Talmy's Dichotomous Typology and Japanese Lexicalization Patterns of Motion Events

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ABSTRACT

Talmy's (1985) crosslinguistic typology of lexicalization patterns of motion events have been extensively used in second language acquisition (SLA) research as a means to examine how second language (L2) learners map form, meaning, and function. These studies have yielded some conflicting results regarding the learnability of L2 lexicalization patterns – arguably the oversimplification over and the overreliance on the dichotomous typological categorization of such patterns. The present corpus study seeks to illustrate how Japanese, which is classified as a V-language, may express motion events differently from what the typology typically suggests. The results showed that (1) Japanese elaborates on the Manner of motion via nouns, adjectives and adverbs, and that (2) Japanese verbs conflate Manner and Motion via Chinese loanwords and compound verbs. In order to shed light on *what* is learnable and *why* certain lexicalization patterns are (un)learnable for specific population groups in adult L2 acquisition, it is argued that, a deeper understanding of the nature of L2 input and learners' native languages (NL), especially in terms of input frequency, the complexity of form-meaning relationships, and the ease of processing of lexicalization patterns, would be indispensable.

INTRODUCTION

Talmy's (1985, 2000a, 2000b) cross-linguistic typology of lexicalization patterns of motion events categorizes languages dichotomously into *satellite-framed languages* (S-language), in which motion trajectory is encoded into *satellites*, and *verb-framed languages* (V-language), in which motion trajectory is encoded in verbs, based on the systematic relationship between surface forms and the meaning components of motion events in languages. Talmy's framework has since been adopted by SLA researchers to examine the form-meaning mapping of learners' interlanguage (IL). These studies, however, yielded little converging results on the acquisition of L2 lexicalization patterns, except for a general tendency of persistent influence of L1 lexicalization patterns. The lack of convergence in results may be due to an overreliance on Talmy's dichotomous model and a biased research scope. In an attempt to obtain more accurate results, this paper will address both issues.

In general, L2 lexicalization pattern studies rarely take into account the fact that language typologies are not always dichotomous: languages such as Chinese cannot be categorized as

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either S- or V-languages (Slobin, 2004) – not to say that even languages of the same type may have different lexicalization patterns (Beavers *et al.*, 2010; Cadierno, 2008a, Stringer, 2005, 2007). As such, studies of certain V-languages, such as Japanese or Korean, both heavily influenced by Chinese, should take the influence of Chinese lexicalization patterns into consideration. In order to expand the scope of analysis, this paper will examine Japanese lexicalization patterns of motion events specifically as most studies on Japanese lexicalization patterns do not focus on motion events – let alone the influence of Chinese loanwords. Most studies had focused the expressions of the speakers' attitudes towards narrated events (e.g., Ide & Sakurai, 1997; Küntay & Nakamura, 2004). Therefore, an analysis of Japanese lexicalization patterns of motion events that also examines Chinese loanwords will provide insights into the non-dichotomous typology suggested by Slobin (2004).

This study presents a corpus analysis of the Japanese language. The data were analyzed both quantitatively and qualitatively, and compared with the English corporal data also obtained for this study. The result will then be compared to the suggested typology of S- and V-languages. In the section that immediately follows, the suggested typology of S- and V-languages will first be presented. The design of the study, as well as the results and discussion will follow. Finally, implications for SLA and limitations of the present study will be discussed.

REVIEW OF THE LITERATURE

Talmy's Typology of Lexicalization Patterns of Motion Events

Talmy (1985, 2000a, 2000b) first postulates the crosslinguistic typology of *lexicalization patterns of motion events* based on the systematic relationship between the surface forms and the meaning components of motion events in languages. In his typology (2000b), a *motion event* refers to "a situation containing motion and the continuation of stationary location alike," (p. 25) whereas *motion* refers to an occurrence or non-occurrence of translational motion (e.g., *walk*, *go*). *Translational motion* here specifically refers to the shift of an object's basic location from one point to another, such as *going* and *swimming*, and thus does not include "'self-contained motion' (i.e., rotation, oscillation, or dilation) (p. 26), like *shaking* and *twisting*. The inclusion of "continuation of stationary location" and "non-occurrence of translational motion" into motion events is important especially in crosslinguistic analysis because some languages capture motion as a change of state. An event where *an owl popped out of the hole* (translational), for example, can be often captured as a change of state (the state changed from *invisible* to *visible*) as in *an owl appeared from a hole in the trunk* in Romance languages (Slobin, 1997).

Talmy defines six basic components of motion events: (1) the presence or absence of the translational motion (*Motion*), (2) the moving entity (*Figure*), (3) the object with respect to which the Figure moves (*Ground*), (4) the course followed by the Figure with respect to the Ground (*Path*), (5) the manner in which the motion takes place (*Manner*) and (6) the cause of its occurrence (*Cause*) (2000b, p. 25).

Based on the patterns of how the semantic components are mapped onto the surface forms, Talmy (2000b) proposes two main cross-linguistic typologies: *Satellite-framed languages* (S-languages), and *Verb-framed languages* (V-languages). S-languages, to which most Indo-European except Romance languages belong, tend to conflate Motion and Manner in verb roots with elaboration of Path in PPs or *satellites*, which are "certain immediate constituents of a verb

root other than inflections, auxiliaries, or nominal arguments" (Talmy, 1985, p. 103). Scene settings and Ground are often left to inference. In contrast, V-languages, which include Romance, East-Asian languages, tend to conflate Motion and Path into verbs, and Manner is often left to inference or expressed in adverbial phrases when mentioned (Cadierno, 2008a). V-languages also prefer to capture motion events as *change of state*, such as being *in* to *out* or *invisible* to *visible*. Cadierno (2008a, p. 266) offers the following examples as an illustration:

(1) a. English (S-language) *The man* **ran** *out* of the house.
                  [Manner + Motion] [Path]   [Ground]

    b. Spanish (V-language) *El hombre* **salió** *de la casa* **corriendo**.
                    The man **went out** of the house **running**.
                        [Path + Motion]   [Manner]

In (1a), the English verb *ran* conflates Manner and Motion and the satellite, *out,* describes Path, while in (1b), the main verb *salió* (exited) conflates Path and Motion and Manner is added with a gerund *corriendo*. In an English narration, Path can be elaborated on with additional PPs, such as *into the backyard*, while Spanish needs verbs to elaborate Path (Cadierno, 2004). Consequently, S-languages tend to have detailed sub-trajectories of a motion event by having many Path PPs associated to one verb. This way, many sub-trajectories are efficiently packed into a motion event, whereas V-languages need multiple verbs to describe different sub-trajectories of a motion. See the example below:

(2) a. English (S-language) *The man* **ran** *out of the house* *into the backyard*.

    b. Spanish (V-language) *El hombre* **salió** *de la casa y* **entró en el patio** **corriendo**.
                    The man **went out** of the house and **entered** into the backyard **running**.

In capturing the same motion event, both (2a) and (2b) divide the motion event (i.e., run from inside of the house to outside) into two sub-trajectories (get out of the house + go into the backyard). Spanish (2b), however, has to utilize three verbs (*go, enter, run*) to describe the same event while English needs only one. Slobin (1994) asserts that having multiple verbs to describe sub-trajectories of a movement is costly in terms of processing, and thus V-languages do not prefer *segmentation*—dividing a motion into multiple sub-trajectories. Therefore, the trajectory of motion is usually left to inference in V-languages. S-languages, by contrast, prefer to have more *segments* (sub-trajectories) than V-languages, because the grammatical structure allows Path to be easily elaborated with satellites and PPs (Slobin, 1994).

      The difference in the information organization in (2) is referred to as a difference in *packaging*—how languages unify sub-events into hierarchical constructions (Berman & Slobin, 1994; Slobin, 2004). In the English example above, the multiple sub-trajectories (*out of the house*, *into the backyard*) are united with one motion verb (*run*), while in the Spanish example, each sub-trajectory is coordinated by a null subject (e.g., *The man* <u>went out and Ø</u> <u>entered</u> *into the back yard*). Berman and Slobin (1994) list other *packaging* as *clause-linking* in which the predicate and/or a tense bearing auxiliary is absent (e.g., *The boy was happy and the dog was too*), *subordinating/non-subordinating conjunction* with a finite verb in the conjunct clause (e.g., *The dog raced away because the bees were chasing him*), *gerundive and infinitival constructions* (e.g., *He looked under the bed, messing up his room*), and *relative clauses* (e.g., *He looked where the frog had been*) (p. 515). So far, only the signifying packaging in S-languages—that is, having multiple sub-trajectories tied to one verb—has been given attention in SLA research.

      On the basis of existing crosslinguistic analyses on packaging, S-languages are classified

as *tight-packaging* languages, and V-languages *loose-packaging* languages. The packaging in S-languages is *tight* because a predicate—that is, any "finite and nonfinite verb, as well as predicate adjectives" that expresses "a single situation (activity, event, state)" (Slobin & Berman, 1994, p. 660)—unifies multiple Path components. In contrast, packaging in V-languages, is *loose* because predicates (motion verbs in this case) cannot have multiple Path components. Here, Slobin and Berman (1994) define a unit that is unified with a predicate as a *clause*. Therefore, in Slobin and Berman's term, S-languages are *tightly packaged* because they deliver multiple segments of a motion in one clause, while V-languages are *loosely packaged* because V-languages can only deliver one sub-trajectory per clause. It thus can be predicted that S-languages will tend to have longer, fewer clauses while V-languages may have shorter, but more clauses in a text.

However, as Talmy himself asserts, these lexicalization patterns are general tendencies rather than absolute cross-linguistic differences. Slobin (2004) reports that there are intra-typological variations and that English encodes Manner into verbs only about 30% of the time, while another S-language, Russian, always conflates them in verbs. Consider the following example, which illustrates that Manner + Motion conflation is not mandatory, but simply preferred in English (Cadierno, 2008a, p. 267):

(3) a. *The man ran into the house.*
    b. *The man entered the house running.*

Both sentences in (3) are grammatically possible constructions in English. However, (3a), in which a verb conflates Motion and Manner, is preferred over (3b), which conflates Path and Motion into the main verb with the Manner encoded in a gerund. Slobin (2004) suggests (3a) is preferred as it can be processed more easily than (3b), because (3a) economically encodes multiple semantic components (Motion, Manner[run], and Path[inward]), with fewer words and simpler structure. In contrast, semantic contexts have some constraint on the Manner + Motion conflation in V-languages, such as Spanish (Aske, 1989). Compare the Spanish sentences below (Cadierno, 2008a, p. 268):

(4) a. *El hombre corrió en la casa.*   (*The man ran in the house.*)
    b. *El hombre entró en la casa corriendo.*   (*The man entered the house running.*)

Unlike *ran* in (3a), the Spanish verb *corrió* cannot be interpreted as a boundary-crossing motion from outside to inside the house and can only be translated as a motion that takes place within the bounded space, *the house*. In Spanish, the boundary-crossing motion like 'ran into the house' is expressed as in (4b), because Motion and Manner cannot be conflated into verbs in boundary-crossing situations in V-languages, and that path verbs are necessary in describing boundary-crossing motions (Slobin & Hoiting, 1994). Slobin (1997) asserts that boundary-crossing motions may be "conceived of as a change of state and [that] state changes require an independent predicate" (p. 441). This restriction on the Manner + Motion conflation in V-languages should be examined in different languages as it has only been closely examined in Spanish, and there has not been any detailed discussion of other V-languages in the literature.

Another problem with current lexicalization pattern studies is that their focus is primarily on the S-V dichotomous contrast, ignoring the fact that some languages do not fall into either category. Slobin (2004) defines Chinese as an *equipollently-framed language* (*E-language*), where Path, Manner and Motion are encoded in equipollent elements. A case in point would be:

(5) Chinese (E-language)

    a. *Nage nanren **pao**xiang fangzi qule*   (*The man ran toward the house.*)
        the man   **run** toward house   to past
           [**manner**][path] [goal][path]

    b. *Nage nanren **paojin** fangzi qule*   (*The man ran into the house*.)
        the man   **ran** **enter** house in **to** past
          [manner][**path**][goal][path][path]

      The sample sentences given in (5) illustrate how Chinese, an E-language, encodes Path, Manner and Motion into the verbs [*pao* (run), *jin* (enter), and *qu* (go)]. None of them are grammatically marked as subordinating phrases like satellites. The elaboration of Paths modifying one manner verb *pao* (run) in these sentences explains why Chinese was originally classified as an S-language (Talmy, 1985), even though these Path elements are not satellites.

      Overall, studies on Chinese lexicalization patterns (e.g., Antuñano, 2008, Chen & Guo, 2009) indicate that E-languages are indeed typologically different from S- and V-languages (Antuñano, 2008, Chen & Guo, 2009) with their moderate elaboration of Path, Ground and Manner, supporting Slobin's (2004) claim that typologies of lexicalization patterns are not dichotomous. As such, languages should be placed alongside a continuum of Manner saliency—that is, how accessible and codable Manner of motion is may depend on the particular language, rather than being classified into dichotomous or a ternary typology (Slobin, 2004).

      Importantly, many Chinese serial verbs are loaned to East Asian V-languages such as Japanese, in which 50% of content words are found as Chinese loanwords (National Institute for Japanese Language, 2006). Oddly, most corpus analyses on Japanese lexicalization patterns (See Yoneyama, 2009, for a theoretical analysis) do not focus on the description of motion, but on the use of evaluative devices (Bamberg & Damrad-Frye, 1991), which describe the speaker's interpretation of and attitude towards narrated events (e.g., Ide & Sakurai, 1997; Küntay & Nakamura, 2004). Therefore, a corpus analysis on Japanese lexicalization patterns of motion events will provide new information for lexicalization pattern studies, which in turn will add credence to the notion that language typology is on a cline of Manner/Path saliency (Antuñano, 2008; Slobin, 2004) rather than a simple dichotomous S-V distinction that many SLA researchers have fallen prey to.

      The suggested characteristics of the language types discussed are summarized in Table 1. Overall, S-languages elaborate more on Path and Manner, having multiple Path segments packaged into one clause and often encoding Manner into verbs. V-languages, on the other hand, leave Manner and details of Path to inference. Elaboration of Path and Manner is costly for V-languages, because they would need verbs in each description of sub-trajectories. V-languages tend to capture motion events as change of state, thus providing elaborated Ground information instead. In regards to the degree of Manner and Path saliency, E-languages seem to fall in-between S- and V-languages. The current literature then would give us the impression that Japanese (V-languages) will have to spare more clauses and sentences to describe the same amount of information of motion events, or otherwise, would deliver less information of Motion than English (S-language). This study, hopefully, will reveal whether or not Japanese in fact pays less attention to Motion, and how influence from the Chinese language interacts with the way Japanese narrates motion events.

      Unlike previous studies on Japanese, the present study will exclusively focus on the lexicalization patterns of motion events. Since Japanese is categorized as a V-language, the result will be compared to the suggested characteristics of V-languages in the literature, and to English data obtained from a compatible corpus to the Japanese corpus, in the hopes of highlighting the

relative similarities and differences in the lexicalization patterns.

Table 1
Summary of Suggested Characteristics of S- and V-languages

S-language	V-languages	E-languages (Chinese)
Path	**Path**	**Path**
elaborated	left to inference	moderate to low-Path-saliency
• encoded into Satellites, and PPs	• encoded into verbs	• encoded into verbs and PPs
• multiple Path segments/verb	• less Path segments/verb than S-languages	• one Path segment/verb
Manner	**Manner**	**Manner**
elaborated	left to inference	moderate
• encoded into verbs	• when necessary, encoded into adverbial clauses or gerunds	more than V-, less than S-languages
• conflated into verbs in both boundary and non-boundary-crossing situations	• cannot be conflated into verbs in boundary-crossing situations	• encoded into verbs and adverbial phrases
		• conflation of Manner + Path
Ground	**Ground**	**Ground**
left to inference	elaborated	moderate (One Ground/verb)
Segmentations & Packaging	**Segmentations & Packaging**	**Segmentations & Packaging**
multiple Path segments/verb	one Path segment/verb	one Path or Ground segment/verb
• longer clauses	• shorter clauses	
• tightly-packaged	• loosely-packaged	

THE PRESENT STUDY

Research Questions

This study examines how Japanese expresses motion events in comparison to English, and to the suggested characteristics of V-languages. More specifically, the study is interested in:

(1) whether or not English and Japanese focus on Motion at all when reporting events;
(2) if so, how each language does it at the discourse level, and what lexicalization patterns are used to encode Motion.

METHOD

A corpus analysis of English and Japanese news articles was conducted in this study. Excerpts from newspaper articles reporting on the aircraft movement were extracted and analyzed at the sentential and discourse levels. Results from the Japanese articles were compared to the English ones, as well as to the suggested lexicalization patterns of V-languages (see Table 1).

Corpora

The corpora consisted of four sets of news articles on two airplane accidents, one in the US and one in Japan, from various American and Japanese newspapers. The four sets were (1) English articles reporting the American accident as domestic news, (2) Japanese articles reporting the American accident as international news, (3) Japanese articles reporting the Japanese accident as domestic news, and (4) English articles reporting the Japanese accident as international news. All four sets were used to identify the cross-linguistic differences in lexicalization patterns rather than difference in wording due to translation or due to different degree of interest in domestic versus. international news.

The two airplane accidents were both national news events. One occurred in the US, in which a passenger flight from New York to Charlotte, North Carolina, successfully ditched in the Hudson River after striking a flock of geese on January 15, 2009 (henceforth Hudson). The other was the crash of Japan Airlines 123 in Japan on Aug 12, 1985, which suffered mechanical failure and crashed into Osutaka Ridge, Gumma prefecture (henceforth JAL). The two accidents were chosen because the movements of the aircrafts are somewhat important, though not obligatory, in reporting. This allows an analysis on how much of the attention is paid to Motion in English and Japanese narratives, as well as the lexicalization patterns themselves.

All articles were located online and copied and pasted to word document files for the analysis. Overall numbers of English articles are smaller (20 each for Hudson and JAL) than Japanese articles (55[Hudson] and 33[JAL]) but the size of the four data sets are similar (22-28 pages, 1136-1438 lines). Ratios, rather than the raw numbers of clauses, that describe motion events were utilized to make the results comparative between English and Japanese.

Coding and Analysis

In order to identify the patterns in narrating motion events at the sentential and discourse levels, the following was taken as the foci of the analyses:

1. The number and types of sub-topics reported – in order to identify what aspects of the incident were reported;
2. The percentage of *clauses* (Slobin & Berman, 1994) and sentences allocated to describe each sub-topic – a *sentence* here means a unit marked by periods;
3. The type and token frequencies of semantic components encoded into verbs, as well as other segments on the descriptions of aircrafts' movement.

The number of the clauses describing the aircrafts' movement as a fraction of the total number of clauses would show us the degree to which English and Japanese tend to focus on movements. The number of clauses divided by the number of sentences roughly would reveal how loosely the motion events are packaged. The sentences would contain more clauses if the events are packaged loosely. However, just because the sentences have fewer clauses does not necessarily mean that the events are tightly packaged – for the fact that one clause may only have one predicate, and that it does not mean the clause packages multiple path elements in it. The types and frequencies of semantic components, in combination with clause/sentence, would illustrate the tightness of the packaging. The more semantic components are encoded into segments, the tighter the packaging is.

In the corpora, the author identified 34 sub-topics for Hudson, and 32 sub-topics for JAL (e.g., descriptions of the aircraft, passengers, the pilot, escaping, descending, landing), and

developed rubrics that defined each sub-topic. Then, the entire corpora were color-coded into sub-topics. Two co-coders, one NS of each language, also coded 20% of the data and the inter-coder reliability was 94.9 % for Japanese, and 99.8% for English.

Next, the texts were divided into *clauses* by the author. After a brief training session, one co-coder of each language also divided 20% of the texts into clauses. The inter-coder reliability was 95.3% for Japanese, and 99.9% for English. Also, the intra-coder reliability was 99.1% for the Japanese data set, and 99.5% for the English data set.

After that, the clauses on the aircraft movement were extracted and organized into nine categories based on what sub-trajectory of the movement the clauses describe: *taking off, gaining altitude, anticipated route, actual flight path, turning, non-translational motions, returning, descending, and landing/crashing*. Then, motion verbs and other motion segments that were tied to the verbs (e.g., satellites, PPs) were identified and tabulated. Then the types and tokens of the verbs were counted.

Finally, the semantic components encoded into the motion verbs and segments that describe motion (motion segments) were identified and tabulated by the author. Upon identifying the semantic elements, finer-grained categorization of semantic components than Talmy's six categories (Motion, Figure, Ground, Path, Manner, and Cause) became necessary because the Manner of motion described in the data set was limited to *flying* due to the content of the news. Thus, semantic components prominent in the data, such as degree of realization (Degree) and rate/speed of the action (Rate), were also coded in accordance with Talmy's (2000b) list of semantic components of motion events. The differences between *completely* vs. *barely*, or *plunge* vs. *fall* were coded as Degree and Rate accordingly. Path (Talmy, 2000b) was further classified into five categories: (i) motion's direction (Direction), (ii) deictic direction (Deixis), (iii) starting point (Source), (iv) end-point (Goal), and (v) the route in-between (Medium). In the sentence *The airplane was coming south to Osaka from Haneda over Kanagawa*, for example, *coming* was coded as Deixis, *south* as Direction, *to Osaka* as Goal, *from Haneda* as Source, and *over Kanagawa* as Medium. When this type of specific identification was not possible (e.g., *turn*), the semantic component was identified as Path. Twelve semantic components—six basic components + six new components) were identified in the data. The percentages of encoded semantic components were calculated for the analysis.

RESULTS

Overall traits of the data sets

Over all, the Japanese sentences contained a larger number of clauses (3.13 and 3.04 clauses/sentence) than the English ones (2.44 and 2.5 clauses/sentence), meaning that the former, on average, contained almost one more predicate per sentence than English did.

In terms of the focus of the articles, the English ones included more varieties of sub-topics per article (24.3[Hudson] and 7.28[JAL]/article), while the Japanese ones focused on fewer sub-topics in each article (9.4[Hudson] and 2.64[JAL]/article). This means that English tended to focus on different aspects of the incident in one long text whereas each of Japanese news articles tended to focus on fewer aspects of the accidents in a short text.

Moreover, the English articles used a slightly lower percentage of clauses than the Japanese ones in describing motion events (e.g., 15.18% [English] and 17.19% [Japanese] of the clauses in Hudson). This finding may be interpreted as concurring to the suggested

characteristics of S- and V- languages—that English (S-language) spares fewer clauses than Japanese (V-language) in describing motion events—but only to a limited extent.

Token frequency of semantic components

The token frequency and percentage of each semantic component encoded into verbs and other motion segments are presented in Table 2. The columns show the tokens and their percentage (tokens/total number of clauses) of each semantic component in each data set. The rows represent the grammatical elements and the types of encoded semantic components. Because clauses may consist of multiple segments, and verbs and segments conflate multiple meanings, the total number of semantic components does not add up to the total number of clauses.

Table 2
Semantic Components Encoded into Verbs and Other Constituents

| | | Hudson | | | | JAL | | | |
| | | English | | Japanese | | English | | Japanese | |
Forms	Semantic components	No.	%	No.	%	No.	%	No.	%
Total No. of Clauses		255		251		215		314	
Motion Verbs	Deixes	57	22.4	0	0	7	3.3	5	1.6
	Direction	0	0	0	0	9	4.2	0	0
	Path	204	80.0	235	93.6	129	60.0	192	61.1
	Ground	37	14.5	64	25.5	6	2.8	30	9.6
	Figure	9	3.5	104	41.4	0	0	82	26.1
	Manner	43	16.9	14	5.6	54	25.1	88	28.0
	Rate	67	26.3	25	10.0	50	23.3	42	13.4
Total No. of Verbs		418	185.8	442	176.1	255	118.6	439	139.8
Motion segments	Direction	77	30.2	19	7.6	23	10.7	42	13.4
	Source	16	6.3	1	0.4	13	6.0	38	12.1
	Medium	51	20.0	1	0.4	65	30.2	18	5.7
	Goal	81	31.8	120	47.8	80	37.2	44	14.0
	Ground	51	20.0	18	7.2	14	6.5	50	15.9
	Manner	11	4.3	39	15.5	21	9.8	60	19.1
	Figure	0	0	0	0	0	0	1	0.3
	Degree	1	0.4	0	0	1	0.5	2	0.6
	Rate	5	2.0	7	2.8	31	14.4	5	1.6
Total No. of Segments		293	114.9	205	81.7	248	115.3	260	114.6
Total No. of Semantics		711		647		503		699	

Overall, regardless of the language, verbs encoded more semantic components than other segments, meaning verbs carried more semantic weight than other segments in narrating motion events. This is understandable, given the fact that both English and Japanese complete sentences require verbs, but not other motion segments, such as adverbial phrases or PPs. Secondly, English segments encoded Path (Direction, Source, Medium and Goal) more notably than Japanese did (e.g., 88.2% in the English Hudson articles and 56.2% in the Japanese Hudson articles), while Japanese verbs encoded Path only slightly more (93.6% in the Hudson articles

and 61.1% in the JAL articles) than English verbs (80.0% in the Hudson articles and 60.0% in the JAL articles). Also, 81.7% of the clauses in the Japanese Hudson data contained motion segments, meaning some—at least more than 18.3%—clauses in the Hudson data had only motion verbs without other segments. Japanese verbs instead encoded Figure (41.4% and 26.1%) and Ground (25.5% and 9.6%) more often than English verbs (3.5% and 0% for Figure, and 14.5% and 2.8% for Ground). Contrary to the suggested typology, Japanese verbs encoded Manner (28.0%) as often as in English verbs (25.1%) in JAL, and Japanese motion segments both in Hudson and JAL encoded Manner (15.5% and 19.1%) quite often.

Overall, the results confirm the suggested typology of S- and V- languages to a certain extent: English (S-language) elaborates on Path with motion segments and Manner and Path with verbs, while Japanese verbs encode Path. However, the interesting finding here is how similar Japanese and English are in elaborating on Manner and Path via verbs. It may be due to the fact that Manner is held constant by "*flying*" in the data. As a result, when Manner has decreased salience, English may make use of V-framed grammar. Finally, what is also noteworthy is that Japanese does elaborate on Manner with motion segments, and Figure and Ground with verbs.

Verb types

Overall, the English data contained 79 verbs, whereas the Japanese contained 101. Among the verbs that appeared in the data, eight verb-types were identified, based on the encoded semantic components. Among Talmy's verb classifications, Manner, Path, Figure, and Ground verbs were first identified; Path verbs were further categorized into three verb types for further analysis: Verbs that encode (1) the trajectory of movement, (2) direction of the movement, and (3) deixis. Moreover, the combinations of non-motion-verbs + route, which in turn describe Motion, were also taken into consideration. The numbers and examples of each verb type are presented in Table 3. The columns represent the languages, and the rows represent the verb types. Verbs listed under one category in Table 3 may have been coded as multiple verb types for the analysis due to the semantic conflation (e.g., *bank* was coded as a trajectory and a figure verb).

Table 3
Numbers and Examples of Each Verb Type in Four Data Sets

		English		**Japanese**	
		No.	Examples	No.(CL/NJ)*	Examples
Motion		1	move		1 (1/0)	Idō-suru	
Manner		25	glide	plow	12(7/5)	Tobi-tatsu	Mēsōhikō-suru
Path	Trajectories	15	reel	circle	26(13/13)	Dakōs-uru	Jōge-suru
	Direction	13	leave	climb	30(13/17)	Jōshō-suru	Tsukkomu
	Deixis	2	go, come (into/back /down)		3 (0/3)	Iku	Kuru
Figure		6	bank	reel	9 (8/0)	Flight-suru	Kōkō-suru
Ground		4	splash	land	8 (7/0)	Ririku-suru	Chakuriku-suru
Verb+Noun		12	loose altitude		14	Shinro/Kiro o+verb	

*Note: *English loanwords are not listed.*

The English data contained more types of Manner verbs (25) than the Japanese (12), whereas Japanese had more Path verbs (26 trajectories and 30 directional verbs) than English (15 trajectories and 13 directional verbs). This finding reflects Slobin's (2006) claim that S-languages utilize more types of Manner verbs than V-languages, and S-languages utilize more Path verbs than V-languages due to the abundance (availability and accessibility) of such verb types in each language (Slobin, 2006). Moreover, Japanese data contained more varieties of Figure and Ground verbs.

In addition to the eight semantic verb types, two formal verb types were observed among Japanese verbs: Chinese-loan-verbs (CLs) and native-Japanese-verbs (NJs) (See Table 3 for their distribution). CLs consist of a Chinese phrase that was originally loaned as a noun in Japanese, and turned into a verb via the Japanese verb *suru* (*do*). For example, *hikō-suru* (*to fly*) literally means "*do flight*" in Japanese, consisting of a Chinese phrase *hi-kō* (*fly + go*), which means *flight*, and the verb *suru* (*do*). Since the Chinese loanwords are already compounds, most CLs conflate multiple meanings. Other examples like *ririku* (*leave + land*)-*suru* (*take off*) conflates Ground and Path, and *kyūkōka* (*rapid + fall + down*)-*suru* (*plunge*) conflates Rate, Path and Direction. These CLs, moreover, tend to convey Figure as well. *Ririku-suru*, for example, only refers to departures of flying transportation, and cannot express take-offs of birds, for example.

NJs, in contrast, tend to encode one semantic component. Out of the 36 (7 manner and 33 path verbs) NJs in the data, only four conflated different semantic components, and five conflated two Paths. And these semantic conflations were done via compound verbs, such as *tobikoeru*, each consisting of two verbs *tobu* (*jump*) and *koeru* (*go over*), thus conflating Manner and Path. Otherwise, simple NJs encoded one sub-trajectory of Motion, and the fact that neither Figure nor Ground were encoded into NJs shows that NJs express more basic movements than CLs, not specific to certain Figures and Grounds.

Consequently, since path NJs can encode only one sub-trajectory (e.g., inward, downward etc), path NJs tend to accompany one goal or source and goal segments. For example, *mukau* (head), *sagaru* (descend), and *magaru* (turn) almost always co-occurred with one Goal NP. Manner NJs and compound Path NJs, by contrast, tended to take elaborated Ground descriptions. Consider the following example:

(6)

Hudson-gawa no fujichaku-genba no jōryū yaku 12kiro ni aru George Washington-kyō no yaku 270m ue o tōrisugita
[Hudson River] [of]   [crash-site]   [of][above][ab.][12km][at][be]   [G.W. Bridge]   [of][ab][270m][above][p][passing + over]

ato, jisoku-200kiro zengo de chakusui-shita.
[after], [200km/h][around][with][waterlanding-did]

After (it) went through around 270m above the George Washington Bridge that is located 12km upstream from the crash-site in the Hudson River, (it) water-landed at 200km/h.

The verb *tōrisugiru* in (6), a compound verb of *tōru* (pass through) and *sugiru* (go beyond), encodes Paths, but the preceding ground NP (*in*) that details the scene setting further specifies the route described in the path verb. The NPs that serve as scene setting seem to semantically weigh more than NJs in narrating on motion events in Japanese. The ground NP in (6), consisting of a clause and a subordinating relative clause, illustrates the relative locations between the Hudson River, the crash-site, George Washington Bridge and the height of the flight, as if unfolding a map for readers. The following path NJ *tōrisugiru* seems to be drawing a line of the trajectory on the map.

Moreover, with elaborated path NPs, motion events are lexicalized even without motion verbs on 29 occasions. Below are a number of the examples:

(7)
Return   : *Haneda eno   kiro   o   torō*...
[Haneda][to-of][returning-route][p][take-volition]

(The airplane) tried to take the returning route to Haneda.

Trajectory : *Dutch-roll no ōkina yure ya Fujisan-kitagawa deno kyūna kōka to kyūsenkai nado o hete* ...
[Dutch-roll][of][big][sway][&][Mt.Fuji][north-side][at-of][sudden][descent][&][sudden-turn][etc][p][experience&]

... experiencing big sways of Dutch-roll, a plunge and a sharp turn at the north-side of Mt. Fuji etc ...

The NPs in (7) describe Motions statically, as if showing a snapshot of the actions (returning-route, or sways and turns), and the NPs, after all, set the scene of the motion events. The verbs that come after the NPs describe what people did given the settings.

This lexicalization pattern of Ground/scene setting + non-translocational Motion is similar to the construction of CLs. As discussed above, CLs consist of a noun, which mostly captures course of actions statically by providing Path, and a verb *suru*(do) that describes the execution of the action. Therefore, the noun (e.g. *kyūkōka* [rapid + fall + down]) would be semantically rich, in order to provide as much Path/Ground information as possible, so that what was executed under the circumstances is easily understood when the verb appears at the sentence final.

Because CLs elaborate Path, they co-occurred with adjectives, adverbs or extra nouns that provide Manner information as shown in (8):

(8) a. *Furafura dakō-suru.*
[unsteadily][meandering do]
(It) meanders underlined *unsteadily (swaying).*   *(The plane flies unsteadily.)*

b. *Hadoson-gawa   jōkū   o guraidā no yōni kakkū* ...
[Hudson River][sky-above][p][gliders] [of][like][slip+air]
(It) slipped through the air like a glider over the Hudson River.
                                          (The plane glided over the Hudson River)

Similar to Manner NJs, Manner CLs tended to co-occur with nouns, adjectives or adverbs that describe Path or Ground:

(9) a. *S-ji   o egaku yōni hiko-shiteita.*
[letter S][p][draw] [as if] [flight + was doing]
(It) was flying as if drawing an S.   *(The plane flew in an S-shape.)*

b. *Furaito-puran dōri no kōsu o hikō-shiteita.*
[flight plan]   [as is][of][course][p][flight + was doing]
(It) was flying the exact planned course.   *(The plane was flying as planned.)*

In summary, the following lexicalization patterns were the most frequently observed in the Japanese data:

(10)
    a. [Goal]+NJ$_{comp}$[Manner+Path]
    b. [<u>Ground</u>]+NJ$_{(comp)}$[Paths]
    c. [<u>Ground</u>]+NJ[Manner]
    d. [Manner]+CL[<u>Paths(+Figure/Ground)</u>]
    e. [<u>Path/Ground</u>]+CL[Manner(+Path)]
    f. [<u>Ground</u>]+non-motion verb

The underlined segments in (10) were elaborated to the greatest extent. Most Japanese sentences or clauses tended to elaborate Path or Ground, with NPs preceding verbs as shown in (6) and (7). In order to package multiple Ground/Path segments into NPs, Japanese used relative clauses more often (28.7% [Hudson] and 33.4%[JAL]) than English (8.2%[Hudson] and 7.0%[JAL]). Thus nouns, not verbs, packaged segments in Japanese.

By contrast, English manner verbs were more semantically loaded, unifying different segments of motion events. Examine the English sentence reporting the equivalent event in (6):

(6')   Air traffic controllers at LaGuardia saw the plane
        clear the George Washington Bridge by less than 900 feet before
        gliding into the water about 3:31 p.m., an aviation source told CNN.

As seen in (6'), English emphasized the proximity between the aircraft and George Washington Bridge with the verb *clear*, and captured the crash with a manner verb (*gliding*)+Goal NP, in contrast to the Japanese way of capturing it with a Ground-path verb (*water-landing*). The trajectories and spatial information encoded in motion verbs eventually infer Ground. Thus, English verbs are required to encode richer semantic elements than the following segments so that the Ground can be inferred. It is interesting to note that Manner CLs (10e) show a similar lexicalization pattern.

As the six patterns in (10) show, Path is almost always encoded in Japanese motion phrases, and Manner is optionally, though frequently, encoded via various grammatical elements (onomatopoeia, adverbs, adjective, nouns and gerunds). In terms of boundary-crossing motion events, Japanese Manner verbs never expressed boundary-crossing events and the Motions expressed via verbs took place within the bounded area which is delimited by the sentence initial NPs. Overall, the results of the qualitative analysis here conformed to Slobin's (1996) discussion that V-languages elaborate Ground, while S-languages elaborate trajectory.

DISCUSSION

This study examined how Japanese expresses motion events as compared with English and the suggested characteristics of V-languages. More specifically, the study sought to find out:

(1) whether English and Japanese focus on Motion at all or not when reporting events;
(2) how each language does it at the discourse level – and what lexicalization patterns are

used to encode Motion if so.

Regarding the first question, Japanese encoded as many semantic components on Motion as English did, suggesting that English and Japanese focus on Motion roughly equally when reporting events. This finding contrasts to what is suggested by the dichotomous typology, which predicts that Japanese, a V-language, would leave more information to inference than English would.

In terms of the second question, this study confirmed that, at the sentential level, Japanese lexicalization patterns follow partially the suggested characteristics of V-languages, encoding Path into verbs with elaboration of Ground. However, the data also showed that Japanese elaborated Manner as much as English did, which complicates Talmy's (1985, 2000a, 2000b) typological classification. Further qualitative analysis of Japanese lexicalization patterns revealed intricate relationships between the syntactic characteristics of Japanese and its lexicalization patterns at the sentential and discourse level, which in turn suggests a need for a more fine-grained account of the morphosyntax of motion events beyond the typological approach.

At the first layer of analysis, as Talmy predicts, Japanese (V-language) needed more predicates (clauses) than English (S-language) to describe the same aircraft movements, meaning English indeed tightly packages Path segments into one *clause*, and Japanese does not. The fact that a relatively high percentage of Japanese motion verbs encoded Manner may indicate that some clauses are solely dedicated to express Manner, modifying path verbs. The verb-type analysis also confirmed that S-languages have more manner verbs than V-languages, and V-languages prefer to encode Path in verbs. This finding may support Slobin's (2004) claim that S-languages elaborate Manner because manner verbs are abundant and accessible. However, the present data suggest that Japanese (V-language) indeed elaborates on Path via abundant Path verbs that conflate other semantic components like Figure and Ground, while the typology predicts that V-languages leave Path to inference. The conflation of Figure in verbs may be compensating the fact that Japanese prefers to drop sentence subjects whenever they are recoverable from the context. The fact that English did not conflate Figure in verbs may be because English never drops sentence subjects. This relationship between the meaning conflation at the lexical level and the sentence structure illustrates how information organization at the local (lexical) and global (sentential or discourse) level interact in intricate ways.

In addition, the qualitative analysis of Japanese verb-types also provided evidence of the interaction between local and global information organization patterns: Japanese captures motion events statically because noun phrases, which are static in nature, appear at the sentence-initial position, while English captures motion events dynamically because verbs appear sentence initially. Consequently, Japanese elaborates on scene setting, which in turn enhances the clarity of Path encoded in Japanese verbs. English, on the other hand, provides detailed information of Motion via verbs, often conflating Manner. As Antuñano (2009) states:

> In verb-final languages, the verb goes at the end, and all those complements that provide and specify details about path occur sequentially before the verb. The semantic-pragmatic consequences of this ordering are clear: by the time the verb is produced … the complements have already provided all the necessary information about the motion event. (p.411)

Antuñano's argument on the relationship between verb location and the Path elaboration sounds plausible given the fact that the elaboration of scene setting is also reported in German, which also allows verb-final word order (Carroll, Murcia-Serra, Watorek, & Bendiscioli, 2000). It may also explain why Chinese-loaned-verbs have similar lexicalization patterns to English, because Chinese often takes verbs at the second position in the word order.

Additionally, Japanese elaborated on Manner as much as English, but via different means. Japanese utilized adverbs, adjectives and nouns, which modified NPs to describe Manner, while English encoded Manner mostly into verbs. The elaboration of Manner in Japanese could not be measured via the analysis on clauses as a unit of measurement, because clauses did not observe the number of NP modifiers. Moreover, Japanese verbs conflated Manner and Motion exclusively with compound verbs, while English did it without any formal markings. The form *fly* indicating Manner (e.g. *fly in the sky*) and Mannr + Motion (e.g. *fly in NY*) have the same forms in English, making the form-meaning relationships more ambiguous and complex than that of Japanese manner verbs. This also means that the form-meaning relationships of some English prepositions such as *in* were complex because prepositions can be locational (*The plane flew in the sky*) and directional (*The plane fly in NY*). In sum, English delivers the details of motion events via complex form-meaning relationships while Japanese does it via complex structures.

IMPLICATIONS FOR SLA

Slobin (1996) asserts, in his *thinking for speaking hypothesis*, that languages train their speakers to organize their thinking to meet the demands of the linguistic encoding, and that such training "is exceptionally resistant to restructuring in adult second-language acquisition" (p. 89). Therefore, the difference in the English and Japanese lexicalization patterns, which are intricately related to the information organization at the sentential and discourse level, will provide a window for examining what part(s) of L2 English/Japanese lexicalization patterns appear(s) to be difficult to the learners with L1 Japanese/English.

The studies on L2 lexicalization patterns to date suggest that we need to look into *why* certain features remain difficult as well as *what* is more difficult, in order to explain the following conflicting results: (1) low-level learners *sometimes* produce target-like lexicalization patterns while more advanced learners cannot (e.g., Brown *et al.*, 2004), (2) learners with the same L1 at the same proficiency level perform differently in encoding and accepting meaning conflations (e.g., Inagaki, 2002, 2004), and (3) learners at the same proficiency level perform differently depending on their L1 and L2 combinations (Negueruela, Lantolf, Jordan & Gelabert, 2004). In sum, the potential difficulty of the target lexicalization patterns is not identical across the target features, learner levels and L1-TL combinations.

Cadierno (2008b) and Allen *et al.* (2007) suggest possible explanations on *why* certain features appear more problematic than others. First, Cadierno (2008b) suggests that frequency and saliency of form-meaning relationship, which is modulated by the complexity of form-meaning relationships and L1-TL distance, may explain why some features remain difficult for certain learners to acquire. Her suggestion concurs with Han's (2009) *Selective Fossilization Hypothesis*, which asserts that frequency, complexity of form-meaning relationships, and L1-TL distance, together would predict the learnability of features. In addition to Cadierno's and Han's assertions, Allen *et al.* (2007) suggest that *ease of processing* (Slobin, 2004) influences learners'

choice of lexicalization patterns, that lower level learners prefer semantically and syntactically simple lexicalization patterns because they are easy to process. For example, low-level learners would prefer Manner + Motion conflation because (1) it corresponds to physical representation (Manner, *swimming* and Motion of *going* occurs simultaneously in real life events), and (2) does not require complex structure like subordination of verbs.

These new perspectives on frequency and complexity of form-meaning relationship and ease of processing in the analysis of lexicalization patterns can yield empirically testable predictions on the learnability of English and Japanese lexicalization patterns. For example, L1 Japanese learners of English may notice the tendency to elaborate Path with satellites and PPs because they are much more frequent than their L1. L1 Japanese learners of English, however, may have difficulty recognizing Manner + Motion conflation because the meaning conflation is not marked as in their L1 (not salient). The acquisition of forms, on the other hand, may be easy because English verb forms do not change (invariable and easy to process). L1 English learners of Japanese, conversely, may notice the elaboration of Ground with relative clauses because they are frequent in the input, and may have little difficulty in form-meaning mapping because of the one-to-one form-meaning relationship (less complex and salient) involved. Nonetheless, they may need negative evidence to reject Manner + Motion conflation. They may have difficulty in acquiring forms because it is highly variable and structurally complex (variable and difficult to process). These hypotheses are empirically testable, and further empirical evidence along this line may yield additional insights into the selectivity of L2 lexicalization patterns.

CONCLUSION

The present corpus analysis partially confirmed the suggested characteristics of S- and V-languages. The data showed that English (S-language) elaborates on Path with motion segments and Manner and Path with verbs as discussed in literature, but Japanese (V-language) verbs also elaborates Path and Manner. It may be due to the fact that the Manner in the present corpus was held constant to *flying* and thus the Manner saliency in the data was reduced, making verbs in both languages express Path and Manner in more similar patterns than discussed in the literature. However, the data have also shown that English still utilizes more types of manner verbs than Japanese, revealing the difference in the accessibility and codability of Manner of motion in English and Japanese (Slobin, 2004). Japanese, instead, utilizes more types of Path, Figure and Ground verbs, meaning that Japanese verbs may have a higher degree of accessibility and codability of Path, Figure and Ground. The interaction between the accessibility and codability of meanings and the saliency of the meanings in contexts may be worth further exploring.

Conversely, the restriction of Manner to *flying* allowed for further investigation into the notion of Paths. The qualitative analysis revealed that the abundant Path or Ground information was encoded into Japanese NPs with multiple relative clauses packaged into them. The sentence initial NPs which in nature capture Motion in a static manner, provide enough information of Ground and Path for readers to infer trajectory of the Motion. Thus some Motions can be expressed without Motion verbs with the elaborated NPs. English Motion verbs, on the other hand, encode rich information about the Motion events including locational information. This result indicates the interaction between syntax and the preferred lexicalization patterns in each language, as suggested by Antuñano (2008). Languages tend to encode rich Motion information

sentence initially, and consequently, English prefers to capture Motion events dynamically via verbs while Japanese prefers to capture Motion events statically via nouns.

Moreover, the data revealed that Japanese elaborates Manner via Chinese loan words and compound native Japanese verbs. In other words, meanings are conflated by compounding two forms; thus, meaning conflation is more transparent in Japanese verbs than in English verbs. The influence of Chinese loanwords on the Japanese lexicalization patterns has not been discussed in the literature and is worth discussing further, particularly in terms of how Chinese load words may have similarly influenced the lexicalization patterns of Korean, and where this Chinese influence places Japanese on the cline of Manner saliency.

On a final note, I would like to conclude that this type of fine-grained analysis of lexicalization patterns of languages, without the assumption that languages follow the suggested characteristics of Talmy's typology, may reveal unexpected similarities and differences across and within typologies. Such findings may in turn enrich our understanding of the acquisition of L2 lexicalization patterns.

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