddity of the (b) sentences in (17)–(19) (see section 2.3 for some counterexamples, and section 5 for discussion). These languages, then, lack a dedicated goal adposition or case marker such as English *to* or the Finnish allative case. Although these studies suggest a different perspective on the V-framed language data, they do not change the bottom line observation that goals can be expressed with manner verbs in S-framed languages and not in V-framed languages.

This property of V-framed languages correlates with their apparent lack of secondary result predication (Green 1973, Aske 1989, Talmy 1991, 2000, Snyder 1995a,b, Song 1997, Washio 1997, Folli & Ramchand 2005, Gehrke 2008, Beavers 2009) as shown for Japanese in (20) (cp. the translations).<sup>8</sup>

(20) \*John-ga kinzoku-o petyanko-**ni** tatai-ta.

John-NOM metal-ACC flat-DAT pounded-PAST

‘John pounded the metal flat/to flatness.’ (Japanese – Washio 1997: 5, ex. (16b))

Following Aske (1989), we suggest in section 4 that this correlation is critical to understanding why these languages do typically lack S-framed encoding options.

2.2 *The verb encodes path: canonically cited patterns*

We now consider the other side of the traditional typological picture: motion descriptions whose single verb expresses path, requiring manner to be expressed via a satellite. One option, noted in section 2 is to use affixes (qua Talmyan satellites) that indicate manner, as in Nez Perce. Another option is to use an ideophone or adverbial, as discussed by Wienold (1995) for Japanese, Korean, and Thai. For example, the Korean verb *kada* ‘go’ can be modified by a range of ideophones to express various kinds of walking, as in *süllǝngǝsüllǝng kada* ‘saunter’, *pit’ulpit’ul kada* ‘stagger, totter’, and *t’adakt’adak kada* ‘trudge along’ (cf. Wienold 1995: 321, Table 9). Ideophones can also combine with Korean manner of motion verbs such as *kǝtta* ‘walk’, e.g. *ajangajang kǝtta* ‘toddle’, *ch’ongch’ong kǝtta* ‘trot, hurry’, and *salgǝmsalgǝm kǝtta* ‘sneak’ (*ibid.*). In fact, as noted by Wienold (1995) and Slobin (2000), V-framed languages tend to have small inventories of manner of motion verbs, so ideophones provide a way to convey notions that might be lexicalized by one word in an S-framed language like English, as the translations of the Korean examples show.

Comparable examples can be found in some S-framed languages, including Mandarin,<sup>9</sup> which employs reduplicative or partially reduplicative adverbials to encode manner. Like Korean ideophones, these adverbials can modify path verbs as in (21a) or manner verbs as in (21b); they can also modify manner+path verb-verb compounds as in (21c) (see section 3.1).

- (21) (a) *tā diēdiē zhuàngzhuàng de jìn le jiàoshi*  
 3SG fall-REDUP collide-REDUP MOD enter PERF classroom  
 ‘(S)he stumbled into the classroom.’ (lit. entered the classroom stumblingly.)
- (b) *tā yì guǎi yì guǎi de zǒu le jǐ bù*  
 3SG one limp one limp MOD walk ASP few step  
 ‘(S)he limped a few steps.’ (lit. walked a few steps limpingly.)
- (c) *tā niè shǒu niè jiǎo de zǒu-jìn jiàoshi*  
 3SG restrict hand restrict foot MOD walk-enter classroom  
 ‘(S)he walked into the classroom gingerly (i.e. tiptoed into the classroom).’ (Mandarin)

Other examples include *chànchàn wēiwēi* ‘tremblingly, unsteadily’, *bèngbèng tiàotiào* ‘hopping and jumping’, *sèsè suōsuō* ‘shrinkingly’, and even some that indicate a sound accompanying the motion, e.g. *huán pèi dīng-dōng* ‘bangle

pendant tinkling, i.e. with the tinkling of jewelry’ (see also Chen & Guo 2009: 1764, ex. (19)).

Like path satellites, ideophones can be used beyond the motion domain. For example, Wienold (1995: 320, Table 7) lists ideophones found with the Japanese verb *naku* ‘cry’, including *kusunkusan naku* ‘sob’, *oioi naku* ‘blubber’, and *shikushiku naku* ‘whimper’. Thus, the use of ideophones (and adverbials in general) to encode manner of motion is really an instantiation of a more general option for encoding manner.

A second pattern, discussed by Talmy, is the expression of manner in a subordinate clause headed by a participial form of a manner verb. This is characteristic of V-framed languages.

- (22) (a) La botella entró a la cueva (flotando).  
the bottle entered to the cave floating  
‘The bottle entered the cave (floating).’ (Spanish)
- (b) Je suis entré dans la maison (en boitant).  
I am entered in the house in limping  
‘I entered the house (limping).’ (French)

In (22a) the present participle *flotando* ‘floating’ indicates manner for the path verb *entrar* ‘enter’, and in (22b) *en boitant* ‘in limping’ (a preposition with a present participle complement) indicates the manner of motion for the path verb *entrer* ‘enter’. Gaines (2001) also describes the use of subordinate clauses for expressing manner of motion with path verbs in four Bantu languages (Gikuyu, Swahili, Tswana, Zulu), noting differences among these languages with respect to the subordination markers involved and the degree of similarity that a subordinate clause bears to a finite clause. He also notes that Swahili has a comparable strategy using infinitival manner verbs.

More important, as far as we know, all languages with path verbs allow manner to be expressed via a subordinate clause. Since nearly all languages have path verbs,<sup>10</sup> then nearly all languages have at least one V-framed encoding option (cp. the English translations to (22)), calling into question a clear separation between V- and S-framed languages types, something not often discussed in the literature despite the widespread acceptance of such data. Summarizing, we have focused so far on clauses with only one verb, discussing data that largely support Talmy’s typology, if the notion of ‘satellite’ is generalized to include path XPs, although the wide availability of V-framed patterns in S-framed languages suggests that even from this data it is hard to support a clear typology.

2.3 *Consequences for ‘classifying’ languages: Further strategies*

In this section we examine further options for encoding such events with a single verb which are problematic for a two-way typology.

2.3.1 *General delimiters*

As discussed, frequently elements that indicate paths can also indicate results or aspectual notions, a fact noted by Talmy (1985) and Aske (1989) and elaborated in Talmy (2000), who subsumes these notions under the general notion of a Core Schema (see footnote 2). However, languages have expressions of goal that do not extend to the notion of result. In many languages, including many putative V-framed languages, adpositions meaning ‘until’ may indicate goals in directed motion constructions with manner verbs (Beavers 2008a, Gehrke 2008). This option is illustrated in (23) for S-framed English and V-framed French, Spanish, Japanese, and Turkish. In these examples, the main verb encodes manner and an adposition meaning ‘until’ encodes goal (cp. (17)–(19)).

- (23) (a) The bottle floated as far as/?until the cave. (English)
- (b) La cire coule jusqu’au bord de la table.  
the wax flowed until.to edge of the table  
‘The wax flowed to the edge of the table.’ (French – Cummins 1996)
- (c) La botella flotó hasta la cueva.  
the bottle floated until the cave  
‘The bottle floated to the cave.’ (Spanish – Aske 1989)
- (d) John-wa kishi-made oyoida/tadayotta.  
John-TOP shore-until swam/drifted  
‘John swam/drifted to the shore.’ (Japanese – Beavers 2008a)
- (e) Kaya-dan kaya-ya atla-yarak uc-a kadar gel-di.  
rock-ABL rock-DAT jump-PROG front-DAT until come-PAST  
‘Jumping from rock to rock he came all the way to the front.’  
(O. Kemal, Turkish – Özçalışkan & Slobin 2003: ex. (5), gloss by Hayriye Kayi)

Crucially, as discussed by Beavers (2008a), in these languages the same elements are also used outside of motion constructions to introduce various types of boundaries. For example, Japanese *-made* may indicate temporal, spatial, numerical, and

propositional boundaries as in (24a–d) (cf. Kuno 1973: 109–110, (1a), ex. (6), Makino & Tsutsui 1986: 226–228).

- (24) (a) Ohiru-made kore-o shite-kudasai.  
 noon-until this-ACC do-please  
 ‘Please do this until noon.’ (Temporal)
- (b) Yuka-kara yane-made nan-meetoru arimasu ka?  
 floor-from roof-until how.many-meters are QUES  
 ‘How many meters from the floor to the roof?’ (Spatial)
- (c) Kono hooru-wa nisen-nin-made haireru.  
 this hall-TOP 2,000-CL.people-until hold  
 ‘This hall can hold up to 2,000 people.’ (Numerical)
- (d) Hikooki-ga deru-made robii-de tomodachi-to hanashite ita.  
 plane-NOM leave-until lobby-at friend-with talking was  
 ‘Until the plane left I was talking with my friend in the lobby.’ (Propositional)

As (24) shows, *until*-markers are not dedicated goal markers. Further, unlike goal markers, they cannot be used to introduce results, as in (25) (cp. (i) in note 8).

- (25) #Mary-ga doresu-o pinku-made some-ta.  
 Mary-NOM dress-ACC pink-until dye-PAST  
 ‘Mary dyed the dress pink.’ (#Result)

Following Beavers (2008a: 297ff.), we take *until*-markers to express general delimitation, providing a static boundary point for some event participant that has physical or abstract extent. The precise form of delimitation is inferred from the nature of the event and the complement of the *until*-marker: when a motion predicate takes a delimiter with a ‘place’ as complement, the inference is that the complement names the endpoint of the path of motion, i.e. it is understood as the goal. Thus, although *until*-markers are not goal markers per se, their use in motion events qualifies as S-framed behavior, since the goal is expressed via a PP. Yet the data in (23b–e) suggest that some V-framed languages may show S-framed behavior. Interestingly, the comparable notion outside the motion domain is neither result nor culmination as in sections 2.1.1–2.1.2, but rather static delimitation, a semantically unsurprising, yet rarely discussed observation (see also Gehrke 2008).

Aske (1989) takes an alternative stance on such phrases: he argues that although they describe a path, they do not entail ‘boundary crossing’, i.e. actual arrival.

He proposes that Talmy’s typology is sensitive to the encoding of ‘telic’ (i.e. boundary crossing) vs. ‘atelic’ paths. On this proposal, V-framed languages disallow boundary-crossing path satellites with manner verbs, although they may allow non-boundary crossing path satellites (see also Slobin & Hoiting 1994, Martínez Vázquez 2001, Stringer 2001). Thus, in (26) the Spanish preposition *a* is unacceptable marking goals with manner verbs because it entails boundary crossing, while the prepositions *hacia* ‘towards’ and *hasta* ‘until’ are acceptable because they do not:

- (26) La botella flotó hasta/hacia/??a la cueva.  
 the bottle floated until/towards/to the cave  
 ‘The bottle floated to/towards the cave.’ (Spanish)

However, although *hacia* ‘towards’ does not entail arrival, *hasta* ‘until’ and some other *until*-markers do: in each example in (23) the figure reaches the goal. In fact, motion descriptions with *until*-markers are incompatible with contexts that deny arrival:

- (27) #La botella flotó hasta la cueva, pero no llegó (a la cueva).  
 The bottle floated until the cave, but not arrive (at the cave)  
 #‘The bottle floated to the cave, but never arrived.’ (Spanish)

It is possible that the *until*-expressions do not entail motion beyond the perimeter defined by the goal (Dan Slobin, p.c.). However, other examples entail boundary crossing, as in the Japanese (28): here the figure ends up inside the cave, having crossed the boundary represented by its perimeter.

- (28) John-wa dōkutu-no naka-made oyoida.  
 John-TOP cave-GEN inside-until swam  
 ‘John swam into the cave.’ (Japanese – Kiyoko Uchiyama, p.c.)

Thus, *until*-markers represent S-framed behavior: the verb encodes the manner and the (boundary crossing) path is expressed in a satellite. As these markers are attested in V-framed languages, this option is inconsistent with Talmy’s typology of motion events.

### 2.3.2 *Applicatives*

Languages – V-framed included – may have other morphosyntactic resources that allow path satellites in the presence of manner verbs. Tswana (Bantu; Niger-Congo) has been classified as V-framed; typically, when a manner of motion verb

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occurs with a locative phrase, it is understood as the location of the event itself (Schaefer 1985). In (29a), for example, the running occurs in the area under the trees. However, when the manner verb includes the applicative morpheme *-èl-* the same phrase is understood as specifying the goal of motion, as in (29b): the figure ends up on the top of the mountain (Schaefer 1985: Table VI, ex. (2), Table VII, ex. (2)).

- (29) (a) mò-símàné ó-kíbítl-à                      fá-tlàsé                      gá-dì-tlhàrè.  
 CL 1-boy he-run heavily-IMP NEARBY-under LOC-CL 8-tree  
 ‘The boy is running with heavy footfall under the trees.’
- (b) mò-símàné ó-kíbítl-èl-à                      kwá-tlàsé                      gá-thàbà.  
 CL 1-boy he-run heavily-to-IMP DISTANT-under LOC-mountain  
 ‘The boy is running with heavy footfall to under the mountain.’ (Tswana)

Schaefer takes examples such as (29b) to have two path markers: one represented by the applicative and the other by the postverbal phrase. What matters, once again, is that in such examples, at least some part of the path is expressed outside the verb, representing S-framed behavior in a putatively V-framed language. Sioe (1996) describes a similar applicativization strategy in another Bantu language, Tsonga. Applicative morphemes in Tswana and beyond are not only used to ‘add’ goal arguments; Tswana itself also uses the applicative morpheme to introduce benefactive and locative arguments (Cole 1955: 201–203). In this respect, applicative morphemes are quite similar to the aspectual/result/goal prefixes of Russian, which also sometimes license objects which the verb does not normally select (see Spencer & Zaretskaya 1998: 16ff.).

#### 2.3.3 Other S-framed patterns in V-framed languages

As discussed by Talmy (2000: 29, 49), the canonical S-framed behavior represented by English particles or Russian prefixes (see section 2.1.1) is supposedly unattested in V-framed languages. However, there is at least one exception: in present-day spoken Italian, a verb-particle construction is gaining ground, as documented by Iacobini & Masini (2006). An adverbial particle can be used to express a path with manner of motion verbs as in (30).<sup>11</sup> (Other such particles include *fuori* ‘out’, *giù* ‘down’, *su* ‘on’, and the particularly prevalent *via* ‘away’.)

- (30) (a) Gianni è corso via subito dopo la partita.  
 Gianni be.3SG run.PART.PAST away immediately after the game

‘Gianni ran away immediately after the game.’ (Italian – Masini 2005: 153)

- (b) Luigi è saltato fuori all’improvviso.  
Luigi be.3SG jump.PART.PAST out suddenly

‘Luigi suddenly popped up.’ (Italian – Iacobini & Masini 2006: 160)

Furthermore, these particles are coming to resemble English particles and Russian prefixes in also making aspectual contributions: they may serve as markers of telicity or atelicity depending on their literal meaning. The particle *via* ‘away’ is being increasingly attested as a telic marker; for instance, it is found quite productively in this function with surface contact verbs: compare *graffiare* ‘scratch’ with *graffiare via* ‘scratch off’ (Iacobini & Masini 2006: 180). Aske (1989) discusses a similar class of particles in Spanish, but proposes (in line with his telic/atelic path distinction) that they are inherently atelic and cannot express boundary crossing. These observations suggest how subtly even two closely related languages can differ in terms of how motion is encoded.

The question arises whether other purported V-framed languages also show directional verb affixes. Kopecka (2006) points out that French has some verbs with such prefixes, as in *ac-courir* ‘to-run’ and *é-couler* ‘out-flow’. In contrast to the Italian particles, which are becoming more productive, such prefixes are no longer productive and date to earlier stages of French. Interestingly, some of these prefixes have an aspectual function, but Kopecka says little about such examples.

Furthermore, there are more and more mentions of what might appear to be instances of *the* prototypical S-framed pattern in V-framed languages, including French, Italian, and Spanish, all considered ‘strongly’ V-framed (Alonge 1997, Martínez Vázquez 2001, Stringer 2003, 2006, Baicchi 2005, Folli & Ramchand 2005, Zubizarreta & Oh 2007, Gehrke 2008, Kopecka 2009). The French preposition *dans* ‘in’, which is generally locative, can occasionally be found with a manner verb while receiving a goal interpretation, as in (31)–(32). In fact, most French speakers find (32a) more natural than (32b) in a context of a mother shouting to her children to come inside.

- (31) Il court dans le jardin.  
he runs in the garden

‘He runs into the garden.’ (French – Pourcel & Kopecka 2006: 35)

- (32) (a) Allez, courons dans la maison!  
go-2PL, run-1PL in the house

‘Come on, let’s run in the house!’

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- (b) ?#Allez, entrons dans la maison en courant!  
 go-2PL, enter-1PL in the house in running

‘Come on, let’s enter the house running!’ (French – Stringer 2003: 46, ex. (7))

The fact that this option is attested suggests that there is not a complete ban on such constructions in V-framed languages, as in Talmy’s two-way typology. We return to why such instances of S-framed behavior arises in V-framed languages in section 5.

2.3.4 *Path verbs in S-framed languages*

Also unexplained on a two-way typology is the availability of path verbs in S-framed languages, as discussed in section 2.2. English, for instance, has a wealth of path verbs. Some, such as *enter*, *exit*, *ascend*, and *descend*, are Latinate in origin and feel more stilted than their compositionally understood verb plus satellite counterparts *come/go in/out/up/down*. Others, such as *rise*, *fall*, and *sink*, seem colloquial and tend not to be replaced by a verb plus satellite collocation. Nevertheless, deictic path verbs such as *come* and *go* are no less path verbs than *enter* and *exit*, and deictic path verbs seem to be available across languages (with a few exceptions such as Russian, as noted above).

Furthermore, Mandarin, which is also classified as S-framed, has sentences with path verbs which lack the stiltedness and formality sometimes associated with English sentences with *enter* and *exit*. For example, in scenarios involving boarding or alighting from a vehicle, sentences with path verbs such as (33a) are just as natural as their counterparts with the manner verb *tiào* ‘jump’ in (33b), and in some contexts are more natural than those with the manner verbs *zǒu* ‘walk’ and *tà* ‘step’, this last having a somewhat literary flavor.

- (33) (a) tā shàng-le chē  
 3SG go.up-PERF vehicle  
 (S)he boarded/alighted from the vehicle.
- (b) tā tiào/zǒu/tà-shàng-le chē  
 3SG jump/walk/step-go.up-PERF vehicle  
 (S)he jumped/walked/stepped onto the vehicle.

These data from S-framed languages are hardly unknown and show that supposed S-framed languages show V-framed behavior.

### 2.3.5 *Summary*

Many languages exhibit properties of both V- and S-framed languages. Some V-framed languages allow goal-marking via *until*-markers or applicativization, or even affixes and particles, i.e. unexpected S-framed options.<sup>12</sup> Likewise, most S-framed languages have path verbs, thus allowing V-framed encoding options. Some data discussed in this section have been cited previously in direct response to Talmy's two-way typology. Other data, such as the availability of path verbs in English, are familiar, but have not been raised as objections. Yet, just as the availability of S-framed options in a putative V-framed language is problematic for a two-way typology, so is the availability of V-framed options in putative S-framed languages. Finally, no matter the classification of a given language or construction, most options are not specific to encoding motion, but instead form a larger set of motion-independent resources that have as one function use in motion constructions.

## 3. ENCODING DIRECTED MOTION WITH TWO OR MORE VERBS

We now turn to monoclausal constructions with more than one verb. Languages with such constructions are not accommodated by Talmy's typology, so it is not surprising that some researchers (Slobin 2004b, Zlatev & Yangklang 2004) posit a third class of E-framed languages to deal with a subset of such constructions; however, as we show, even this elaboration of the typology is empirically inadequate. We look first at canonical E-framed languages – in particular serial verb languages – and then at other types of multiverb constructions found across languages.

### 3.1 *Serial verb constructions and E-framing*

Serial verb constructions (SVCs) are the primary motivation for positing a class of E-framed languages. Their structural analyses are notably varied and controversial (Stahlke 1970, Baker 1989, Seuren 1990, Zwicky 1990, Collins 1997, Durie 1997, Stewart 2001), but pretheoretically, SVCs are identifiable by a series of two or more verbs that seem to be part of a single clause. Oft-cited indications of monoclausal status include shared tense, aspect, modality, and polarity across the sequence (Durie 1997: 289), and the absence of coordination or subordination markers (Collins 1997: 462). Needless to say, clauses containing more than one verb, whether said to involve serial verbs or not, can correspond to quite different

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structures, and even recognized serializing languages may show different kinds of serialization (Foley & Olson 1985, Crowley 1987).

Since SVCs allow for two or more distinct verbs per clause, it follows that a clause encoding directed motion can include both manner and path verbs, in contrast to the monoverbal clauses considered so far, as in the following examples from Emai (Edoid; Nigeria) and Thai.

- (34) (a) ɔli ɔmɔhe la o vbi oa  
the man run enter at house  
‘The man ran into the house.’ (Emai – Schaefer 1986: 181)
- (b) chán dæ̀n (paj)  
I walk go  
‘I am walking (away, towards s.t.)’ (Thai – Zlatev & Yangklang 2004: 165, ex. (10))

In the Emai example (34a), the path is encoded by the verb *o* ‘enter’, while the manner is encoded by the verb *la* ‘run’. Similarly, in the Thai example (34b) the path is encoded in the verb *paj* ‘go’ and the manner in the verb *dæ̀n* ‘walk’. In both languages, the manner verb precedes the path verb, an ordering which may arise from a temporal iconicity condition as suggested in Li (1993: 499, ex. (34)). In fact, Thai is unusual in allowing a sequence of several path verbs in its SVCs, either together with a manner verb, which is always leftmost, as in (35a), or without, as in (35b).

- (35) (a) chán dæ̀n won klàp jɔ̀n khâw paj.  
I walk circle return reverse enter go  
‘I am walking in a circle, returning back inside.’
- (b) chán kláp khâw paj/maa naj hɔ̀ŋ  
I return enter go/come inside room  
‘I came back into the room.’ (Thai – Zlatev & Yangklang 2004: 163–164, exx. (6), (8))

The structure of Thai SVCs expressing motion events is quite complex, with somewhat differing descriptions being given by Muansuwan (2000) and Zlatev & Yangklang. There is agreement that Thai has both manner of motion verbs and path verbs, including a subclass of deictic path verbs lexicalizing the notions ‘come’ and ‘go’. Muansuwan, following Thepkanjana (1986), further subdivides the remaining path verbs into four types, though Zlatev & Yangklang suggest that not all of these

subdivisions are well motivated. Furthermore, Zlatev & Yangklang introduce a class of manner+path verbs, which does not have a clear equivalent in Muansuwan's work. In the most elaborated SVCs, the manner verb appears first, followed by a manner+path verb, followed by one or more non-deictic path verbs, with the deictic path verb appearing last; there is some freedom in the ordering of the non-deictic path verbs with respect to each other.

Thai is not alone in distributing the path component of a motion event across several elements. This 'spreading out' is also attested in the otherwise V-framed Caribbean English Creoles (CECs) (see (36a)), whose SVCs require a manner verb to combine with a deictic path verb. The expression of non-deictic goal/path is done via satellites (Winford 1990). In (36b–d), for example, the path verb merely expresses deictic motion – *go* 'go', *kom* 'come', and *gaan* 'have gone' – and the goal/path is expressed either by a directional adposition (*a* 'to', *in a* 'into') or even by an affix (*-we* 'away').

- (36) (a) dem a waak a di striit  
 they PROG walk to the street  
 'They're walking in the street.'
- (b) dem a waak go a maakit  
 they PROG walk go to market  
 'They're walking to (the) market.'
- (c) dem ron kom in a di house  
 they run come in to the house  
 'They ran into the house.'
- (d) Mieri swim-we gaan  
 Mary swam-away have.gone  
 'Mary swam away.' (CEC – cf. Winford 1990)

Path encoding in E-framed languages then can be varied and complex, often involving the distinct specification of deictic and non-deictic components. In fact, other languages with SVCs may also distinguish deictic and non-deictic components, allowing them both to be expressed in the description of a motion event, as in the Korean multiverb constructions described in section 3.2. We do not delve into this further, but Lamarre (2008) provides in-depth discussion of Chinese, as well as a brief description of this phenomenon in other languages representing the various

Talmyan types. What matters is that subsuming all SVC languages under the E-framed rubric does not obviate the need to further subclassify them according to finer-grained encoding of path.

Certain other languages are said to be E-framed by Slobin (2006:64), but unlike those with SVCs, they still use a single verb in motion events, though one formed from two verb roots. For example, DeLancey (2003, 2005) discusses Klamath (a Plateau Penutian; southern Oregon), in which the type of ground is encoded in what DeLancey calls a locative-directional stem (LDS) – a verb stem encoding motion and/or location/ground. Any motion (or location) verb must contain an LDS and an initial element which may be a manner of motion stem, as in (37) from DeLancey (2003: 74). (We follow DeLancey’s conventions, indicating LDSs and their glosses in boldface.)

- (37) (a) *holhi* ‘run **inside**’  
 (b) *hol?aal’a* ‘run **into the fire**’  
 (c) *honneega* ‘run **into a hole**’  
 (d) *howwa* ‘run **into water**’

Interestingly, DeLancey (2003: 72ff.) notes that some Klamath LDSs are developing aspectual functions. For instance, the LDS *el’G* ‘down’ can contribute ‘a completive aspectual sense reminiscent of English verb particles or Russian prefixed prepositions’ (2003: 73). If LDSs, like the manner of motion elements they combine with, are verb stems, then Klamath verbs instantiate an E-framed option, albeit one instantiated at the word level (Slobin 1996).

Reminiscent of Klamath are languages with verb-verb (VV) compounds consisting of a manner plus a path verb. Such compounds might provide another E-framed strategy. Examples from Japanese follow; the first verb is in the so-called Renyoo form and the second bears tense and aspect inflection (cited here in the infinitive).

- (38) (a) *kake-agaru* (run-go.up) ‘run up’  
 (b) *hai-noboru* (crawl-climb) ‘crawl up’  
 (c) *kake-mawaru* (run-go.around) ‘run around’  
 (d) *tobi-mawaru* (jump-go.around) ‘jump around’  
 (Matsumoto 1996: 211, ex. (21b))

Once again, these compounds are found in monoclausal constructions. Specifically, working in LFG, Matsumoto claims that they have simple functional and argument structure (1996: 220ff.). Nishiyama (1998), working in a Minimalist framework, analyzes them instead as syntactically complex serial verb structures, though still monoclausal. As with other forms of motion event encoding, the compounding

strategy in Japanese is used for a variety of event types, as documented extensively by Matsumoto (1996: section 8.1).

The same language could indeed have access to both SVCs and VV compounds, demonstrating two E-framed options. (39) shows a typical motion+path sequence in Mandarin for encoding directed motion events, though it is unclear on the surface whether it is an SVC or VV compound.

- (39) wǒ pǎo chū le chúfáng  
 I run exit/out PERF kitchen  
 ‘I ran out of the kitchen.’ (Chen & Guo 2009: 1751, ex. (4))

It is likely that both structures are available. The example in (40) shows that a DP describing the path may intervene between the verbs, suggestive of serialization rather than lexical compounding.

- (40) ...héng fēi dà-xī-yáng dào Měiguó  
 ...horizontal fly Atlantic.Ocean arrive/to America  
 ‘... fly across the Atlantic to America.’  
 (<http://gcsr.bokee.com/viewdiary.15001541.html>)

Only some VV sequences allow this. For example, it is not possible to insert a path phrase between the verbs in a sequence when the first (manner) verb does not entail displacement towards a goal, as exemplified by the contrast in (41), whose first verb *huàng* means ‘wander around aimlessly’. The adjacency requirement on the verbs in (41a) suggests these VV sequences may be compounds, while SVCs are also available, as in (40).

- (41) (a) cóng gǔ Chángcheng huàng dào Yúngāng shíkù  
 from ancient Great.Wall wander arrive/to Yungang grotto  
 ‘Wander from the ancient Great Wall to the Yungang Grotto.’  
 (<http://tour.fbllife.com/shownews/20383>)  
 (b) \*cóng gǔ Chángcheng huàng yuǎn lù dào Yúngāng shíkù  
 from ancient Great.Wall wander far road arrive/to Yungang grotto  
 Intended: ‘Take the long route from the ancient Great Wall to the Yungang Grotto.’

Of course, there is some debate as to whether SVCs and VV compounds are truly equipollent, that is, whether the multiple verbs have the same status. If one of the verbs turns out to be the grammatical head, and the rest subordinate, then they could

represent another type of S- or V-framed construction. However, there is no clear consensus in the literature on the question of headedness of such constructions, with different authors making different proposals, even for the same language, which may or may not extend beyond the languages they are examining. For serial verb languages, Chen & Guo (2009: 1751) point out that some researchers take the path verb to be the head in Mandarin SVCs, while others disagree, with no apparent consensus emerging. Thepkanjana (1986) proposes a flat structure for Thai SVCs, consistent with the claim that Thai is E-framed, but Muansuwan (2000) argues that Thai SVCs have considerable internal structure. Baker (1989) argues that serial verb languages have doubly-headed VPs, while Li (1991: 109f.) argues that SVCs involve a series of stacked VPs each with its own head, though one of these verbs acts as the head of the whole construction. Collins (1997) also proposes a variant of a stacked VP structure in which the leftmost verb would most likely be taken to be the head. In contrast, Stewart (2001) argues that some serial verb constructions are doubly-headed, while others are not. For VV compounds, Matsumoto (1996: 211, 223ff.) and Nishiyama (1998) argue that the right-hand verb is the head in Japanese VV compounds, while Li (1993) argues that such compounds are head-initial in Mandarin and head-final in Japanese. Similarly, if one of the two stems in a Klamath bipartite root is the head of the verb, its E-framed characterization is called into question. Although more research is needed into the analysis of these options, they unquestionably represent ways of combining manner and path within a single clause beyond the standard S- vs. V-framed dichotomy; for this reason we continue to treat them as distinct, although as discussed, providing one umbrella classification obscures the diversity represented by various constructions labeled ‘equipollent’.

### 3.2 *Other multiverb constructions*

SVCs have been singled out because they suggest an E-framed language type, but other multiverb constructions are cited, again typically in V-framed languages, which are not so clearly equipollent. Many papers on Japanese motion events contrast the monoverbal (42a) with the biverbal (42b).

- (42) (a) ??John-wa kishi-e oyoida.  
           John-TOP shore-to swam  
           ‘John swam to the shore.’
- (b) John-wa kishi-e oyoide-itta.  
           John-TOP shore-to swimming-went

‘John swam to the shore.’ (Japanese – Yoneyama 1986: 1–2, exx. (1b), (4b))

Example (42a) shows yet again that in Japanese, as is characteristic of a V-framed language, a path satellite cannot be combined with a manner verb (*until*-markers, discussed in section 2.3.1, being the exception). In contrast, (42b) uses a manner verb in the *-te* participial form and a path verb to convey both manner and path in a single clause. According to Matsumoto (1996: Ch.9), these together form a complex predicate (although Yoneyama (1986: 2) calls them ‘complex verbs’ and Tanaka (2002: 421) lexical ‘TE-compounds’). Such examples are not obviously equipollent, as the manner verb bears a participial morpheme, although they are still monoclausal.

Korean is also said to be V-framed, however, manner and path can both be conveyed in the multiverb construction illustrated in (43) (Choi & Bowerman 1991, Wienold 1995, Kim 1997, Im 2001, *inter alia*).

- (43) (a) Ku salam-i        cip-ulo    ttwui-e kassta.  
           that person-NOM house-to run-CN went  
           ‘That person ran to the house.’
- (b) Ku salam-i        cip-ulo    ttwui-e tul-e        kassta.  
           that person-NOM house-to run-CN enter-CN went  
           ‘That person ran into the house.’        (Korean – Slobin & Hoiting 1994)

This construction involves a verb sequence made up right-to-left of a deictic path verb, a non-deictic path verb (optional), and a manner verb, thus distinguishing two types of path verbs. The rightmost verb bears tense, while the others are followed by the connective morpheme *-e* and lack tense. The precise analysis of this construction is again the subject of debate, with Choi & Bowerman (1991: 88) calling it a compound, Kim (1997: 495) a complex predicate, and Im (2000: 255) an SVC; Jo (1990) and Zubizarreta & Oh (2007: 64ff.) argue explicitly and extensively that it is an SVC. We do not resolve this issue; the point is simply that these constructions represent yet another multiverb option in these languages that goes against their usual V-framed classification.

### 3.3 Summary

Even with a third typological class, some facts are not easily explained. Languages may be V- or S-framed in non-E-framed contexts even when they allow E-framed encoding, some multiverb options are not quite so clearly equipollent as others,

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and some SVC languages exhibit mixed behavior even in E-framed encoding. In Mandarin, all three encoding options – V-, S-, and E-framed (potentially of two kinds) – are available, and any one of these classifications is arguably valid, making any single classification seem contrived. Finally, even if one option is more frequent in a language than the others, and thus fulfills Talmy's (2000) caveat that the typological approach should capture the colloquial, frequent, and pervasive patterns of motion event encoding in a language, assigning a single classification to that language is undesirable, as it obscures the availability of other options. If a particular motion event encoding option is available to a language, no matter how minor or infrequent, then an approach that accommodates it is preferable to one that does not.

#### 4. THE ROLE OF MORPHOLEXICAL AND MORPHOSYNTACTIC RESOURCES

The data surveyed in the previous sections show a wide variety of encoding possibilities for motion events that do not fit comfortably into a two- or three-way typology. They also show that some options involve one motion verb, while others involve two or more. The former are the focus of Talmy's work; the latter have figured in work that extends his typology. The question is why the number of verbs should play a role in determining the available encoding options for directed motion events. We argue that constraints as in (3), repeated here, shed light on this question:

- (44) (a) Verb is the only clause-obligatory lexical category.  
(b) A verb may lexicalize only one of manner and path.

The requirement in (44a) reflects the more general requirement that all main clauses contain a verb (excepting copular constructions in some languages). Similarly, (44b) is an instance of a more general constraint on how much and what type of semantic information can be packaged into a verb meaning. Following Levin & Rappaport Hovav (1998) (see also Pinker 1989, Grimshaw 2005), a verb's meaning can be thought of as being composed of two distinct facets. One is an event schema, built from a small, universal set of primitives (e.g. causation, process, change of state, change of location, existence) representing the verb's basic event type. The second facet, and the one relevant here, is some idiosyncratic semantic material, now often referred to as the 'root' (after Pesetsky 1995), which crucially distinguishes among semantically related verbs. Roots fall into a limited set of 'ontological types'; two of the most important are manner – an indication of how a particular action is performed – and result – an indication of the result state or location of the action.

Moreover, various researchers have argued that the categories of result and goal (a subpart of a path) are manifestations of a single more basic category, or perhaps reducible to one another. Talmy (2000: Vol. II, Ch. 3) himself sees both as types of Core Schema in an event, loosely the component that determines the event's temporal structure. More specific arguments that goal and result represent a single category are based on their comparable contributions to the aspectual properties of the predicate, including telicity (Tenny 1987, 1994, Dowty 1991, Krifka 1998, Hay et al. 1999, Rappaport Hovav & Levin in press) and durativity (Wechsler 2001, 2005, Beavers 2002, 2006, 2008b). A second similarity comes from argument realization: figures of motion events and patients of change of state events tend to be realized as direct internal arguments (Rappaport & Levin 1988, Dowty 1991, Baker 1997, Krifka 1998, Beavers 2006), while paths and results are realized as obliques or as secondary predicates, as discussed in section 2.1. Indeed, this similarity is a key motivation for the localist hypothesis (Gruber 1965, Lyons 1967, Anderson 1971, Jackendoff 1972, 1983, DeLancey 2000), although this hypothesis takes path as basic (as Talmy 2000 seems to do).<sup>13</sup> Thus, following the common assumption that coming to be in/at a location is like coming to be in/at a state, and vice versa, (44b) is just an instance of a more general constraint proposed by Levin & Rappaport Hovav (1991, 1992) and Rappaport Hovav & Levin (in press) that while a verb root may lexicalize manner or result, it may not lexicalize both simultaneously; a separate statement is not needed for motion verbs.<sup>14</sup> Assuming languages can lexicalize only one of manner or result in the verb, a two-way typology is the logical outcome for sentences with one verb, explaining the appeal of Talmy's typology. However, once languages with multiverb constructions are taken into account, positing a third class of E-framed languages appears to be a natural next step.

Furthermore, the goal of a motion event can be expressed using any encoding option that can convey the appropriate semantics. Most obviously, goals are expressed using dedicated goal markers, such as English *to*, but there are two alternative semantic notions that allow for goal construals, giving rise to alternative expressions of this notion: boundary and location. The notion of boundary was introduced in section 2.3.1 in the context of *until*-markers. When occurring with a spatial complement, such markers, which are neither aspectual, nor result-denoting in nature, are understood as contributing a goal because the spatial complement must be understood as a boundary. In addition, as discussed in section 2.1.2 some apparent goal markers are in fact markers of location. The use of location markers to express goals is not surprising since a goal is still fundamentally a

location, albeit the final location in a motion event. This characteristic of goals is reflected in analyses that decompose directional adpositions into layered PPs with a directional head selecting for a locative head (see van Riemsdijk 1990, Rooryck 1996, Koopman 2000, den Dikken 2003, Svenonius 2007, van Riemsdijk & Huijbregts 2008, among others). Thus, there are other, less recognized, semantic perspectives on the notion of goal, which allow for additional encoding options. Looking at paths from this perspective, we see that paths are expressible as property scales that measure changes, entities with physical extent, or a series of locations. Again, there is no reason to treat path as a unique category subject to unique constraints.

With this background, we turn to the consequences of (44) for motion event encoding. The options for expressing a given event in a given language fall into two main classes: manner in the verb or path in the verb (a third class is discussed below). Each determines a different set of possibilities for encoding or combining both manner and path in a clause (setting aside goals as locations until section 5):

- (45) (a) *Path as V*: If path is expressed in V for a given expression, then
- (i) If the language has monoclausal multiverb constructions, manner may also be expressed as a V.
  - (ii) If the language has manner adverbials (ideophones, subordinate clauses, adverbs), these may encode manner.
- (b) *Manner as V*: If manner is expressed in V for a given expression, then
- (i) If the language has monoclausal multiverb constructions, path may also be expressed as a V.
  - (ii) If the language has appropriate result satellites (affixes, applicatives, semantic cases, adpositions, particles), these may encode path.
  - (iii) If the language has *until*-markers, these may be used to encode path.

The encoding of the meaning component not expressed in the verb depends on available language-specific resources for encoding and combining manners and results in a clause which need not be specific to motion events. For example, French and Japanese share a number of crucial properties regarding morpholexical and morphosyntactic inventories. Both lack applicative morphemes (cp. Tswana), aspectual affixes (cp. Russian), particles (cp. German), semantic cases (cp. Finnish), bipartite verb stems (cp. Klamath), and result satellites (cp. English). Therefore, there are only two possibilities left common to both languages from those discussed

in sections 2–3: path verbs and *until*-markers. Likewise, there are only two options common to both languages for encoding manner: manner verbs and subordinate adverbial clauses. Both languages exploit all four options.

We cannot, however, predict which options will be available in a given language. For example, either French or Japanese could have lacked *until*-markers (though we know of no such languages) or path verbs (as may be the case in Russian). Furthermore, we also cannot predict which resources will actually be employed for encoding motion events from the ones available. Although Japanese allows *until*-markers to encode path, the availability of *until*-markers is not sufficient for their use in path encoding. For example, few English speakers accept *until* in the expression of goals (cf. *John strolled to/??until the park*). Furthermore, even if a particular resource is both available in a language and exploited in its motion constructions, this does not predict *how* it interacts with other resources. Rather, the available set of combinatorial processes for putting these resources together represents a further dimension of variation (Bouchard 1995, Pustejovsky & Busa 1995, Cummins 1996, 1998, Song & Levin 1998). For example, we have shown that at least the following combinatorial options are exploited by different languages for encoding manner and path without using path satellites (in the narrow, Talmyan sense):

(46)	<i>Compositional method</i>	<i>Example language</i>
	Serial Verbs (e.g. $V_{manner} V_{path}$ )	CEC, Emai, Thai, Mandarin
	Compound Verbs (e.g. $V_{manner}+V_{path}$ )	Japanese, Mandarin
	Complementation (e.g. $V_{manner} PP/DP_{path}$ )	English
	Subordination (e.g. $V_{path} V_{manner}$ -participle)	All languages (?)
	Adjunction (e.g. $V_{path} AdvP/PP_{manner}$ )	All languages (?)

Again, the possible options for encoding motion events are determined by general properties of a language; they are not specific to these events alone. For example, despite their very similar morpholexical inventories, Japanese allows VV compounds and V-*te*-V complex predicates, while French does not. Thus, Japanese allows V- and E-framed options, while French only has the former, although both languages also have *until*-markers, a type of S-framed option. Thus, this difference has significant consequences for the encoding options available to each language.

Interestingly, depending on the available resources, a language may even allow both canonical S- and V-framed constructions. For example, both English and Hebrew (the latter sometimes classified as V-framed; Slobin 2004b) have manner verbs, path verbs, manner adverbial participles, and goal adpositions, yielding both

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canonical encoding types, as shown in the Hebrew examples (47) and their English translations.

- (47) (a) ha-kelev zaxal la-meluna.  
the-dog crawled to.the-doghouse  
'The dog crawled into the doghouse.'
- (b) ha-kelev nixnas la-meluna be-zxila.  
the-dog entered to.the-doghouse in-crawl<sub>N</sub>  
'The dog entered the doghouse crawling.' (Hebrew – Itamar Francez, p.c.)

Indeed, in addition to the options in (45), there is a seldom discussed third option: encoding NEITHER manner nor path in the main verb, but rather encoding BOTH as satellites. English instantiates this option as in (48a) (cp. the more commonly discussed options in (48b, c)).

- (48) (a) John moved stealthily out of the bedroom. (manner = adverb, path = adposition)  
(b) John stole out of the bedroom. (manner = V, path = adposition)  
(c) John left/exited the bedroom stealthily. (path = V, manner = adverb)

This third possibility arises simply from the resources available in English, including path, manner, and pure motion verbs, plus result and manner satellites. What emerges is a more varied picture of motion event encoding both within and across languages. Languages will share similarities in how motion is encoded only in as much as they share types of manner, result, boundary, and argument marking resources and combinatorial processes for putting the pieces together. However, we should not then expect a small number of language types with respect to motion constructions, but rather as many types of languages as there are combinations of relevant resources, and indeed the data discussed in the preceding sections attests to this. Despite this, not all options for motion event encoding have equal status, as we discuss in section 6. First, though, we expand our approach to include non-grammatical factors that contribute to motion event encoding.

#### 5. LOCATIONS WITH DIRECTIONAL INTERPRETATIONS: THE ROLE OF PRAGMATICS

As discussed in section 2.3.3, the literature on V-framed languages includes a growing number of examples of manner verbs with PP dependents which are used

to encode directed motion events – an apparently S-framed encoding strategy. We take as our starting point two factors which allow us to compare these data directly to comparable examples found in S-framed languages. First, researchers who note such examples in V-framed languages often simultaneously note that they involve only a handful of manner of motion verbs (Alonge 1997, Folli & Ramchand 2005, Zubizarreta & Oh 2007, Folli 2008, Gehrke 2008), and second, the PPs in these examples are invariably locative in nature (see section 2.1.2). These two factors are also relevant for S-framed languages, where the directional interpretation of locative PPs is often attributed to pragmatic inference involving the verb, the locative adposition, and context. We suggest that the same explanation is available for the V-framed language examples: directional interpretations of locative adpositions should be available with the appropriate pragmatic support even in the absence of morphosyntactic devices for directly expressing direction in a PP. (See also Levin et al. 2009 for further developments of this proposal.)

Studies of English and some other S-framed languages have pointed out that in some circumstances locative phrases can be understood as goals, rather than locations, both with directed motion verbs and manner of motion verbs (see Thomas 2004, Gehrke 2006, and Nikitina 2008 on English; Gehrke 2006 on Dutch; Biberauer & Folli 2004 on Afrikaans; Tungseth 2004, 2008 on Norwegian; Israeli 2004 on Russian; Nedashkivska 2001 on Ukrainian). In English, for example, *in* and *on* are locative, contrasting with *into* and *onto*, which are inherently goal-markers (although see footnote 4). Yet *in* and *on* may receive goal interpretations in certain contexts. For example, such an interpretation is available for (49a) if John is standing just outside a room and for (49b) if Kim is standing next to the bed.

- (49) (a) John walked in the room.  
 (b) Kim jumped on the bed.

Specifically, locative phrases are understood as goals precisely in those contexts that allow a reader or hearer to infer that a goal interpretation is intended. Evidence comes from an extensive corpus study by Nikitina (2008), which identifies some contextual factors that facilitate a directional interpretation of *in*. For example, a goal interpretation of the PPs in (49) is unavailable if John or Kim was standing some distance from the relevant location (e.g. down a long hallway).

Furthermore, Nikitina points out that verbs that are inherently punctual and thus naturally describe a transition are more likely to be found with *in* goal PPs than verbs that describe a process. In particular, *in* is found less often with manner of motion verbs (which tend to describe processes with duration) than with directed

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motion verbs (which are more likely to allow punctual, transition readings); see also Thomas (2004). Interestingly, the manner of motion verbs that Gehrke (2006, 2008) cites as showing the comparable phenomenon in Dutch are punctual, while those that disallow it are durative.<sup>15</sup> Turning to the complements of these prepositions, *in* is found more often with ‘containers’ – locations with well-defined boundaries, such as rooms, pools, boxes, and cars – than it is with ‘areas’ – locations that lack such boundaries, such as forests, neighborhoods, fields. As Nikitina points out, it is more plausible to infer a punctual transition into a container than an area, allowing for a focus on the result location, rather than the extended path of motion. These semantic effects are clear evidence against treating prepositions in English such as *in* as having both locative and directional readings, since lexical ambiguity would be expected to be more consistently available. The directional interpretation of these PPs, then, is better understood by positing a pragmatic basis.

On a pragmatic account, we expect that location phrases should have comparable directional interpretations in path languages, as long as contextual support is available. We argue that this is so, and therefore that locative PPs should not be used as evidence that these languages express motion against their Talmyan type. As mentioned in section 2.3.3, Pourcel & Kopecka (2006: 35) and Stringer (2003: 46) note that in French the location marker *dans* can receive a goal-marking interpretation in the right context, as shown in (50) and (51) (repeated from section 2.3.3). Not only is this ‘non-canonical’ use of *dans* in (51a) possible, but in the context of a mother shouting to her children it is actually more natural sounding than the equivalent ‘canonical’ V-framed expression of the same meaning in (51b) (cf. the oddity of the English translation).

- (50) Il court dans le jardin.  
       he runs in the garden  
       ‘He runs into the garden.’ (French – Pourcel & Kopecka 2006: 35)
- (51) (a) Allez, courons dans la maison!  
       go-2PL, run-1PL in the house  
       ‘Come on, let’s run in the house!’
- (b) ?#Allez, entrons dans la maison en courant!  
       go-2PL, enter-1PL in the house in running  
       ‘Come on, let’s enter the house running!’ (French – Stringer 2003: 46,  
       ex. (7))

Kopecka (2009) reports on an in-depth corpus study examining the factors favoring such interpretations in V-framed French. Her study confirms that the

factors relevant to English extend to French. For instance, as shown in (50) and (51), *dans* ‘in’ is more likely to be understood as *into* with locations that can be viewed as delimited – that is, as being ‘containers’ rather than simply ‘areas’. Although Kopecka limits her study to ten manner of motion verbs, she finds that the verbs denoting manners of motion most likely to produce displacement are those verbs most likely to be found with locative phrases understood as goals. This dovetails with Allen et al.’s (2007) observation that manner of motion verbs can be subdivided into those that describe forms of motion that necessarily produce displacement to some goal, such as running, walking, flying, and perhaps jumping and rolling, and those that do not, such as dancing. Verbs of the first type involve manners characteristic of animate entities and are typically used with the intent of reaching a goal, suggesting that they may indeed at least implicate a notion of path, though they do not lexicalize direction or result, as proposed, for instance, by Alonge (1997) and Folli & Ramchand (2005) for Italian and Fábregas (2007) for Spanish; see also Mateu (2008: 246, n. 29). None of these studies, unfortunately, considers the durative/punctual criterion, although Baicchi (2005: 514) notes that ‘immediacy’ or ‘suddenness’ of the overall event is a property of many comparable Italian examples.

These observations are confirmed in corpus studies of Spanish by Martínez Vázquez (2001) and Fábregas (2007). Fábregas notes that *a* is found with a directional interpretation precisely with those manner verbs which imply displacement, despite the purported V-framed status of Spanish. Similar results emerge from Martínez Vázquez’s study, which systematically explores the range of semantic subclasses of motion verbs in Spanish; she reports on all types of phrases understood as goals, including those expressed with *until*-markers, but importantly cites a fair number of examples with *a*, typically found with those manner of motion verbs that imply displacement (see Fábregas 2007: 168–169, ex. (3) for further examples):

- (52) (a) ... deslizándose a las habitaciones de las bailarinas...  
slipping to the room of the dancers

‘... slipping into the dancers rooms...’

- (b) ... volaron a Mar de Plata ...  
flew to Mar de Plata

‘... they flew to Mar de Plata ...’ (Spanish – Martínez Vázquez 2001: 51–52, exx. (101), (112))

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Stringer (2003, 2006) notes similar data in Japanese, also involving manner verbs that implicate displacement, although he notes that the judgments are variable and somewhat muddled (see Beavers 2008a for further discussion):

- (53) (a) ?Akira-wa umi-no-naka-ni hashitta.  
Akira-TOP sea-GEN-inside-to ran  
'Akira ran into the sea.'
- (b) ?Hidari-ni tobu.  
left-to leaps  
'(He) leaps to the left.' (cf. Stringer 2003: 46–53, exx. (5), (35c))

Independent of a language's Talmyan type, a pragmatic inference of directed motion can arise when context facilitates it. Although a full account of how such interpretations arise is still necessary, a theory of motion event encoding must be flexible enough to allow for them. Our approach more easily accommodates the use of inference to attribute goal interpretations to locative expressions than an approach that explicitly posits a two- or three-way typology, since we make no predictions about the presence or absence of such interpretations beyond the fact that putatively V-framed languages tend to lack lexicalized path encoding satellites. However, nothing prevents interpretive processes that allow locative expressions to take on such meanings in a given context, creating apparent S-framed behavior.

#### 6. CONCLUSION: REVISITING TALMY'S TYPOLOGY

We have argued that the range of attested crosslinguistic diversity in motion event encoding points to a much richer typology of languages than typically assumed. However, the options exploited in a given language are constrained by the more general manner, result, boundary, and location encoding resources available to it, and the resources available for putting them together. Thus, the crosslinguistic diversity in motion event encoding can effectively be reduced to a more basic form of typological diversity. In this concluding section we return to Talmyan typologies, and suggest that they may be a by-product of the interaction of more basic typological parameters with factors affecting how the relevant resources are used.

Although a particular language may have multiple options available for encoding manner and path, some may be preferred on independent grounds, for example due to morphosyntactic complexity or to preferences for certain types of lexemes over others within the lexical inventory of a language. We begin by considering

morphosyntactic complexity. The use of encoding options that are less complex – and, thus, presumably easier to process – is preferred to the use of more complex ones. As a consequence, a language might appear to have a more limited set of encoding options available than it actually has. Consider (54), which includes several acceptable descriptions in Japanese of an event of John running to the station in which both manner and path are encoded:

- (54) (a) John-wa eki-ni itta.  
 John-TOP station-to went  
 ‘John went to the station.’
- (b) John-wa eki-ni hashitte-itta.  
 John-TOP station-to running-went  
 ‘John went running to the station.’
- (c) John-wa eki-made hashitta.  
 John-TOP station-until ran.  
 ‘John ran to the station.’
- (d) John-wa hashitte eki-ni itta.  
 John-TOP running station-to went  
 ‘John went to the station running.’ (Japanese – Yoneyama 1986: ex. (4))

Presumably, (54a) is the least morphosyntactically complex event description, involving a single path verb that entails or selects for the goal PP, while (54b) involves a *V-te-V* complex predicate of the type discussed in section 3.2, and (54c) makes use of an adjunct PP headed by an *until*-marker, and thus involves the boundary/goal inference discussed in section 2.3.1, adding semantic complexity. The option in (54d), despite showing the *-te* participial form also found in (54c), involves a subordinate participial clause; thus, it is truly biclausal (Matsumoto 1996: Ch. 9), as reflected in the lack of adjacency of the two verbs and represents a grammatically more complex option. Of these options, (54a) is most preferable on complexity grounds, while (54d) is least preferable. The other two options are both suboptimal, but better than (54d). This suggests that Japanese favors V-framed encoding, with tendencies towards E-framed encoding. Romance languages have a similar spectrum of options with one exception: there are no equipollent forms. Given the more limited options, French appears to conform more closely to the V-framed ‘ideal’.

Similarly, the putative S-framed tendencies noted for English may arise because the canonical S-framed manner verb plus path satellite pattern is presumably the

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least marked of the available options; these were illustrated in (48) and repeated here. (55a) avoids the manner adverbials required if manner is expressed via a satellite, as in the other two sentences.

- (55) (a) John moved stealthily out of the bedroom. (manner=adverb,  
path=adposition)  
(b) John stole out of the bedroom. (manner=V, path=adposition)  
(c) John left/exited the bedroom stealthily. (path=V, manner=adverb)

Thus, the relative complexity of available options may favor some over others, in turn yielding strong tendencies within a language that may masquerade as categorical constraints.

The issue of complexity arises in a second form with respect to the optionality of expression of some components of motion events. Optionality is inherent in Talmy's verb/satellite contrast: satellites of all types – whether path or manner encoding – are generally optional, unlike the main verb. If satellites are optional, then the question arises of when they need to be expressed. This question is addressed by a comparative study of manner encoding in English, an S-framed language, and Greek, a V-framed language. Papafragou et al. (2004) show that the frequency of manner encoding is dependent not just on language type but also on whether the manner in question is 'inferrable' or 'opaque'. Given a scene with a man walking up the stairs (where walking is a canonical and thus easily inferrable way to go up stairs), English speakers tended to use manner verbs (with or without path PPs), while Greek speakers tended to simply use path verbs, leaving the manner unexpressed, as might be expected given the languages' Talmyan types. However, when Greek speakers were presented with scenes with unexpected manners (e.g. a plane flying upside down), the frequency of manner encoding (either through complex manner adverbials or manner verbs) increased significantly. This suggests that there may be a preference for choosing encoding options that avoid the use of satellites, especially more morphosyntactically or semantically complex satellites such as *until*-markers or subordinate clauses, which are typically used in V-framed languages if manner is in the verb. This observation is also made by Slobin (1996), who notes the considerable loss of manner information in English-to-Spanish novel translations. It appears that speakers avoid satellites when possible; their use depends on how necessary the meaning components they would encode are to the event description, as well as how inferrable these components are from context. A dispreference for satellites may in turn move certain languages towards the more

predominant use of either V- or S-framed encoding options, even if other options are available.

Preferences for some encoding options in a given language might also arise due to the shape of its verb lexicon, as verbs are the lynchpin both in previous typologies and in our approach. Although nearly every language has both path and manner verbs, languages differ significantly as to how many verbs of each type they have. A language may prefer certain types of motion descriptions depending on having a greater number of path vs. manner verbs. Most languages have basic path verbs such as English *come* and *go*, but there is more variability as to whether they have available path verbs that encode further directional or orientational information, such as *approach* (i.e. ‘go towards’), or *enter* (i.e. ‘go in’). Crosslinguistic differences in verb inventories are even more pronounced for manner verbs. Most languages have verbs describing very basic manners of motion like *walk*, *run*, *fly*, and *swim*, but fewer also provide highly contentful manner of motion verbs such as *amble* ‘walk in a leisurely manner’, *jog* ‘run for exercise (or) at a slow and regular pace’, *waltz* ‘dance to a three-beat rhythm’, and the like (Wienold 1995, Slobin 2000; see also section 2.2). It seems plausible that the encoding options preferred in a certain language would be those that could exploit its lexicon to the fullest.<sup>16</sup>

There is also crosslinguistic variation in which meaning components are encoded in a motion verb. For instance, rather than path and manner, a motion verb may encode properties of the figure, in Atsugewi (Hokan; Northern California). For example, the Atsugewi verb root *-lup-* is used to describe the movement or location of ‘a small shiny spherical object (e.g. a round candy, an eyeball, a hailstone) . . .’ (Talmy 2000: 57–58). Atsugewi is classified by Talmy as S-framed, as path is not specified by its motion verb roots, yet its motion verbs lexicalize meanings quite different from the verbs in the more familiar Indo-European S-framed languages such as English, German, and Russian. Classifying them all as S-framed tells us that the verb root does not lexicalize path, but says little about what it actually does contain.<sup>17</sup>

Thus, Talmy’s typology results from numerous converging factors, including the overlap of path/manner (or rather result/manner) encoding in the verb and its obligatoriness, and the independent availability of various means of encoding manners and paths, combined with preferences for certain non-verbal encoding possibilities over others. A similar conclusion is reached by Slobin (1996), who argues that languages may exhibit a range of encoding options, though only some will be viewed as relatively simple or colloquial (due in part to preferences a

language will exhibit for certain encoding options because of its typological status). These options will become preferred for speakers of the language as part of the development of a canonical rhetorical strategy, with other available options being dispreferred. We agree in spirit with Slobin's reasoning, but suggest that although there is crosslinguistic variation (as in the availability of *until*-markers, compounding, or serialization), not just ANY option is in principle possible in any language. Rather, variation follows from more basic motion-independent resources a language has, so that on a language-by-language basis we can still make certain clear predictions about what options a language may allow.

This conclusion has ramifications for proposals that Talmy's two-way typology arises from a 'macroparameter', as in Mateu & Rigau (2002), McIntyre (2004), Zubizarreta & Oh (2007), and especially Snyder (1995a, 2001). We focus on Snyder's proposal, which is perhaps the most influential, particularly in work on language acquisition (e.g. Liceras & Díaz 2000, Snyder 2001, Slabakova 2002). Snyder introduces the Compounding Parameter, which differentiates languages according to whether they allow productive noun-noun (NN) compounding; he then proposes a strong connection between the availability of NN compounding and a cluster of phenomena said to involve 'complex predicate formation', including the availability of directional complements to manner of motion verbs and resultative phrases. In this way, Snyder connects the Compounding Parameter to Talmy's typology. If Talmy's typology is indeed epiphenomenal, then accounts based on such parameters are called into question. In fact, Snyder's Compounding Parameter has been critiqued: Guevara & Scalise (2009: 123) question it on morphological grounds, while Son (2007) presents data showing that the availability of NN compounding can be dissociated from the availability of resultatives (see also Mateu 2008: 245, n. 26).

In sum, we propose that the wide variation in motion event encoding falls out of general constraints on how manner and path may be encoded in language together with independent properties of the morpholexical inventories and morphosyntactic resources of particular languages. Although we suggest that Talmy's typology is an epiphenomenon, it emerges because the lexical category verb may encode both manner and path, but not both simultaneously, forcing a language to choose to encode one meaning component in the verb and one outside it: that is, to choose a V- or an S-framed option. The natural question our study poses is whether comparable explanations are applicable to other apparent typological differences between languages (cf. Hale & Keyser 1997, 1998, Koontz-Garboden 2006 on state-derived inchoatives/causatives; Harley 1995, 1997, Hoekstra 1995,

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Siewierska 1998, Snyder 1995a,b, Levin 2008 on the dative alternation; Folli & Ramchand 2005 on resultatives/goal expressions; Beavers 2006, Beavers 2009 on argument/oblique alternations and argument realization patterns). We believe that they will, and we hope that this work will provide further impetus to the necessary investigations.

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THE TYPOLOGY OF MOTION EXPRESSIONS REVISITED  
FOOTNOTES

- 1 This work was supported in part by NSF Small Grant for Exploratory Research BCS-0004437 to Beth Levin. We have benefited from the comments of two reviewers, and we also thank Jürgen Bohnemeyer, Marc Ettliger, Itamar Francez, Hyun Jong Hahm, Hayriye Kayi, Andrew Koontz-Garboden, Ulia Lierler, Jean-Philippe Marcotte, Tatiana Nikitina, Peter Sells, Dan Slobin, Judith Tonhauser, Kiyoko Uchiyama, and Stephen Wechsler for discussion, suggestions, and comments, as well as audiences at the Stanford Diversity in Language Workshop, the 2006 LSA Annual Meeting, the Stanford Semantics Fest, and Trinity University. We are grateful to Malka Rappaport Hovav and Maria Polinsky for helpful discussion at earlier stages of this research. Finally, we thank Grace Song, whose earlier work with Beth Levin (1998) was a direct precursor of this paper.
- 2 More accurately, Talmy's division is based on where the CORE SCHEMA is encoded, a broad semantic category that includes path, result, aspect, and other notions that may shape the temporal structure of the event (and to some degree argument structure; see Talmy 2000: Vol. II, 278ff.).
- 3 As discussed in footnote 14, there is still some question as to whether manner/result complementarity really holds. If not, (3b) could be weakened to 'manner and path are two of the semantic categories that may be encoded in the verb'.
- 4 Following Talmy, we focus exclusively on the encoding of motion events in clauses, although a reviewer asks whether motion may be encoded in DPs such as *The first/next/last man into the room wins a prize*. We argue that such DPs do not truly describe motion events. Rather, they involve what Fong (1997) calls 'directional locative' uses of *into* or *out of* as in *the bridge into/out of New York* or *the road into/out of the city*, where there is no motion and *into* is licensed in the presence of an ordered structure for 'times, stages of events, segments of objects, and spatial traces of events' (Fong 1997: 28). Since the entities referred to in Fong's examples have one salient dimension with a particular orientation (e.g. the choice between *into* and *out of* depends on perspective), they can be viewed as consisting of an ordered set of slices, thus defining a pathlike object and licensing a directional locative (Fong 1997: 33ff.). Interestingly, the reviewer's examples are felicitous only with an ordinal modifier: *\*the (tall) man into the room won the prize* (Higginbotham 2000) – a requirement not found in the clausal encoding of motion events. The modifier requirement indicates that such DPs pick out a

specific instance from an implicit sequence of similar entities, which thus defines the ordered structure that licenses a directional locative.

- 5 Abbreviations used: 1, 2, 3 = 1st, 2nd, 3rd person; ABL = ablative; ACC = accusative; ALL = allative; DAT = dative; CL = classifier; CN = connective; GEN = genitive; ILL = illative; IMP = imperfective; LOC = locative; MOD = modification marker; NOM = nominative; PART = participle; PERF = perfective; PL = plural; PRES = present; PROG = progressive; QUES = question; REDUP = reduplicated; SG = singular; TOP = topic marker; TRA = translative.
- 6 Although for simplicity we say that certain particles, prepositions and adjectival predicates contribute telicity, there is more to the actual determination of telicity. As Levin & Sells (in press) put it, these elements ‘make telicity possible’ with a verb that is otherwise atelic, but the actual telicity of the entire sentence depends on the boundedness of its DPs. Thus, compare the telic *Dana pounded the scrap metal flat* to the atelic *Dana pounded scrap metal flat*, and similarly *Dana pushed the lawnmower into the garage* vs. *Dana pushed lawnmowers into the garage*; see also Folli & Harley (2006) and Beavers (in press).
- 7 Spanish *a*, unlike its French and Italian cognates, predominantly shows directional rather than locative uses. This property may arise because other prepositions and/or relational nouns (e.g. *en* ‘in’, *a lado de* ‘near’, *dentro* ‘inside’) have taken over some of its former functionality. For further discussion of locative *a* see Fábregas (2007).
- 8 Actually, Japanese shows what could be considered a resultative construction, but only when the result XP further specifies a result state already encoded in the verb, as in (i).

- (i) Mary-ga doresu-o pinku-**ni** some-ta.  
 Mary-NOM dress-ACC pink-DAT dye-PAST

‘Mary dyed the dress pink.’ (Japanese – Washio 1997: 5, ex. (13b))

The limitation on the distribution of result XPs to contexts with change of state verbs could be viewed as the change of state domain analogue of a restriction previously observed in the motion domain: goal XPs in Japanese (and other V-framed languages) are found only with path verbs, which already entail direction. Thus, this distributional parallel further supports a correlation between the

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notions of goal and result. According to Son (2007), Korean lacks PP resultatives (again paralleling motion constructions), but does have adjectival resultatives. This suggests that a more fine-grained approach is necessary to the types of secondary predication available to a language.

- 9 Although Talmy (1985, 2000) proposes Mandarin is S-framed, its classification is controversial. Chen (2007) and Chen & Guo (2009) argue that it is E-framed based on the properties of the motion event encoding patterns most frequently found in Mandarin connected discourse, given Slobin's (1997) proposals concerning a correlation between the motion event encoding and rhetorical style in languages of different types.
- 10 One possible exception is Russian, classified as a strongly S-framed language in previous work, which appears to lack path verbs entirely (Slobin 2004b: 227).
- 11 Italian adverbial particles also allow a path to be further or redundantly specified with path verbs, as in *uscire fuori* 'exit outside'. In addition, like their Germanic counterparts, they may assume metaphorical meanings, e.g. *buttare via* 'throw away' (either literally or metaphorically in the sense of 'squander'), and even non-compositional meanings, e.g. *fare fuori* 'kill' (literally 'do out') (Masini 2005).
- 12 According to Ibarretxe-Antuñano (2004a,b), Basque, a V-framed language, uses many of the narrative rhetorical features that Slobin (1996, 2004a) has associated with S-framed languages. We do not pursue the significance of this, as we are not focusing on this facet of motion events.
- 13 The localist hypothesis, which posits that various types of events are construed as abstract events of motion, is used to explain why the notion 'result' is expressed using goal markers, such as English *to* in *Pat exercised her way back to health*, thus purporting to account for extended uses of certain spatial prepositions. However, in terms of the analysis of basic verb meanings, it appears that path verbs should be viewed as a type of result verb (or at least both should be subsumed under a single type) in that both denote events of scalar change (Tenny 1987, 1994, Dowty 1991, Krifka 1998, Hay et al. 1999, Beavers 2006, 2008b, Rappaport Hovav & Levin in press).
- 14 We assume manner/result complementarity following a line of recent work; however, this assumption is not entirely uncontroversial (Koontz-Garboden & Beavers 2009, Goldberg in press). With respect to motion, Zlatev & Yangklang

(2004) argue for a class of ‘manner+path’ verbs in Thai (see section 3.1), including *phlòo* ‘pop out’, *thalú* ‘pierce’, and *hòklú* ‘trip and fall’; these verbs differ from the Klamath bipartite verbs in section 3.1 in that they lexicalize two meaning components in a monomorphemic verb. Zlatev and Yangklang argue that these verbs constitute a distinct subtype based on word order facts. In SVCs manner+path verbs must occur after all the manner verbs but before any path verbs:

- (i) (a) *chán dæ̀n phlòo ʔóok paj*  
 I walk pop.out exit go  
 ‘I popped out, walking.’  
 (b) \**chán phlòo dæ̀n ʔóok paj*  
 (c) \**chán dæ̀n ʔóok phlòo paj*(Thai – Zlatev & Yangklang 2004: 167–168, ex. (17))

This fact is attributed to a more general constraint: manner verbs occur before path verbs and path verbs after manner verbs, thus leaving manner+path verbs sandwiched in the middle. Rappaport Hovav & Levin (2008) show how apparent English counterexamples to manner/result complementarity, including some from the motion domain, dissolve on close examination, suggesting that the purported dual semantic characterization of these Thai verbs be reexamined. What is crucial for us is that verbs are both clause obligatory and restricted to encoding primarily a manner or a result meaning; thus, we set the possibility of manner+path verbs aside for now.

**15**Beavers (2008b) discusses the durational/punctual distinction of change of state and motion predicates and suggests that it is intimately tied to properties of the result/goal denoting expression and properties of the manner involved in the event; see also Beavers (2002), Wechsler (2005).

**16**We do not pursue the question of why a language may prefer certain types of lexemes, e.g. manner or path verbs; such preferences may help maintain its typological ‘status’ (see Wienold 1995: 323ff.).

**17**The larger question is what the full range of ontological possibilities is for verb roots. This question must be addressed by a general theory of verb meaning, and it is presumably connected to an account of the types of English denominal verbs such as *bag*, *kayak*, *paint*, *summer*, *water*.