What makes manner of motion salient?
Explorations in linguistic typology, discourse, and cognition

Dan I. Slobin
University of California, Berkeley

Abstract

Languages differ considerably in the attention that they pay to manner as a dimension of motion events. One factor that seems to influence attention to manner is a language's lexicalization pattern. Following Talmy's well-known dichotomy of verb-framed and satellite-framed languages, the latter type provides more readily accessible constructions that include path and manner in compact form. In this chapter it is proposed that the dichotomy be expanded to included an "equipollent" type, in which both path and manner receive equal weight. Furthermore, other factors also contribute to the degree of "manner salience" of a particular language. In particular, language-specific morphosyntax, the availability of ideophones, and the availability of motion-related lexical categories (such as posture verbs) are three sorts of factors that interact with lexicalization patterns in influencing manner salience. It is proposed that linguistically-expressed manner salience can influence attention to details of experienced motion events as well as mental imagery formed on the basis of reception of motion event descriptions in speech or writing.

For the past decade or so, I've been obsessed with linguistic descriptions of motion events and possible crosslinguistic differences in cognition (Berman & Slobin, 1994; Hoiting & Slobin, 1994; Özçalışkan & Slobin, 1999, 2000a, 2000b, 2003; Slobin, 1996, 1997, 2000, 2003, 2004, 2005a, 2005b, 2005c). The dimension of *manner of motion* is particularly rich for exploring effects of typological characteristics of languages on discourse and cognition. Why, for example, is the following sign quite normal (albeit amusing) in the San Diego Zoo, whereas it would be inconceivable in Le Parc Zoologique de Paris?

(1)   DO NOT TREAD, MOSEY, HOP, TRAMPLE, STEP, PLOT, TIPTOE, TROT, TRAIPSE, MEANDER, CREEP, PRANCE, AMBLE, JOB, TRUDGE, MARCH, STOMP, TODDLE, JUMP, STUMBLE, TROD, SPRING, OR WALK ON THE PLANTS.[1]

Or why does the German motion event presented in (2) lose its manner in the French translation in (3)?

(2)   *Eine Stunde schlich ich noch um das Haus herum ...* [For another hour I crept around the house] (Zweig, 1993, p. 106)

(3)   *Une heure durant, je fis le tour de la maison ...* [For an hour, I made a circuit of the house] (Zweig, 1993, p. 107).

---

[1] Thanks to Jelena Jovanović for her photograph of the original sign in the Wild Animal Park of the San Diego Zoo.

Or, to take two other languages, why does the same news event from Iraq, reported in (3) and (4), have a manner-of-motion verb in Dutch but a simple path verb in Spanish?

(4) *Johnson ... zag hoe een terreinwagen <u>kwam aanscheuren</u> naar het kruispunt ...* [Johnson … saw a landcruiser <u>come tearing up</u> to the intersection …] (*NRC Handelsblad*, April 1, 2003]

(5) *Johnson había visto ... <u>la llegada</u> del vehículo a una intersección ...* [Johnson had seen <u>the approach</u> of the vehicle to an intersection …] (*El Universal*, April 1, 2003)

Examples such as these have long been familiar to scholars of comparative stylistics. For example, sixty years ago (in occupied Paris), Malblanc (1944) noted, in comparing German with French: "…il apparaît que le verbe allemand dans son allure générale est plus lourd de perceptions sensibles et de relations exprimées que le verb français […it would seem that, in general, German verbs are more weighted with the expression of sensory perceptions and relations than are French verbs]." The task of this chapter is to account systematically for such differences. Malblanc appealed to some inherent character of individual languages: "En règle générale, le français s'en tient volontiers à l'idée abstraite, tandis que l'allemande aime à descendre à l'image du concrete" [As a general rule, French holds readily to abstract ideas, while German is fond of descending to concrete images]. In a comparative stylistics of French and English published in Québec, Vinay and Darbelnet (1958) discuss problems of translating the large and detailed lexicon of English manner-of-motion verbs into French. They explicitly invoke the "spirit of the language" as a determinant: "Mais il serait contraire au génie de la langue française d'entrer dans ce genre de détail…" [But it would be contrary to the spirit of the French language to enter into this sort of detail…].

The tools of typological and cognitive linguistics allow us to develop more precise explanations. I want to propose that several quite different kind of factors, linguistic and psychological, interact to shape what earlier generations of scholars characterized as "the spirit of a language."

Manner expression and typologies of lexicalization patterns

One might simply assume, from the examples given above, that Germanic languages are more concerned with manner of motion than are Romance languages. However, as I have reported in the papers cited above, the patterns reflected in examples (1) through (5) are far more general. In fact, it seems possible to place all the languages of the world in a typological categorization of preferred means of encoding motion events, with consequences for the relative salience of manner of motion. A useful analysis has been provided by Talmy (1985, 1991, 2000), who has devoted extensive attention to *lexicalization patterns*. In his terms, "lexicalization is involved where a particular meaning component is found to be in regular association with a particular morpheme" (1985, p. 59); in this instance, what is at issue is lexicalization of location and displacement of an entity. A *typology* can be proposed in those instances in which "languages exhibit a comparatively small number of patterns" (p. 57). Talmy has proposed a universal typology of motion event encoding, based on a definition of an "event that consists of one object (the 'Figure') moving or located with respect to another object (the reference-object or 'Ground')" (p. 61).

As an example of the typology, consider a particular motion event that is described in a collection of elicited oral narratives. In order to hold content constant across languages, a picture

storybook, *Frog, where are you?* (Mayer, 1969), has been used in extensive crosslinguistic research (Berman & Slobin, 1994; Strömqvist & Verhoeven, 2004).[2] In one picture, a little boy is looking into a hole in a tree and an owl emerges, wings outspread. Schematically, the *path component* of the event—that is, the physical displacement of the owl in space—can be described in two ways: (1) a path verb, such as 'exit, can encode the owl's trajectory, or (2) an element associated with a verb can encode the trajectory, such as Germanic verb particles (e.g., 'come out') or Slavic verb prefixes.   Talmy calls such associated elements "satellites." On the basis of this analysis, he offers a binary typology. There are: (1) *verb-framed languages*, in which location or movement is encoded by the main verb of a clause, and (2) *satellite-framed languages*, in which location or movement is encoded by an element associated with the verb. Romance languages are verb-framed and Germanic languages are satellite-framed, but the typology is much broader, as suggested by the following partial crosslinguistic summary:

<u>Verb-framed languages</u>
- Romance
- Greek
- Semitic
- Turkic
- Basque
- Korean
- Japanese

<u>Satellite-framed languages</u>
- Germanic
- Slavic
- Celtic
- Finno-Ugric

The encoding of manner, however, raises interesting issues of both typology and language use. Talmy provides no clear definition of manner, nor is there one to be offered here.[3] "Manner" is a cover term for a number of dimensions, including motor pattern (e.g., *hop, jump, skip*), often combined with rate of motion (e.g., *walk, run, sprint*) or force dynamics (e.g., *step, tread, tramp*) or attitude (e.g., *amble, saunter, stroll*), and sometimes encoding instrument (e.g., *sled, ski, skateboard*), and so forth. These subtypes of manner do not seem to influence the broad patterns described in this chapter, so a single category of manner is sufficient to the task. At first glance, the binary typology seems to be neutral with regard to the expression of manner, which is optional in both types of languages. In a verb-framed language, where the main verb in a clause is committed to path description, manner can be added in various ways. For example, in the scene of the owl's emergence, one could say either 'exit' or 'exit flying'.   In a satellite-framed language one could say either 'come out' or 'fly out'.   But note that encoding of manner is dependent, in interesting ways, on the option for encoding path. In verb-framed languages, manner must be expressed in some kind of subordinate element, such as a gerund or other adverbial expression ('exit flying'), whereas in satellite-framed languages the main verb of a clause is available for the expression of manner ('fly out' in Germanic, 'out-fly' in Slavic, etc.),

---

[2] Strömqvist and Verhoeven (2004) provide documentation of "frog story" research on 72 languages, belonging to 13 major language families and 26 language groups within those families.

[3] It remains to be determined if manner of action is a coherent semantic category for various linguistic analyses. Talmy has succeeded in relating manner to a wide range of morphosyntactic patterns, using the definition: "Manner refers to a subsidiary action or state that a Patient manifests concurrently with its main action or state" (Talmy, 1985, p. 128).

providing a "low cost" alternative to adjunct expressions of manner such as 'exit flying' or 'exit with a flap of the wings'. I will suggest that this apparently trivial processing factor of relative "cost" of encoding manner has widespread consequences for both the lexicon and discourse patterns of a language, with probable effects on cognition.

A revised typology

Using Talmy's typology to examine the role of manner in motion events raises a question about the typology itself. So far, the examples have been drawn from languages with a single finite verb in a clause, either a path verb or a manner verb. Consider the following examples— again returning to the emergence of the owl in the frog story. Example (6), from Spanish, is equally applicable to a large range of verb-framed languages that have been studied (all of the Romance languages except Romanian; Turkish, Hebrew, Arabic). There is a clause with a single verb, encoding path, and no information about manner:

(6)   *sale   un   buho*
        exits an   owl

The next two examples present two types of satellite-framing, using an element to encode path that is associated with a main verb of manner—a Germanic separable verb in English in (7) and a Slavic prefix in (8):

(7)   *an owl flew out*

(8)   *vy-   letela   sova*
        out-   flew   owl

However, serial-verb languages without grammatical marking of finiteness pose a problem to a typology that depends on identifying the "main verb" in a clause. Consider Mandarin Chinese, in (9):

(9)   *fei*1   *chu*1   *lai*2   *yi*1   *zhi*1   *mao*1*tou*2*ying*1
        fly   exit   come   one   only   owl

Talmy classifies Mandarin as satellite-framed, because there is a small set of path verbs, like *chu*1 'exit', that can regularly occur with manner verbs. He considers these to be satellites. But note that *chu*1 can also stand alone as the sole verb in a clause. Indeed, in such languages there are typically three verbs in such constructions, with a final deictic verb ('come'/'go'); there is no finite marking at all; and each of the three verbs can stand alone in a clause. I have proposed that there is a third type of lexicalization pattern (Slobin, 2004); a similar conclusion has been reached by Zlatev and Yangklang (2004), working on Thai, a serial-verb language from a different group (Tai-Kadai), and by Ameka and Essegbey (in press), with regard to West African serial-verb languages.[4] In their words:

---

[4] Talmy (1991) suggests that path verbs in serial-verb languages often show evidence of grammaticizing into path satellites—that is, losing some features of independent verbs. This is certainly an important diachronic path that can lead from one language type to another. But the data do not make it possible to unequivocally categorize languages like Mandarin and Thai as either satellite- or verb-framed languages. A Chinese linguist also points out that path verbs are not strictly comparable to English verb particles: "However, different from English, these satellites in Chinese can also function as independent verbs themselves. When such a verb is connected to another verb, a verbal construction called *lián dòng shi*

When the properties are tallied, we find that serialising languages share more properties with S-languages [satellite-framed] than with … V-languages [verb-framed] … while still possessing a unique property. What this shows is that they cannot be said to belong to either type. Instead, they appear to belong to a class of their own.

This third class of lexicalization patterns can be designated as *equipollently-framed*—that is, a kind of framing in which both path and manner have roughly equal morphosyntactic status. There are at least three subtypes of equipollently-framed languages, based on morphological criteria:

- **serial-verb languages** in which it is not always evident which verb in a series, if any, is the "main" verb: Niger-Congo, Hmong-Mien, Sino-Tibetan, Tai-Kadai, Mon-Khmer, (some) Austronesian

- **bipartite verb languages**, such as the Hokan and Penutian languages described by DeLancey (1989, 1996), in which the verb consists of two morpheme of equal status, one expressing manner and the other path. Talmy (2000, p. 113) provides a similar description of Nez Perce manner prefixes, such as *quqú·-láhsa* 'gallop-ascend' (Aoki, 1970). Richard Rhodes (personal communication, 2003) reports that such constructions are typical of Algonquian, Athabaskan, Hokan, and Klamath-Takelman. Huang and Tanankingsing (2004) report that at least one Austronesian language, Tsou, which has apparently developed bipartite manner-path verbs from serial-verb constructions.

- **generic verb languages**, such as the Australian language Jaminjung (Schultze-Berndt, 2000), with a very small verb lexicon of about 24 "function verbs." For encoding motion events, one of five verbs is used, expressing a deictic or aspectual function: 'go', 'come', 'fall', 'hit', 'do'. These verbs are combined with satellite-like elements, "coverbs," that encode both path and manner in the same fashion. In such a language, neither path nor manner is unequivocally the "main" element in a clause.

Table 1 summarizes the revised tripartite typology (after Slobin, 2004, p. 249).

'serial verb construction' is formed" (Gao, 2001, p. 62).   However, it has also been noted that the path verb in such constructions may show phonetic weakening in Mandarin, but not in Cantonese or Thai (Lamarre, 2005a, 2005b), suggesting ongoing grammaticization processes in some serial-verb languages.

Table 1.
Tripartite Typology of Motion-Event Constructions

| Language type	Preferred means of expression	Typical construction type	Examples
verb-framed	path expressed by finite verb, with subordinate manner expression	verb$_{PATH}$ + subordinate verb$_{MANNER}$	Romance, Semitic, Turkic, Basque, Japanese, Korean
satellite-framed	path expressed by non-verb element associated with verb	verb$_{MANNER}$ + satellite$_{PATH}$	Germanic, Slavic, Finno-Ugric
equipollently-framed	path and manner expressed by equivalent grammatical forms	*serial verb:* verb$_{MANNER}$ + verb$_{PATH}$	Niger-Congo, Hmong-Mien, Sino-Tibetan, Tai-Kadai, Mon-Khmer, Austronesian
		bipartite verb: [manner + path]$_{VERB}$	Algonquian, Athabaskan, Hokan, Klamath-Takelman
		generic verb: coverb$_{MANNER}$ + coverb$_{PATH}$ + verb$_{GENERIC}$	Jaminjungan

Typology and manner salience

These seemingly trivial differences in lexicalization patterns have widespread consequences for what I will call *manner salience*—that is, the level of attention paid to manner in describing events. Languages differ in this regard, as has already been noted. The degree of manner salience of a particular language can be assessed by a variety of measures of language *use*, comparing descriptions of motion events across languages and genres (narrative fiction, oral narrative, news reporting, conversation, and so forth), as well as translations of motion event descriptions between languages.   Another measure of manner salience is lexical, as reflected in the size and diversity of manner expressions in a language (e.g., English *hop, jump, leap, spring, bound* vs. French *bondir* or Spanish *saltar* for the same range of manners of motion). It is striking that measures of language use across genres, as well as lexical diversity and specificity, present congruent assessments of a language's manner salience (Slobin, 2000). I return to these measures after closer examination of typology and manner salience.

        The "owl exit scene" provides a useful starting point for more detailed analysis.[5] Frog stories in verb-framed languages virtually never include mention of the owl's manner of emergence, simply using a clause with a path verb meaning 'exit', as in (6). By contrast, narratives in satellite- and equipollently-framed languages frequently encode manner with a special verb, adding an additional element for path information, as in (7), (8), and (9). Figure 1 presents data from hundreds of frog stories, showing the percentage of narrators who used a manner-of-motion verb such as 'fly', 'jump', 'hop', and the like in describing this event. (Note that the data represent all narrators who chose to mention this event, regardless of language, and regardless of morpholexical choice.) The five verb-framed languages pay virtually no attention to manner: three Romance languages (Spanish, French, Italian), a Turkic language (Turkish), and a Semitic language (Hebrew). By contrast, Figure 1 shows six languages that pay varying amounts of attention, ranging from an average of 23% for Germanic (Dutch, German English), to 34% for two types of East Asian serial-verb languages (Sino-Tibetan: Mandarin, Tai-Kadai: Thai), to 34% for an Austronesian bipartite-verb language (Tsou), and 100% for a Slavic language (Russian). This cline is interesting, in that it separates Germanic from Slavic. In order to account for such differences in manner salience between languages that encode manner in a main, rather than subordinate expression, factors of both morphosyntax and psycholinguistic processing load must be considered.

---

[5] The data reported here come from a range of published and unpublished studies carried out at the Institute of Human Development, University of California, Berkeley and in collaboration with other institutions, as well as data reported in this volume. Narratives were gathered from preschoolers (age 3-5), school-age children (age 6-11), and adults, with 10-20 stories per age group. Only data from adult narratives are reported in this chapter. The following collaborators have been involved, along with many Berkeley students: Basque: I. Ibarretxe-Antuñano; Dutch: J. Aarssen, P. Bos, L. Verhoeven; English: V. Marchman, T. Renner, G. Wigglesworth; French: H. Jisa, S. Kern; German: M. Bamberg, M. Carroll, C. von-Stutterheim; Hebrew: R. A. Berman, Y. Ne'eman; Icelandic: H. Ragnarsdóttir; Italian: P. Cipriani, M. Orsolini; Mandarin: J. Guo, A. Hsiao; Polish: M. Smoczyńska; Portuguese: I. Hub Faria; Russian: Y. Anilovich, N. V. Durova, M. Smoczyńska, N. M. Yureva; Serbo-Croatian: S. Savić; Spanish: A. Bocaz, J. Covey, E. Sebastián; Swedish: Å. Nordqvist, S. Strömqvist; Thai: J. Zlatev, P. Yangklang; Tsou: Huang and Tanankingsing; Turkish: J. Aarssen, A. A. Aksu-Koç, A. Küntay, Ş. Özçalışkan. L. Verhoeven.

Figure 1.
Owl's Exit: Percentage of Narrators Using
a Manner-of-Motion Verb
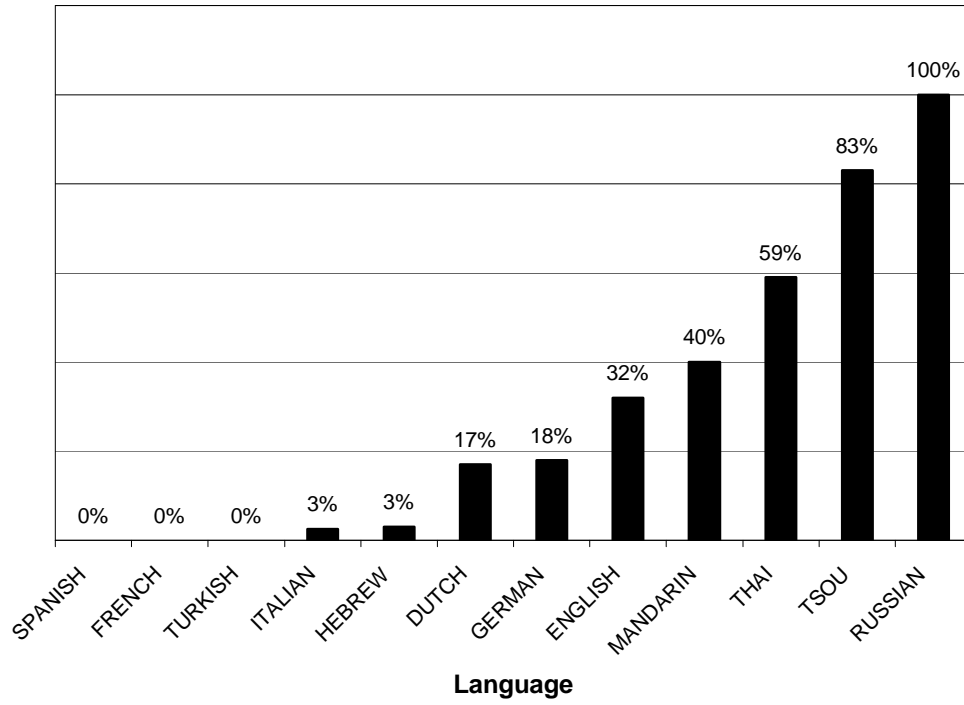
Semantic constraints and processing load

All of the languages in this sample have frequent manner verbs that are applicable to this scene—in particular, versions of 'fly'. Why isn't 'fly' used in the sample of verb-framed languages? The answer probably lies in what Slobin and Hoiting (1994) have called the "boundary-crossing constraint," building on Aske's (1989) identification of the role of telicity in the use of manner verbs in Spanish. It appears that verb-framed languages only license the use of a manner verb as a main verb in a path expression if no boundary crossing is predicated. Thus it is possible, across a range of verb-framed languages, to say the equivalent of 'fly to/from the tree' but not 'fly into/out of the hole'. One of the most salient characteristics of verb-framed languages is the preference to mark a *change of state* with a verb, rather than by some other device. With regard to motion events, changes of state are boundary-crossing events, and therefore the main verb must encode the change of state: enter, exit, cross. In order to add manner to such events, some sort of subordinate construction is required—equivalents of 'exit flying'. Although this option is available in the five verb-framed languages considered here, it was not taken by any narrator, at any age (from 3 to adulthood). There are at least two sorts of explanations for this avoidance: (1) the construction unnecessarily foregrounds the owl's manner of movement (see Talmy, 2000, p. 128, on foregrounding and backgrounding); (2) it is "heavy" in terms of processing (production/comprehension).

Typically, in verb-framed languages, a neutral verb of motion is used to designate a creature's normal manner of movement: owls 'go', fish 'go', people 'go', cats 'go', and so forth. Manner verbs are used when manner is foregrounded—and then owls can 'soar' or 'flap' (but apparently not across boundaries). The only exception seems to be verbs that encode particular force dynamics—high energy motor patterns that are more like punctual acts than activities, such as equivalents of 'throw oneself' and 'plunge'. Such verbs occur with boundary crossing in verb-framed languages. This may be because a sudden boundary crossing can be conceptualized as a change of state, and, as noted, what is apparently most characteristic of verb-framed languages is the use of *verbs* to encode change of state. What seems to be blocked is the conceptualization of manner of motion as an activity that is extended in time/space while crossing a boundary (Kita, 1999). For example, one cannot say the equivalent of something like 'the phone rang as I entered the house', because entering has no duration; it is an instantaneous change of state. Because boundary-crossing is a change of state, and manner verbs are generally activity verbs, most manner descriptions are excluded from boundary-crossing descriptions. The only manner verbs that can occur in boundary-crossing situations are those that are not readily conceived of as activities, but, rather, as "instantaneous" acts. Thus one can 'throw oneself into a room' but one generally can't 'crawl into a room' in verb-framed languages.

In the frog story data, all of the verb-framed language narrators focused on the owl's emergence or appearance, with an occasional adverbial indication of suddenness, rather than focus on the activities of flying or flapping out. In the entire corpus, there are only two instances of manner verbs in this scene (the 3% for Italian and Hebrew in Figure 1), and, interestingly, neither of them is a boundary-crossing construction. An Italian 5-year-old said, *il gufo volò, il bambino cascò* 'the owl flew, the boy fell'; and an Israeli adult said, *yanšuf kofec meha'ec* 'owl jumps from:the:tree'. Note that these are both simple clauses, in which the manner verb is the main verb and no boundary crossing is expressed. There is no compact construction that allows for simultaneous attention to the owl's sudden appearance, its emergence across a boundary, and its manner of movement, and adverbial constructions are heavy to process. As a consequence, it seems that verb-framed language speakers opt to encode only change of state, i.e., in/out or nonvisible/visible.

With regard to processing load—although detailed psycholinguistic experimentation remains to be done—I suggest that several factors may facilitate regular and frequent encoding of a semantic domain in a language:

- *expression by a finite rather than nonfinite verb form*: Because every main clause has a finite verb, no greater syntactic effort is required to produce a satellite-framed construction such as 'go out' versus 'fly out', whereas a variety of verb-framed options require access to lower-frequency nonfinite forms such as gerunds, participles, and converbs with meanings equivalent to 'exit flying'. Motion event descriptions in satellite- and equipollently-framed languages do not require nonfinite verbs in order to include information about manner.

- *expression by an uninflected coverbal element rather than an inflected coverbal form*: It presumably takes additional effort to add inflectional material in producing an utterance. Many manner-path expressions in verb-framed languages consist of an inflected motion converb, such as Turkish *uç-arak çık* 'fly-CONVERB exit'. By contrast, manner elements in equipollently-framed languages are not inflected.

- *expression by a single morpheme rather than a phrase or clause*: It is presumably less demanding to access a single lexical item, such as 'tiptoe', than expressions such as 'on the tips of the toes', 'moving quietly and carefully', etc. Again, satellite- and equipollently-framed languages seem to provide more monomorphemic manner expressions than verb-framed languages.

Regular and frequent encoding of a domain, I suggest, acts to heighten attention to that domain in general—as reflected in synchronic usage patterns and diachronic expansion of the language's resources.

Lexical and morphemic availability

Satellite-framed languages, by contrast with the verb-framed languages discussed earlier, do provide compact expressions of path and manner, as shown in (7) for English and (8) for Russian. Examples for other Germanic languages are verb-satellite constructions such as *uit-vliegen* 'out-fly' in Dutch and *raus-flattern* 'out-flap' for German. Why, then, is the manner option used relatively infrequently in the Germanic languages (Dutch 17%, German 18%, English 32%), but used by every narrator in Russian? I suggest that a focus on the owl's emergence predominates in all of these languages as well. The most common expression in the three Germanic languages is 'come out', thus taking the viewer's perspective and predicating appearance using a readily available expression. In order to add manner to the perspective, speakers of Dutch, German, and English face the same processing problem as speakers of verb-framed languages: they would require a heavier construction, such as 'come flying out'. Instead, there is a tendency to pick one of two options: 'fly/pop/jump out' or 'come out'. Note that these two options are equally processible: Each has a main verb plus a path particle and are apparently easily accessible.

Russian presents a different lexicalization pattern. There is no independent verb that is the equivalent of 'come'; rather, a deictic prefix on a motion verb is needed for the expression of motion towards the speaker's perspective. All path particles (satellites) are also verb prefixes in Slavic languages, and prefixes can't be stacked; so there is no way to combine 'come' and 'out' with one verb, as in Germanic. One has to choose between *pri-letet'* 'come-fly' and *vy-letet'* 'out-fly'. The deictic option (*pri-letet'*) was taken by 11% of the Russian narrators of the owl scene; the remaining 89% focused on the owl's emergence, using *vy-* with verbs meaning 'fly' (*vy-letet'*), 'jump' (*vy-skočit'*), and 'crawl' (*vy-lezt'*). Again, narrators chose a simple construction with a single verb. Note, however, that both options use a manner verb—hence the

100% of Russian manner verb choices in Figure 1. Thus it is not satellite-framing alone that accounts for the rate of use of manner verbs; morphosyntactic structure and lexical availability also contribute to a language's "rhetorical style."

The three equipotentially-framed languages represented in Figure 1—the serial-verb languages Mandarin and Thai, and the bipartite-verb language Tsou—make it easy to provide both manner and path information, generally with deictic information as well, as in (9): 'fly exit come'. Such constructions are easy to process and can probably be treated as quasi-lexical units in such languages.[6]

The entire frog story has an abundance of motion events. The languages present the same patterns when measuring manner salience across the story as a whole (i.e., proportion of motion events described with manner verbs): Romance = Turkish = Hebrew < English < Mandarin = Russian. (Data for Dutch, German, Thai, and Tsou have not yet been calculated for the entire story, but seem to fit the expected patterns.)

With this brief overview of typology and frog story narratives, the chapter continues with an overview of means of assessing manner salience. There are two sorts of criteria that one can make use of: the occurrence of manner descriptions in actual language use of various sorts, and the manner lexicon that a language provides to its users.

Assessing manner salience

Language use

As mentioned above, various criteria are available for comparing languages in terms of frequency of mention of manner in motion event descriptions. A number of such assessments are provided in Slobin (2003) and I will only refer to them briefly here as "bullet points." They all point to the same typological patterns of manner salience, although they represent partial and overlapping collections of languages thus far.

- *Ease of lexical access*. When English- and French-speakers are asked to list motion verbs in one minute, English-speakers list more verbs overall, and many more manner verbs.

- *Imagery and understanding of manner verbs*. English adults readily act out a large range of manner verbs, and even 3-year-olds can appropriately demonstrate twenty or more manner verbs. In a small pilot test, by contrast, French graduate students in linguistics, in Lyon, could act out only a small number of French manner verbs, and had to consult dictionaries and each other in attempting to act out a large number of such verbs.

- *Conversational use*. In recordings of natural conversations, a great diversity of manner verbs occur in English, while manner verbs are virtually absent in Spanish and Turkish conversations, with the exception of rare uses of verbs simply meaning 'walk'.

- *Child language acquisition*. Preschool-aged children and their caretakers use more types and tokens of manner verbs in English, German, and Russian than in French, Spanish, and Turkish.

- *Use in elicited oral narratives*. In frog story research across a range of languages, a greater percentage of motion events receive manner descriptions in satellite- and equipotentially-framed languages than in verb-framed languages. Manner is more salient

---

[6] Japanese is a verb-framed language that easily packages a manner verb and a path-verb into a quasi-lexical unit, such as *tobi-dete* 'fly-exit'. There is some evidence that Japanese may be more manner salient than other verb-framed languages (Ohara, 2002, 2003; Sugiyama, 2005).

in the first two language groups in terms of both types and tokens of manner verbs, as well as in adverbial descriptions of manner of motion.

- *Use in creative fiction*. The same patterns are demonstrated in novels written in satellite-framed languages (English, German, Russian) in comparison with novels written in verb-framed languages (French, Spanish, Turkish). (See Mora Gutierrez (1998) for comparable findings in a study of fifty Spanish novels.)

- *Translation of creative fiction*. In translations between the languages just mentioned, manner salience follows patterns of the target, rather than source language (Slobin, 1996, 2005c). That is, translations into satellite-framed languages *add* manner information, whereas translations into verb-framed languages *remove* manner information. This is true both with regard to lexical items and more extended descriptions of manner of motion.

- *Metaphoric extensions of manner verbs*. Novels and newspaper articles written in English, in comparison with Turkish (Özçalışkan, 2002, 2003), use more manner-of-motion verbs as conceptual metaphors in the domains of death, life, sickness, body, and time. This is true although the metaphorical mappings themselves are highly similar in the two languages; the difference is that Turkish tends to use path verbs, whereas English prefers manner verbs. Similar patterns of conceptual metaphor are reported for Mandarin by Yu (1998).

Size and diversity of manner-verb lexicon

I have not yet undertaken a definitive count of manner-of-motion verbs across languages, but have attempted to arrive at complete listings for several languages by means of back translation, dictionary search, and corpora. The satellite-framed languages that I've examined—English, German, Dutch, Russian, and Hungarian—each have several hundred manner verbs; Mandarin has perhaps 150; Spanish, French, Turkish, and Hebrew have less than 100, and probably less than 60 in everyday use.

The psycholinguistic consequence of a semantic field that is saturated with a rich lexicon is that the language learner and language user must make a number of distinctions of manner of movement that might well be ignored by users of languages with less diverse vocabularies in the domain. For example, in Özçalışkan's (2002, p. 58) study of novels in English and Turkish, she finds 23 English verbs that are used in contexts where Turkish uses the single verb *yürümek* 'walk': *walk, drift, ebb, flounce, linger, lumber, march, meander, roam, rustle, stride, tread, worm one's way, hike, pace, ramble, snake, trample, trot, swarm, forge, hurry, rush.* Using another method, Slobin (2005a) compares translations of a single English text (a chapter of Tolkien's *Hobbit*) into a large collection of verb- and satellite-framed languages. For example, Table 2 shows how Tolkien's lexical diversity in English is matched in another satellite-framed language, Serbo-Croatian, but is reduced to single verbs in two verb-framed languages, French and Turkish.   Overall, Tolkien uses 26 different types of manner verbs in the original English text. Translations into the four satellite-framed languages use an average of 25.6 types—that is, matching the original. (Russian actually surpasses the original, with 30 types.) However, the verb-framed translations use an average of 17.2 types. Translators using these target languages either don't have recourse to a large range of manner verbs, or an abundance of such expressive forms would not be compatible with the style of verb-framed discourse. (See Slobin, 2005, for details.)

Table 2.
Translations of English verbs from two domains of manner-of-motion
into Serbo-Croatian, French, and Turkish

English original	Serbo-Croatian	French	Turkish
run, scramble, scuttle	trčati, leteti, kaskati	courir	koşmak
climb, clamber, swarm	pentrati, peti se, koprčati	grimper	tırmanmak

Melissa Bowerman (1985, p. 1283) has pointed out that the way in which a language structures a domain guides the child in attending to the relevant experiential dimensions that are inherent to the structuring of the domain:

> I argue that children are prepared from the beginning to accept linguistic guidance as to which distinctions—from among the set of distinctions that are salient to them—they should rely on in organizing particular domains of meaning.

In linguistic diachronic perspective, as a domain becomes more saturated in a language, speakers invent lexical items to mark distinctions that become important to them. A language with a rich manner lexicon tends to get richer over time. That is, learning and using the language engenders habitual attention to detailed analysis of a domain, leading to further lexical innovation, and increasing attention to the domain over time. I've checked the *Oxford English Dictionary* for the first attested use of a manner verb in referring to goal-directed, non-aided movement of a human being. It is evident that there was already a large lexicon in this domain in Old English.[7] Table 3 presents summaries by century of verbs added to the intransitive, human manner-of-motion verb lexicon. (Note that the total manner-of-motion lexicon is considerably larger, including verbs of caused motion, such as *push, shove, squeeze,* etc., and verbs of assisted motion, such as *ride, drive, ski, sail,* etc.) The *OED* lists the following as nineteenth-century innovations (including both innovative forms and extensions of other verbs to designate goal-directed human self-movement): *barge, clomp, dawdle, dodder, drag oneself, drift, flop, gambol, goose-step, hike, hustle, leapfrog, lunge, lurch, meander, mosey, pounce, promenade, race, sashay, scurry, skedaddle, skitter, slither, slog, slosh, smash, sprint, stampede, tromp, twist, waltz, wiggle, worm, zip*. Clearly, this is a domain of continuing interest to English speakers.

---

[7] A reviewer has appropriately pointed out that the OED is not a dictionary of Old English, and thus "this inventory of early attestations of Modern English manner verbs seems more a testament to the longevity of the forms than to the nature of Old English; i.e., a continued interest in manner verbs perhaps, but not as an indicator of the strength of that vocabulary relative to other non-manner vocabulary in Old English." Another reviewer notes that the diachronic pattern "demonstrates *renewal* of the lexical inventory for manner in English, but it does not demonstrate *increase* in the number of forms, since no doubt many older forms have disappeared simultaneously." It is difficult to assess the degree of manner salience of earlier forms of a language, because texts are limited in quantity and are restricted in genre for earlier periods. However, it is striking how many manner verbs from previous centuries are still current.

Table 3.
English manner verbs of goal-directed, human self-movement:
Number of verbs added per century

Time period	Number of innovated manner verbs
> 1500	48
1500 – 1599	30
1600 – 1699	17
1700 – 1799	11
1800 – 1899	32

Cognitive consequences: typological influences on mental imagery, memory, and attention

There is a growing body of theoretical discussion and empirical evidence relating to the enduring problem of linguistic relativity and determinism (see papers in Gentner & Goldin-Meadow 2003; Gumperz & Levinson 1996; Niemeier & Dirven 2000). A large range of studies point to effects of language on categorization, attention, mental imagery, memory, learning, and evaluation. I will only briefly mention several ongoing and recent studies in the domain of motion.

Mental imagery

My students and I are carrying out research that supports the impression that there are major differences in mental imagery between speakers of satellite- and verb-framed languages. We give English- and Spanish-speakers passages to read from novels, later asking them to report mental imagery for the narrated events. The examples are from Spanish novels, in which manner verbs are not used, but in which the author provides information about the nature of the terrain and the protagonist's inner state, allowing for inferences of manner. English speakers are given literal translations of the Spanish texts. For example, in a selection from Isabel Allende's *La casa de los espíritus* (*The house of the spirits*), the following information was provided as part of a longer passage that the subjects were asked to read to themselves:

> SPANISH ORIGINAL: "*Tomó sus maletas y echó a **andar por el barrial y las piedras de un sendero** que conducía al pueblo. **Caminó** más de diez minutos, agradecido de que no lloviera, porque **a duras penas podía avanzar con sus pesadas maletas** por ese camino y comprendió que la lluvia lo habría convertido en pocos segundos en un lodazal intransitable.*"

> ENGLISH VERSION: "He picked up his bags and started to ***walk through the mud and stones of a path*** that led to the town. He ***walked*** for more than ten minutes, grateful that it was not raining, because ***it was only with difficulty that he was able to advance along the path with his heavy suitcases***, and he realized that the rain would have converted it in a few seconds into an impassable mudhole."

Not surprisingly, almost all English speakers report mental imagery for the protagonist's manner of movement, using manner verbs such as *stagger, stumble, trudge*, as well as more elaborate descriptions, such as: "he dodges occasional hazards in the trail," "he rocks from side to side," and "slowly edges his way down the trail." One might expect that Spanish readers would form similar mental images on reading this passage, but surprisingly, only a handful of

Spanish speakers from Mexico, Chile, Puerto Rico, and Spain provide such reports. The vast majority report little or no imagery of the manner of the protagonist's movement, although they report clear images of the muddy, stony path and the physical surroundings of the scene. They often report having seen a series of static images or still pictures ("more like photographs").

Bilinguals tested in both languages systematically report more mental imagery for manner of motion, and less for physical surroundings, when reading in English, in comparison with Spanish. Table 4 presents data from an ongoing study of Puerto Rican Spanish-English bilinguals (in collaboration with Lera Boroditsky and Ilia Diaz Santiago at MIT). When reporting mental imagery for passages in English, bilinguals used 17 different manner verbs, whereas when reporting imagery for the same passages in Spanish, they used only seven. Most striking is the difference between "low manner verbs"—everyday verbs like *run* and *walk*— which did not pattern differently under the two conditions, and "high manner verbs,"—that is, more expressive verbs such as *crawl, stomp, roll*. Reports in Spanish had two such verbs (both from the same scene), in comparison with twelve in English (for various scenes).

Table 4.
Manner-of-motion verbs in bilingual mental imagery reports

Language	Low manner verbs		High manner verbs		Total number of manner verbs
	NUMBER OF TYPES	**EXAMPLES OF VERBS**	**NUMBER OF TYPES**	**EXAMPLES OF VERBS**	
English	5	*run, walk…*	12	*crawl, pace, stomp, roll, wander…*	17
Spanish	5	*correr, caminar…* [run, walk…]	2	*resbalar, rodar* [slip, roll]	7

Such findings suggest that the actual conceptualizations of motion events may differ for speakers of typologically different languages—at least when conceptualizations are evoked by the verbal experiencing of such events through narrative.[8]

Attention and Memory

A recent Berkeley doctoral dissertation by a Korean psycholinguist, Kyung-ju Oh (Oh, 2003) goes further, suggesting influences of linguistic habits on ongoing attention to visually experienced events. Oh presented Korean and English speakers with a series of videoclips in which an individual carried out various activities, including motion events in different manners (strolling out of a building, trudging along a path, etc.). Korean is a verb-framed language, with

---

[8] Clearly, more research is needed to track elusive inner states such as mental imagery. Ongoing studies of co-speech gesture in several languages of different types does not seem to contradict the ranking of languages on a cline of manner salience: Ibarretxe-Antuñano (2004): Basque; McNeill & Duncan (2000): English, Mandarin, Spanish; Özyürek & Kita (1999): English, Turkish; Taub, Piñar & Galvan (2002): ASL, English, Spanish.

similar characteristics to other verb-framed languages discussed earlier. Subjects were monolinguals tested in their home countries. Later, the subjects were given surprise questions about their memory for details of the videoclips. The Koreans and Americans did not differ in memory for directionality of motion. This lack of difference provided a critical control: path is the core of motion events in all types of languages, therefore the salience of directionality should not be sensitive to typology. As a further control, the two groups did not differ in accuracy of memory for non-motion details such as the clothing and objects carried by the actor in the clips. But the Americans were significantly better at recalling details of manner of motion, such as length of arm swing, width of gait, and rate of motion.   Note that these details are not explicitly encoded in verbs such as *stroll* and *trudge*; they constitute part of the sensorimotor image of such manners of motion. Oh suggests that English speakers—in the process of acquiring the lexically encoded distinctions of English verbs—come to attend to the relevant event components that distinguish the meanings of those verbs. Such attentional habits or predispositions can be revealed even when events are experienced nonverbally.

Attention and learning

Finally, recent experiments by Alan Kersten and collaborators (Kersten et al., 2003) show that covert attention to manner of motion can be revealed in learning tasks. Subjects viewed animated cartoons in which alien creatures moved along various non-nameable paths in various non-nameable manners (e.g., a six-legged creature moved toward another creature diagonally and then changed course, while alternately wiggling front and rear legs). Subjects were told that these aliens belong to four different species and they were to guess which species a creature belonged to by pushing one of four buttons. After each choice they were told if they had been correct or not. English- and Spanish- speakers did not differ in how long it took them to learn to distinguish the four species on the basis of type of path, but English-speakers were significantly better at learning to categorize on the basis of manner. Bilinguals performed more like English-speakers when trained in English, and more like Spanish-speakers when trained in Spanish (suggesting a sort of "biconceptualism"). Note that none of the dimensions was easily lexicalized in either Spanish or English. Yet English-speakers, and bilinguals using English, seemed to be more sensitive to fine differences in motor patterns of directional activity—even in alien, six-legged creatures. Kersten concludes that people learn to attend to the sorts of event attributes that are regularly and prominently encoded in their language.

Beyond typologies of lexicalization patterns

The phenomena discussed thus far have all been based on the availability of manner-of-motion verbs for the encoding of motion events. However, in broader cognitive terms, a domain of experience becomes salient if the language provides accessible means of expression for dimensions of that domain. There are other ways in which a domain is rendered codable, and the chapter concludes with a brief discussion of two of them: ideophones and posture verbs. These forms are available to verb-framed languages that otherwise might be expected to be low in manner salience. Such expansions of lexical resources make it clear that a full account of cognitive consequences of linguistic form will have to base itself on more than one typological characteristic.

Ideophones

Readers familiar with Japanese will probably have objected, early on, that manner can also be expressed in conventional psychoacoustic forms, using syllables that are designated as *ideophones* or *mimetics*. Japanese has a large and systematic lexicon of such onomatopoeic forms, with a privileged syntactic slot for their use. As demonstrated in a recent conference volume (Voeltz & Kilian-Hatz, 2001), ideophones are widely distributed in languages around the globe. A cursory examination of forms in that volume, and elsewhere, makes it clear that

ideophones can function to encode specific manners of movement in the same way as the specialized manner verb vocabularies of languages like English or Hungarian. Consider the following examples, from a diverse array of languages and geographical areas: *gulukudu* 'rush in headlong' (Zulu), *minyaminya* 'stealthily' (Ewe), *kítíkítí* 'at-a-stomp' (Emai), *widawid* 'swinging the arms while walking' (Ilocano), *badi badi* 'waddling' (Turkish), *dēngdēng* 'tramping' (Mandarin), *tyôko-maka* 'moving around in small steps' (Japanese).[9] Frequent use of ideophones in frog stories has been reported for Basque (Ibarretxe-Antuñano, 2004), Korean (Oh, 2004), and Japanese (Sugiyama, 2000, 2005).

Posture verbs

Another way of conveying information about manner of movement is to describe the posture of a human being or animal in combination with a simple path or manner verb. The Mayan languages are rich in *positionals*, that is, "verbal roots which convey Position of animate or inanimate things (in stasis, or concurrent-with, or as-a-result-of motion)" (Brown, 2004, p. 39). Brown, in a paper on Tzeltal Mayan frog stories, reports that there are several hundred positionals in the language. Although Tzeltal is verb-framed, the positionals make it possible to express specific manners of movement, as in example (10) from Brown's frog stories (p. 46):

(10)   *xpejkunaj xben yilel*
        'He [dog] looks like he's *low-crouching walking* [=he's limping]

Conclusion

This chapter reviews ongoing exploration of the complex conceptual and semantic domain of motion events, exploring one part of that domain—the linguistic expression of manner of self-motion across languages of different types.The basic claim is that if a domain is elaborated in linguistic expression, users of that language will continually attend to and elaborate that domain cognitively. Sometimes a fairly small feature of linguistic form can have widespread effects. In this particular subdomain, it appears that if a language ends up using main verbs to encode path, it will have limited lexical resources for encoding manner. The determining psycholinguistic forces are to be found in processing load, and the determining cognitive forces are to be found in habitual attention to the granularity of experience that is readily encoded in the language. These forces reinforce themselves over time, both in the diachronic and ontogenetic developments of the language.

With regard to typologies of lexicalization patterns—whether two-part or three-part—the psycholinguistic mechanisms begin to answer a question posed by Talmy with regard to some of the work reviewed here (Talmy, 2000, p. 156):

> Slobin (1996) has further observed that verb-framed languages like Spanish not only express Manner less readily than satellite-framed languages like English, but that they also have fewer distinct lexical verbs for expressing distinctions of Manner. The … principles posited here do not account for this phenomenon, so further explanation must be sought.

---

[9] Sources: Zulu (Msimang & Poulos, 2001), Ewe (Ameka, 2001), Emai (Schaefer, 2001), Ilocano (Rubino, 2001), Turkish (Jendraschek, 2002), Mandarin (Ying, 1988), Japanese (Hamano, 1998).

In addition, attention to forms such as ideophones and postural verbs indicates that a full account of the cognitive salience of an experiential domain cannot be found in an examination of lexicalization patterns alone. All of the resources of a language must be studied in order to approach the goal of the current volume—that is, to understand the linguistic systems and cognitive categories that are involved in "space in languages."

References

Ameka, F. K. (2001). Ideophones and the nature of the adjective word class in Ewe. In F. K. E. Voeltz & C. Kilian-Hatz (Eds.), *Ideophones* (pp. 25-48). Amsterdam/Philadelphia: John Benjamins.

Ameka, F. K., & Essegbey, J. (in press). *Serialising languages: Satellite-framed, verb-framed or neither.* In L. Hyman & I. Maddieson (Eds.), *African comparative and historical linguistics: Proceedings of the 32nd Annual Conference on African Linguistics.* Lawrenceville, NJ: Africa World Press.

Aoki, H. (1970). *Nez Perce grammar.* University of California Publications in Linguistics, no. 62. Berkeley: University of California Press.

Aske, J. (1989). Path predicates in English and Spanish: A closer look. *Proceedings of the Berkeley Linguistics Society, 15*, 1-14.

Berman, R. A., & Slobin, D. I. (1994). *Relating events in narrative: A crosslinguistic developmental study.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Bowerman, M. (1985). What shapes children's grammars? In D. I. Slobin (Ed.), *The crosslinguistic study of language acquisition. Vol. 2: Theoretical issues* (1257-1319).

Brown, P. (2004). Position and motion in Tzeltal frog stories: The acquisition of narrative style. In S. Strömqvist & L. Verhoeven (Eds.), *Relating events in narrative: Typological and contextual perspectives* (pp. 37-58). Mahwah, NJ: Lawrence Erlbaum Associates.

DeLancey, S. (1989). Klamath stem structure in genetic and areal perspective. *Papers from the 1988 Hokan-Penutian Languages Workshop* (pp. 31-39). Eugene, OR: University of Oregon.

DeLancey, S. (1996, January). *Argument structure of Klamath bipartite stems.* SSILA Conference, San Diego, CA.

Gao, H. (2001). *The physical foundation of the patterning of physical action verbs: A study of Chinese verbs.* Lund, Sweden: Lund University Press.

Gentner, D. and Goldin-Meadow, S. (Eds.) 2003. *Advances in the Investigation of Language and Thought.* Cambridge, MA: MIT Press.

Gumperz, J. J. and Levinson, S. C. (Eds.) 1996. *Rethinking Linguistic Relativity.* Cambridge: Cambridge University Press.

Hamano, S. (1998). *The sound-symbolic system of Japanese.* Stanford, CA: CSLI Publications.

Huang, S., & Tanangkingsing, M. (2004). Reference to motion events in six Western Austronesian languages: Towards a semantic typology. Unpublished paper, National Taiwan University.

Ibarretxe-Antuñano, I. (2004). Motion events in Basque narratives. In S. Strömqvist & L. Verhoeven (Eds.), *Relating events in narrative: Typological and contextual perspectives.* Mahwah, NJ: Lawrence Erlbaum Associates.

Jendraschek, G. (2002). *Semantische Eigenschaften von Ideophonen im Türkischen.* Munich: Lincom Europa.

Kersten, A. W., Meissner, C. A., Schwartz, B. L., and Rivera, M. (2003, April). "Differential sensitivity to manner of motion in adult English and Spanish speakers". Paper presented to Biennial Conference of the Society for Research in Child Development, Tampa, Florida.

Kita, S. (1997). Two-dimensional semantic analysis of Japanese mimetics. *Linguistics, 35*, 379-415.

Kita, S. (1999). Japanese Enter/Exit verbs without motion semantics. *Studies in Language, 23*, 317-340.

Lamarre, C. (2005a, July). *The diversity of path encoding in Sinitic languages and the emergence of path satellites.* Paper presented to Workshop on Typology of Descriptions of Motion Events, Kobe University, Japan.

Lamarre, Ca. (2005b). *The linguistic encoding of moton events in Chinese—with reference to cross-dialectical variation.* Unpublished paper, University of Tokyo, Language & Information Sciences.

Malblanc, A. 1994. *Pour une stylistique comparée du français et de l'allemand: Essai de représentation linguistique comparée.* Paris: Henri Didier.

Mayer, M. (1969). *Frog, where are you?* New York: Dial Press.

McNeill, D., & Duncan, S. (2000). Growth points in thinking-for-speaking. In D. McNeill (Ed.), *Language and Gesture* (pp. 141-161). Cambridge: Cambridge University Press.

Mora Gutiérrez, J. P. (1998). *Directed motion in English and Spanish*. Unpublished doctoral dissertation, University of Seville, Spain. [Available as *Estudios de Lingüística Española*, 2001, Vol. 11 – http://elies.rediris.es/elies11/]

Msimang, C. T., & Poulos, G. (2001). The ideophone in Zulu. In F. K. E. Voeltz & C. Kilian-Hatz (Eds.), *Ideophones* (pp. 235-249). Amsterdam/Philadelphia: John Benjamins.

Niemeier, S. and Dirven, R. (Eds.). 2000. *Evidence for Linguistic Relativity.* Amsterdam/Philadelphia: John Benjamins.

Oh, K-j. 2003. Language, cognition, and development: Motion events in English and Korean. Unpublished doctoral dissertation, Department of Psychology, University of California, Berkeley.

Oh, K-j. (2004). [Unpublished analysis of Korean translation of *The Hobbit*.] Dept. of Psychology, University of California, Berkeley.

Ohara, K. H. (2002). Linguistic encodings of motion events in Japanese and English: A preliminary look. *Hiyoshi Review of English Studies*, No. 41, 122-153.

Ohara, K. H. (2003, July). *Manner of motion in Japanese: Not every verb-framed language is poor in manner information*. Paper presented to 8th International Cognitive Linguistics Conference, Universidad de la Rioja, Logroño, Spain.

Özçalışkan, Ş. (2002). Metaphors we move by: A crosslinguistic-developmental analysis of metaphorical motion events in English and Turkish. Unpublished doctoral dissertation, University of California, Berkeley.

Özçalışkan, Ş. (2003). In a caravanserai with two doors I am walking day and night: Metaphors of death and life in Turkish. *Cognitive Linguistics, 2003, 14*, 281-320.

Özçalışkan, Ş., & Slobin, D. I. (1999). Learning how to search for the frog: Expressions of manner of motion in English, Spanish, and Turkish. In H. L. A. Greenhill, H. Littlefield, & C. Tano (Eds.), *Proceedings of the 23rd annual Boston University Conference on Language Development: Vol. 2* (pp. 541-552). Somerville, MA: Cascadilla Press.

Özçalışkan, Ş., & Slobin, D. I. (2000a). *Climb up* vs. *ascend climbing*: Lexicalization choices in expressing motion events with manner and path components. In S. Catherine-Howell, S. A. Fish, & T. K. Lucas, (Eds.), *Proceedings of the 24th Annual Boston University Conference on Language Development: Vol. 2* (pp. 558-570). Somerville, MA: Cascadilla Press.

Özçalışkan, Ş., & Slobin, D. I. (2000b). Expression of manner of movement in monolingual and bilingual adult narratives: Turkish vs. English. In A. Göksel & C. Kerslake (Eds.), *Studies on Turkish and Turkic languages* (pp. 253-262). Wiesbaden, Germany: Harrasowitz Verlag.

Özçalışkan, Ş., & Slobin, D. I. (2003). Codability effects on the expression of manner of motion in Turkish and English. In A. S. Özsoy, D. Akar, M. Nakipoğlu-Demiralp, E. Erguvanlı-Taylan, & A. Aksu-Koç (Eds.), *Studies in Turkish linguistics* (pp. 259-270). Istanbul: Boğaziçi University Press.

Özyürek, A., & Kita, S. (1999). Expressing manner and path in English and Turkish: Differences in speech, gesture, and conceptualization. In M. Hahn & S. C. Stoness (Eds.), *Proceedings of the twenty-first annual conference of the Cognitive Science Society* (pp. 507-512). Mahwah, NJ: Lawrence Erlbaum Associates.Rubino, C. (2001). Iconic morphology and word formation in Ilocano. In F. K. E. Voeltz & C. Kilian-Hatz (Eds.), *Ideophones* (pp. 304-320). Amsterdam/Philadelphia: John Benjamins.

Schaefer, R. P. (2001). Ideophonic adverbs and manner gaps in Emai. In F. K. E. Voeltz & C. Kilian-Hatz (Eds.), *Ideophones* (pp. 339-354). Amsterdam/Philadelphia: John Benjamins.

Schultze-Berndt, E. (2000). *Simple and complex verbs in Jaminjung: A study of event categorisation in an Australian language*. MPI Series in Psycholinguistics, no. 14. Wageningen, Netherlands: Ponsen & Looijen.

Slobin, D. I. (1996). Two ways to travel: Verbs of motion in English and Spanish. In M. Shibatani & S. A. Thompson (Eds.), *Grammatical constructions: Their form and meaning* (pp. 195-220). Oxford: Clarendon Press.

Slobin, D. I. (1997). Mind, code, and text. In J. Bybee, J. Haiman, & S. A. Thompson (Eds.), *Essays on language function and language type: Dedicated to T. Givón* (pp. 437-467). Amsterdam/Philadelphia: John Benjamins.

Slobin, D. I. (2000). Verbalized events: A dynamic approach to linguistic relativity and determinism. In S. Niemeier & R. Dirven (Eds.), *Evidence for linguistic relativity* (pp. 107-138). Amsterdam/Philadelphia: John Benjamins.

Slobin, D. I. (2003). Language and thought online: Cognitive consequences of linguistic relativity. In D. Gentner & S. Goldin-Meadow (Eds.), *Language in mind: Advances in the investigation of language and thought* (pp. 157-191). Cambridge, MA: MIT Press.

Slobin, D. I. (2004). The many ways to search for a frog: Linguistic typology and the expression of motion events. In S. Strömqvist & L. Verhoeven (Eds.), *Relating events in narrative: Typological and contextual perspectives*. Mahwah, NJ: Lawrence Erlbaum Associates.

Slobin, D. I. (2005 a). How people move: Discourse effects of linguistic typology. In A. Martinović-Zić & C. L. Moder (Eds.), *Discourse across languages and cultures* (pp. 191-206). Amsterdam/Philadelphia: John Benjamins.

Slobin, D. I. (2005 b). Linguistic representations of motion events: What is signifier and what is signified? In C. Maeder, O. Fischer, & W. Herlofsky (Eds.), *Iconicity inside out: Iconicity in language and literature 4.* Amsterdam/Philadelphia: John Benjamins.

Slobin, D. I. (2005 c). Relating events in translation. In D. Ravid & H. B. Shyldkrot (Eds.). *Perspectives on language and language development: Essays in honor of Ruth A. Berman.* Dordrecht: Kluwer.

Slobin, D. I., & Hoiting, N. (1994). Reference to movement in spoken and signed languages: Typological considerations. *Proceedings of the Twentieth Annual Meeting of the Berkeley Linguistics Society*, 487-505.

Strömqvist, S., & Verhoeven, L. (Eds.). (2004). *Relating events in narrative: Typological and contextual perspectives*. Mahwah, NJ: Lawrence Erlbaum Associates.

Sugiyama, Y. (2000). *Expressing manner in the Japanese translation of* The Hobbit: *A preliminary study of comparison between Japanese and English stories.* Unpublished paper, SUNY Buffalo.

Sugiyama, Y. (2005, February). *Not all verb-framed languages are created equal: The case of Japanese.* Paper presented to the 31st annual meeting of the Berkeley Linguistics Society, Berkeley, California.

Talmy, L. (1985). Lexicalization patterns: Semantic structure in lexical forms. In T. Shopen (Ed.), *Language typology and lexical description: Vol. 3. Grammatical categories and the lexicon* (pp. 36-149). Cambridge: Cambridge University Press.

Talmy, L. (1991). Path to realization: A typology of event conflation. *Proceedings of the Berkeley Linguistics Society, 17*, 480-519.

Talmy, L. (2000). *Toward a cognitive semantics: Vol. II: Typology and process in concept structuring..* Cambridge, MA: MIT Press.

Taub, S., Piñar, P., & Galvan, D. (2002, June). *Comparing spatial information in speech/gesture and sign language*. Paper presented to First Congress of the International Society for Gesture Studies, Austin, TX.

Vinay, J.-P. and Darbelnet, J. 1958. *Stylistique comparée du français et de l'anglais.* Montreal: Beauchemin.

Voeltz, F. K. E., & Kilian-Hatz, C. (Eds.) (2001). *Ideophones.* Amsterdam/Philadelphia: John Benjamins.

Yu, N. (1998). *The contemporary theory of metaphor: A perspective from Chinese*. Amsterdam/Philadelphia: John Benjamins.

Zlatev, J., & Yangklang, P. (2003). A third way to travel: The place of Thai and serial verb languages in motion event typology. In S. Strömqvist & L. Verhoeven (Eds.), *Relating events in narrative: Typological and contextual perspectives*. Mahwah, NJ: Lawrence Erlbaum Associates.

Zweig, S. (1998 [1922]). *Der Amokläufer / Amok* [Traduction d'Alzir Hella et Olivier Bournac]. Paris: Librairie Générale Française.