Motion-Path Expressions in L2 English and Pedagogical Implications for Multi-word Verb Use: A Comparison Among Native Speakers of Chinese, Korean, and English

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Abstract This study examined how the typological characteristics of the first language (L1) affect the motion-path formulation of motion events in English as a second language (L2) among native speakers of Chinese, Korean, and English, and discussed their pedagogical implications for multi-word verb use. Sixty-one university students participated in an elicited writing task in English. Written narratives were analysed quantitatively and qualitatively. Results showed that both native speakers of equipollently-framed Chinese and verb-framed Korean were less likely to use verb satellites to encode the path of motion than native speakers of satellite-framed English. Five pivotal features—underuse, replacement, misuse, pragmatic inadequacy, and confusion of word class—emerged in the use of multi-word verbs in Chinese and Korean speakers' expressions of motion events. The findings of this study were interpreted through the lens of cross-linguistic influences on learners' written narratives in L2 English. A discussion of applicational practice centred on teaching English prepositional verbs and phrasal verbs to address learners' writing weaknesses.

Keywords Motion-path encoding · Multi-word verb · ESL · L2 English · Chinese learners

1 Introduction

The way in which actions, movements, and locations are expressed in verbs or verbal phrases varies across languages. Particular differences in the typology among languages rest on the expression of motion events focusing on the *path* and *manner* of

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a movement or action. Talmy (1985) observed differences in lexicalisation patterns of expression across languages, in which the meaning of manner or path in motion is expressed differently in a surface verbal form among languages. Since there is no one-to-one semantic-to-surface association, some languages encode a combination of semantic elements in a single surface form, while other languages express a single semantic element through a combination of surface forms (Talmy, 1985). Talmy (2000) further classified languages into two categories—verb-framed languages and satellite-framed languages—based on how the language maps events onto linguistic structures. Verb-framed languages, such as Korean, Japanese, Spanish, Turkish, Hebrew and Arabic, encode the path of motion as a key semantic component in the main verb (e.g. *enter, exit* or *collapse*). In contrast, satellite-framed languages, such as English, German, Dutch and Swedish, express the path of motion in a particle, called satellite (e.g. *in, out* or *down*) rather than in the main verb.

Given that the significant interface between semantics and surface verbal forms is different in the expression of the path of a motion across languages (Talmy, 1985), this study investigated how native Chinese speakers would express motion events in English as a second language[1] (L2), compared to native English and Korean speakers. We included English speakers as a primary comparison group because the target L2 English is satellite-framed language, and Korean speakers as a secondary comparison group because Korean is a verb-framed language. The results of this study are interpreted through the prism of cross-linguistic influences on L2 production, which in turn has important implications for pedagogical practices for Chinese speakers and East Asians. To point towards applications for practice drawing upon theoretical and empirical bases, we first review theories and linguistic characteristics, and then present empirical data and findings.

1.1 Theoretical Framework

Different languages encode the semantics of motion verbs differently based on linguistic constraints imposed by a given language. Focusing on whether the manner of motion and the path (or direction) of motion are expressed within the main verb or in a separate lexical item as an extended verbal phrase, Talmy (2000) claimed that the world's languages function differently with respect to the way in which the semantic construal of an event is mapped onto the syntactic structure of the language. Among key sentential elements, Talmy's main focus is placed on the verb: "the typology consists of whether the core schema [framing event] is expressed by the main verb or by the satellite" (p. 221).

According to Talmy's (2000) classification of verb-framed languages and satellite-framed languages, the manner of motion refers to an expression of distinct motion using verbs, such as *run, slide, walk* or *fall*, while the path of motion refers to

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[1] Second language (L2) and a foreign language (FL) are used interchangeably because the focus and scope of this study have little to do with learning contexts.

the direction of motion, such as *into, across* or *down.* The manner and path can be expressed within the verb as part of its root meaning or in a verbal particle or satellite. In the verb-framed language, the main verb directly encodes the path of motion without using an additional particle, as in *escape, exit* and *collapse.* In the satellite-framed languages, the path of motion is encoded in the satellite verbal particle, as in (*run) away, (walk) in* and *(fall) down*, while the manner of motion is conflated in the main verb (i.e. *run, walk, fall*) as the verb expresses the mode of action.

Slobin (2004) augmented Talmy's binary classification by adding equipollently-framed languages to refer to a language that functions as neither a verb-framed nor a satellite-framed language. Equipollently-framed languages offer the symmetrical treatment of manner and path by assigning equal weight to the expression of manner in the main verb as a semantic component and path in a satellite-like lexical item. Slobin (2004, 2006) categorised Chinese as an equipollently-framed language by arguing that manner and path are simultaneously encoded in verbal lexicons in a parallel form functioning as a compound verb. For example, according to Talmy, the sentence 瓶子飄過石頭旁邊 */Ping2zi piao1guo4 shi2tou2 pang2bian1/* is interpreted as *The bottle floated [Motion and Manner] past [Path] the rock* (Talmy, 1985, p. 107). In this interpretation, 飄 */piao1/* is considered the main verb encoding the manner of motion *float*, while 過 */guo4/* is viewed as a particle (i.e. satellite) encoding the path of motion *past*. Hence, Chinese is categorised as a satellite-framed language. According to Slobin (2004), however, the manner of motion and the path of motion are expressed in a coordinative way; that is, the path of motion 過 */guo4/* (*past*) is not a satellite but a verb that is equally weighted to the verb 飄 */piao1/* (*float*). The sentence is interpreted equivalently to *The bottle floated [Motion and Manner] and passed [Motion and Path] the rock*. Therefore, it seems to be logical to categorise Chinese as an equipollently-framed language.

These classifications bear differing views and interpretations. Croft (2003) suggested that additional types be included in the typological breakdown to address grammatical complexities involved in the constructions of motion events because some languages, such as Icelandic, Dutch, Bulgarian and Japanese, use more than one category to encode complex events in the sentence. There are cases that motion events are expressed both in the verb and in the satellite in those languages. Croft (2003) also classified the class of symmetric constructions into serial verbs (e.g. Thai and Mandarin Chinese), coordinated verbs (e.g. Japanese), and complex stems (e.g. Kiowa and Klamath). This implies that purported classifications are to be placed on a continuum because they often straddle more than one category depending on the criteria used. Notwithstanding the different views of the classification, Talmy's typology has provided a valuable framework for comparative studies of lexicalisation patterns and encodings of motion events in linguistics and psycholinguistics. With this in mind, we compared the typological characteristics of English, Chinese, and Korean below.

1.1.1 Typological Differences in Lexicalisation Patterns Among the English, Chinese, and Korean Languages

According to the typological classification (Slobin, 2004), the three languages—English, Chinese, and Korean—represent each category of lexicalisation patterns as a satellite-, an equipollent-, and a verb-framed language. Goldin-Meadow et al. (2009) noted that the distinction of these categories depends primarily on how the *path* of a motion is expressed. Hence, we illustrated how the *path* of a motion is encoded for *a man ran into the building* in English, Chinese, and Korean, for comparison purposes using one of the basic manner verbs (e.g. *run, walk* and *fly*).

(1) English: He ran into the building.

(Manner is encoded in the main verb, *run*, and path in the satellite, *into*)

(2) Chinese:

他	跑	進	了	樓。
/Ta1	pao3	jin4	le	lou2/
he	run	into/go	in (past tense)	the building

a. He ran into the building.

(Manner is encoded in the main verb, *pao3*, path in the particle *jin4*)

b. He ran and went in the building.

(Both manner and path are encoded in the main verbs *pao3* and *jin4*)

(3) Korean:

그는	건물	안으로	달려	들어갔다.
/Gu-nun[2]	geonmul	ahneuro	dalyeo	dulgotda/
he	building	into/inward[2]	running	entered

He entered the building by running.

(Path is encoded in the main verb, *enter*, and manner is encoded in the subordinate adjunct, the gerund form *running*)

Example (1) *He ran into the building* in English expresses the manner of the motion *run* in the main verb itself and encodes the path of the motion *into* a separate lexical item as an adjunct to the verb (i.e. satellite). This is a typical example of a satellite-framed language expressing the path of a motion. The semantic components of the action (both motion and manner) are conflated in the main verb (i.e. the action verb *run* indicates a movement and the mode of action *run* specifies the meaning of *go faster than a walk*, compared to the words *walk, stride, tread, gait, step, tramp*, etc.), while the path of motion is expressed in a satellite *into*. The English sentence

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[2] Nominal marker.

follows the order of the subject (S) + verb (V) and embeds the past tense within the verb.

Chinese, as shown in example (2), also has the S + V order, but the past tense is indicated using an independent past tense marker, 了 /le/, as Chinese verbs have the same forms in the present, past, and past perfect. The path or direction of motion is expressed by the character 進 /jin4/. This is subject to the interpretation of the element 進 /jin4/ in its word class and is the source of different classifications. If this syllable is viewed as a particle (as in *a* in the example), indicating the direction or result of the action 跑 /pao3/, Chinese is classified as a satellite-framed language as what Talmy (1985) perceived. However, if it is considered a verb (as in *b* in the example), meaning "go in/enter" as in 進來 /jin4lai2/ (enter—come, come in), the syllable 進 /jin4/ has an equipollent component with the main motion verb 跑 /pao3/. Chen and Guo (2009) classified the word 進 /jin4/ as a path verb meaning "enter". Thus, the manner of an action (跑 /pao3/) and the path of an action (進 /jin4/) are encoded in parallel as serial verbs (V1 + V2) or as a complement in a verb compound (Li & Thompson, 1981). This is the basis on which Slobin (2004) provided his classification of Chinese as an equipollently-framed language.

In example (3), the main verb in Korean is located at the end of the sentence with an inflection indicating the past tense of the action. The meaning of *into* is embedded within the main verb 들어갔다(enter), which directly indicates motion path.[3] This feature qualifies the Korean language as a verb-framed language, in which path is folded into the main verb while manner is constructed outside the verb. By taking all of these linguistic components into account, the sentence *He ran into the building* is expressed as *He entered the building by running*. The manner of motion *run* is expressed by another component in the form of a gerund or a prepositional phrase.

Although the linguistic properties can be debatable, the typological differences among English, Chinese and Korean, as demonstrated in the above examples, warrant a comparative study of language production by native speakers of these languages. The following section reviews previous studies in the light of cross-language transfer and interlanguage relations.

1.1.2 Cross-Linguistic Influences on the Encoding of Motion Events in L2 English by East Asians

Cross-linguistic influences on L2 learning have been well documented in the literature of second language studies, from word recognition (Pae et al., 2017) to concepts (Odlin, 2005). Studies of motion event construals are no exception (Brown, 2015; Brown & Chen, 2013; Park & Ziegler, 2014; Spring & Horie, 2013). The encoding

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[3] The above sentence can also be written as 그는 건물로 달려 들어갔다/Gu-nun gunmul-ro dalyu duluhgotda/. Notably, there is another component that adds the meaning of *into*. The equivalent form of the English particle *into* in Korean is used with a combination of a noun 안, meaning *inside,* and an auxiliary word 으로, which expresses the direction of the action verb. This kind of auxiliary word is called a *helping word,* 조사, 助詞 in Korean. Importantly, it is not part of the main verb in the Korean language.

of the manner and path of a motion event expressed by English learners has been examined as to how their L2 production is characterised by the typological characteristics of L1. Based on Slobin's (2004, 2006) categorisation of equipollently-framed Chinese, Spring and Horie (2013) examined motion event formulation among Chinese-speaking and Japanese-speaking learners of English as well as native English speakers, analysing video clips consisting of various motion events. Results showed a robust L1 typological influence on Chinese and Japanese speakers' framing preference in L2 English. Native English speakers tended to produce satellite-framed expressions significantly more than did Chinese and Japanese learners of English. Both Chinese and Japanese learners of English were less likely to express the manner of motion than monolingual English speakers in speech. Significant differences were found in the tendencies of motion-manner encoding between Chinese and Japanese speakers. Native speakers of Chinese tended to encode manner in the main verb in English similar to native speakers of English, irrespective of English proficiency and length of residence in the U.S. In contrast, Japanese speakers were less likely to express the manner of motion than their Chinese counterparts probably due to Japanese speakers' tendency of focusing less on the manner of motion in their native language (Spring & Horie, 2013).

Path and manner construals in the expressions of motion events have been investigated among speakers of Japanese, Chinese, and English. Brown and Chen (2013) found, in a study of the construal patterns of the manner of motion in speech and gesture among native speakers of Chinese, Japanese and English, that English and Chinese speakers encoded manner in speech significantly more frequently than did Japanese speakers. These findings indicate that cross-linguistic differences exist in the depiction of a motion based on typological characteristics and that typological differences affect the speaker's cognitive conceptualisation of motion events in both L1 and L2 bidirectionally. The findings by Brown and Chen (2013) also endorse the three-way typological distinction in the construal of motion, with Chinese being an equipollently-framed language, as proposed by Slobin (2004).

The findings of studies along the same lines point to a close tie between L1 and L2 production. Brown (2015) showed, in a study of bilinguals' and monolinguals' encoding of the manner of a motion in speech and gesture in the three languages of Chinese, Japanese and English, that not only did the universal features of language development characterise the encoding of manner in L2 speech, but bidirectional interactions were also shown between the properties of L1 and L2 shaped by the construal of manner in gesture. She interpreted these results as a "convergence" and interrelationship between L1 and L2 in the use of manner-highlighting gestures. Ji (2017) also investigated the conceptual salience in the manner and path of motion events among Chinese-speaking English learners in a triad-matching judgement task using the thinking-for-speaking framework (Slobin, 1996). Results showed that Chinese learners of English with different proficiency levels demonstrated varying degrees of L1 typological constraints in manner and path categorisation preference. Since this study focuses on Chinese learners of English, we do not review studies of Koreans in this chapter.

Collectively, although the relationship between L1 and L2 skills is complex and multifaceted, what seems to be clear is the salient role of L1 typological characteristics in L2 production. Language-specific typological characteristics may reinforce the habitual encoding of a motion event in L1 and, therefore, they become deeply rooted in L1 use such that an individual cannot escape the influence of one's L1 (Slobin, 2006). This leads to solid cross-linguistic transfer onto L2 production, which bears significant implications for L2 pedagogy. This cross-linguistic transfer is also in line with Brown's (2015) claim of L1-L2 "convergence" and interlanguage relationships as well as bilinguals' cognitive shift or conceptual restructuring as a result of bilingualism (Park & Ziegler, 2014). Since the verb + satellite form in English has to do with multi-word verbs, studies of prepositional verbs and phrasal verbs usage by Chinese speakers will be briefly reviewed in the next section.

1.2 *Multi-word Verb Use by Chinese Learners of English*

English has a sheer number of multi-word verbs, including prepositional verbs (e.g. *look at, listen to*), phrasal verbs (e.g. *look up, look into*), and phrasal prepositional verbs (e.g. *look up to, put up with*). In particular, a large number of phrasal verbs that frequently occur in text and speech cannot be found in Mandarin Chinese (White, 2012; Zhang & Wen, 2019). Thus, the frequency of phrasal verbs was significant for both intermediate and advanced Chinese learners (Zhang & Wen, 2019). In addition, the semantic transparency of phrasal verbs varies, ranging from transparent (e.g. *pick up, put on*) to opaque or idiomatic (e.g. *pick on, put out*). Being polysemous in meaning makes English phrasal verbs more complicated. For example, the phrase *go on* has 21 different definitions (White, 2012). Such factors as frequency, semantic transparency, and exposure to L2 English are significant predictors of the mastery of English polysemous phrasal verbs. Indeed, research has shown avoidance of phrasal verb usage among native Chinese speakers (Liao & Fukuya, 2004), suggesting preemptive interlanguage negotiation due to the lack of presence in their L1.

1.3 *The Current Study*

Previous studies on cross-linguistic influences on L2 English motion event encoding have focused on the conflation of speech and gesture to reveal learners' cognitive and linguistic transfer within the framework of satellite- and verb-framed typology as well as the thinking-for-speaking framework (Brown & Chen, 2013). Given the typological differences, motion expressions by Chinese and Japanese learners of English were often compared with those of native English speakers at the same time in the examination of cross-linguistic influences on forms and functions such as L1 transfer, L1-L2 convergence, and cognitive shift (Brown, 2015; Brown & Chen, 2013; Brown & Gullberg, 2010, 2013; Ji, 2017; Park & Ziegler, 2014; Spring &

Horie, 2013). The impetus for this current study was to extend the literature by using written data, which were a different productive modality than speech that has been primarily used in the existing literature. Two research questions guided this study:

1. Are there differences in the path encoding of motion events in English among native speakers of English, Chinese, and Korean and between the two non-native groups of Chinese and Koreans?
2. What are the conspicuous features expressed in written narratives in L2 English by the two East Asian groups with respect to the path of a motion?

2 Method

2.1 Participants

A total of 61 university students participated in this study: 21 Chinese speakers (8 females, $M_{age} = 20.0$, $SD = 1.4$), 21 Korean speakers (18 females, $M_{age} = 20.5$, $SD = 1.4$), and 19 native English speakers (all females, $M_{age} = 21.1$, $SD = 3.1$). None of the native English speakers had learned Chinese or Korean. The Chinese- and English-speaking participants were recruited from a university in the United States, while Korean participants were linguistic majors at a comprehensive university in South Korea. Based on Brown and Gullberg's (2012, 2013) findings that showed no difference in English motion encoding between Japanese speakers learning English in English-speaking countries as L2 and in their native country as a foreign language (FL), we believed that the learning settings did not prevent us from comparing their encoding expressions for this current study. To reduce variations associated with learners' learning contexts and backgrounds, we controlled for learners' English proficiency assessed by sentence formulation skills in the analysis.

2.2 Materials

This study used Mayer's (1969) *Frog, Where Are You?* picture book as a prompt to elicit the participants' motion encoding in writing narratives. This wordless black-and-white picture book contains 24 pictures and depicts a boy and his dog's effort and adventure to find their pet frog that ran away overnight from their room. As a way of probing L2 learners' lexicalisation patterns, writing samples using a static picture book as a prompt would be more appropriate than spontaneous speech samples because written narratives overcome the temporal nature of speech with the benefit of more controlled circumstances (e.g. more time involved and higher self-monitoring in production) and thus, is typically more elaborate than temporal speech and manifest learners' underlying constructs (Cook, 2015). Previous research has also used the

Table 1 Selected picture numbers from *Frog, Where Are You?* (Mayer, 1969) and description

Pic#	Description of the Picture
1	A boy and his dog are sitting next to a jar with a pet frog in it in the boy's bedroom at night.
2	While the boy and his dog are sleeping in bed, the frog is trying to sneak out of the jar.
3	The next morning, the boy and the dog find that the frog is gone and the jar is empty.
4	The boy and his dog proceed to the woods and scream for the frog.
5	The boy climbs on a tree and looks into the tree hole for his missing frog, while the dog shakes another tree and causes a beehive to fall from the tree.
6	An owl flies out of the tree hole and startles the boy out of the tree, and the dog is chased by the bees.
7	A deer chases them, and they fall off a cliff.
8	The boy and the dog fall into a pond.
9	They lean over a lying tree trunk to look for the frog.
10	They find several frogs on the other side of the tree trunk.

frog story as a prompt in the investigation of motion events encoding mostly in children (e.g. Kellerman & van Hoof, 2003; Slobin, 1996).

In order to focus on motion events while maintaining the storyline of the story, 10 pictures out of 24 pictures were selected. The depiction of each picture used for this study are summarised in Table 1.

In order to gauge the English proficiency of the non-native speakers of English, general expressive English skills were measured. We used the Word Ordering subtest of the Test of Language Development–Intermediate: Fourth Edition (TOLD-I: 4; Hammill & Newcomer, 2008)[4] for that purpose. The subtest assesses the ability to formulate a meaningful sentence using a set of words provided in a random sequence by the tester. The stimuli for sentence formulation included three to seven randomly ordered words so that the impact of memory span could be minimal.

2.3   Procedure

Before the test administration, we provided participants with a summary of the story-line of *Frog, Where Are You?* (Mayer, 1969). The participants wrote on a blank page provided by the tester a description of each picture individually presented on the overhead projector in an in-class administration in exchange for extra credit. They were asked to describe what they saw in each picture of the story. After completing their writing about the picture story, the Word Ordering subtest was administered to the non-native participants. They were asked to write a grammatically correct and

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[4] The subtest was originally designed as an oral measure to assess syntactic skills, but the modified version of the test was used as a written test.

complete sentence using words only presented on the overhead projector for two minutes.

2.4 Coding Scheme and Data Analyses

The collection of written narratives were keyboarded in verbatim into a learner corpus. We developed a coding scheme for data analysis to tally the presence of satellites in the narratives. Two raters coded independently, and then coding outcomes were compared to obtain inter-rater reliability. When a discrepancy was observed in coding, the two raters discussed the particular case in the presence of a third rater to come up with an agreement and independently recorded the initially discrepant cases. After resolving the initial disagreement between the two raters, 95% agreement between the two coders was achieved in the second round of coding.

For data analyses, the dependent variable was the frequency of occurrences of satellites. We identified the tokens of satellites, including post-motion-verbal particles (e.g. *fall down*), prepositions (e.g. *run toward*), and adverbs (e.g. *go outside*), for the satellite phrases used to encode the path of motion after the motion verb (see Talmy, 2000). In this process, we excluded non-motion verbal phrases, such as *look at, shout for, figure out,* and the like. We conducted a one-way ANOVA to detect statistical significance of L1 influence on satellite production among the three L1 groups, and Tukey's HSD post hoc comparisons and an ANCOVA to compare differences in satellite production between the groups.

3 Results

3.1 The Encoding of the Path of Motion

The first research question compared how native speakers of Chinese, Korean and English encoded the path of motion in their written narrations of the frog story in English. Given the unequal sample size across the three groups, we conducted Levene's test to ensure homogeneity of variance: $F(2, 58) = 2.11$, $p = 0.131$.

The native English speakers produced the most satellites ($M = 13.68$, $SD = 2.8$, range: 12.34–15.03); the Koreans showed reluctance to encode path into satellites ($M = 6.81$, $SD = 3.67$, range: 5.14–8.48); and the production of satellites by the Chinese speakers was somewhere in between ($M = 11.48$, $SD = 2.71$, range: 10.24–12.71). The ANOVA analysis results indicated a significant difference in the frequency of satellites produced by the Chinese speakers, Korean speakers, and native English speakers to describe the pictures presented for this study, $F(2, 58) = 25.97$, $p < 0.001$. Based on Cohen's (1988) conventions for interpreting effect size, the actual difference in the mean frequency of satellites was modest ($\eta_p^2 = 0.47$), suggesting
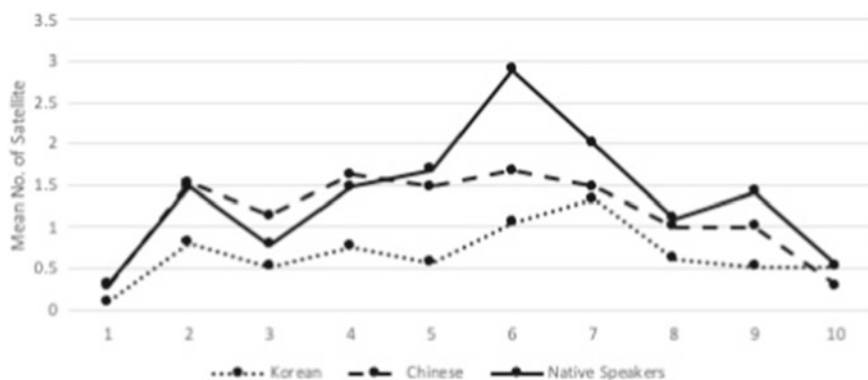
Fig. 1 Comparisons of satellites produced by the three L1 groups in each picture

that about 47% of the variance in the production of satellites was due to the L1 difference. Tukey's HSD post hoc test results indicated that the mean frequency of satellites produced by the native English speakers was significantly higher than the Korean speakers ($p < 0.001$) but not significantly higher than the Chinese speakers ($p = 0.071$). The results also showed that the Chinese speakers produced significantly more satellites than those by the Korean speakers ($p < 0.001$).

In addition to examining the satellite production as an aggregated form, we also compared satellite production across the three L1 groups on a picture-by-picture basis. A one-way ANOVA on each picture of the story with post hoc comparisons was run. The comparison of the mean frequency of satellites produced in each picture by the three L1 groups is illustrated in Fig. 1. A significant difference in the mean of satellites produced among three L1 groups was found in picture 2 ($F[2, 58] = 6.54$, $p = 0.003$), picture 3 ($F[2, 58] = 4.05$, $p = 0.023$), picture 4 ($F[2, 58] = 6.43$, $p = 0.003$), picture 5 ($F[2, 58] = 7.09$, $p = 0.002$), picture 6 ($F[2, 58] = 20.52$, $p < 0.001$), picture 7 ($F[2, 58] = 3.52$, $p = 0.036$) and picture 9 ($F[2, 58] = 4.89$, $p = 0.011$).

The total number of satellites produced in pictures 2, 3, 4, 5, 6, 7, and 9 were significantly different among the three L1 groups ($p < 0.001$). Post hoc analyses revealed significant differences between the Korean speakers and the native English speakers ($p < 0.001$) and between the Chinese speakers and the Korean speakers ($p < 0.001$). Pictures 2, 4, and 5 revealed significant differences in satellite framing between the Korean speakers and the native English speakers and between the Chinese speakers and the Korean speakers. Picture 3 revealed a significant difference in satellite framing between the Chinese and Korean speakers only. Pictures 7 and 9 revealed significant differences in satellite framing between the Korean speakers and the native speakers only. Picture 6 revealed a significant difference in satellite framing between the native English speakers and both the Chinese and Korean speakers.

Next, a one-way ANCOVA was conducted to determine if there was a group difference between the Chinese and Korean speakers on their production of satellites

in their narratives by controlling for their English proficiency ($n = 42$). In this test, the assumption of homogeneity of variances was tested and found tenable using Levene's test, $F(1, 40) = 2.401$, $p = 0.129$. The results of the ANCOVA showed a significant difference between the two groups: $F(1, 39) = 11.51$, $p < 0.001$, $\eta_p^2 = 0.37$.

3.2 Features Emerging from the Encoding of the Path of a Motion by Non-Native Speakers

The second research question sought to identify the prominent features of L2 English motion events encoding by the Chinese speakers, compared to the Korean speakers and the native speakers of English. The Korean learners' writing demonstrated a signature L1 Korean pattern of manner-path conflation in motion salient pictures, while the native English speakers showed clear encoding patterns of path in satellites and diverse use of manner verbs. For example, in picture 2, the native English speakers wrote:

- *The frog is climbing out of the jar that it is in.*
- *The frog is sneaking out of the jar.*
- *The frog may be scared and is now going to run away.*
- *The frog tip toed his way out of his frog bowl.*
- *The frog is getting out!*

In these examples, the native English speakers used a variety of motion verbs (e.g. *climb, sneak, run, tip toe*) for manner and unequivocal satellites (*out, away*) to encode path. The Chinese speakers tended to avoid using satellites (i.e. underuse) to encode path and used fewer manner verbs. For example, they used the verbs *escape* and *vanish* (rather than *run away*) more often than the native English speakers in the following examples:

- **Just now, the frog [were] trying to escape [from] the bottle.*[5]
- **In the morning the kid and the dog [were] surprised that the frog had vanished.*
- **The frog saw nobody around him so he start[ed] to escape because he [didn't] want to stay in a small bottle.*
- **The boy took [off] his clothes, laying on the bed.*

Similarly, the Korean speakers prevalently preferred single equivalent *seek* over phrasal verbs *look for*, and *return* over *go back*, as observed in their description of picture 4.

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[5] The sentences with errors in satellite use were marked with an asterisk (*) and corrections were provided in brackets for the ease of reading. Given that satellites were our focal point, writing examples are illustrated in verbatim despite other grammatical errors in the use of articles, subject-verb agreement, and verb tense.

More evidence of underuse was also found in pictures 6 and 7, where quantitative data indicated a significant difference in satellite production between the native English speakers and the two East Asian groups. In picture 6, the native English speakers used *running away* or *sprinting away* to describe the scene where the dog was chased by the bees, whereas the Chinese and Korean speakers wrote: *They tried to escape, but they failed; The dog run immediately*; and *The dog is running fast to avoid the bees.* In these examples, again, the East Asians preferred single verbs such as *escape* or *run* for the motion without path encoding. Similarly, they also preferred *appear* over *show up*, as in *Suddenly, a big bird appear in front of him; Many animals appear to them.*

Misuse was another feature prominently identified in the Chinese speakers' data. This feature was shown as a tendency of dropping post-verbal prepositions after intransitive verbs and before objects in the descriptions of pictures 1 and 6—*There was a boy seating on his chair staring [at] a frog in a jar with his puppy in bedroom*; and *The poor dog was attacked by the bee and little fell out [of] the tree because owl scared him*—where the *at* and *of* were missing, respectively.

Besides underuse and misuse, picture 7 revealed more complicated patterns of post-verbal particles and prepositions used by the East Asian speakers. The native speakers used *fall off the cliff*, *pushed off the cliff,* or *rammed off the cliff* to describe the scene where the boy and the dog fell off the cliff after being chased by a deer. In short, typical examples provided by the East Asians included: (1) underuse (e.g. *They dropped from the tree* rather than *They fell down from the tree*), (2) misuse (e.g. *He slid to under tree*), and (3) confusion in word class (e.g. *The boy and dog down at earth*). Examples (2) and (3) are discussed in further detail next.

4   Discussion

This study not only investigated how the native English, Chinese, and Korean speakers described the path of a motion event in writing but also compared lexicalisation patterns between the Chinese and Korean speakers' L2 production. The first research question was posed to examine group differences in the articulation of motion events illustrated in a picture book. Results showed significant differences among the three groups. Post hoc analyses revealed that the verb-framed East Asians were less likely to use satellites to encode the path of a motion in L2 English than their native English counterparts. There was a significant difference between the English speakers and the Korean speakers and between the Chinese and Korean speakers in the lexicalisation patterns of motion events in English.

4.1 Equipollently-Framed Chinese Stance Between Satellite-Framed English and Verb-Framed Korean: Evidence of Cross-Linguistic Transfer

The encoding of motion events is a complex yet salient phenomenon due to the linguistic properties unique to L2 English. Overall, our results provided empirical evidence for testing the linguistic transfer theory from the perspective of language typology. Specifically, our findings are consistent with those of previous studies: Native English speakers prefer to encode path in satellite lexical items significantly more than speakers of verb-framed languages (Brown, 2015; Brown & Gullberg, 2013; Spring & Horie, 2013). In addition, our findings also provided evidence that the Chinese speakers' production of satellite lexical items fell within the range of the satellites produced by the English speakers and the Korean speakers. Like the Chinese language theoretically placed in the middle in the spectrum of language typology as an equipollently-framed language, the Chinese speakers' expressions were placed around a midpoint between the English speakers' and Korean speakers' usage due to their L1 effects.

One major contribution of our study is to compare the three distinct L1 groups in an effort to examine the viability of the theoretical account through the lens of language typology and understand the learning process of Chinese- and Korean-speaking L2 English learners. In our study, the comparison between the two East Asian groups showed that the Chinese speakers used more satellites to encode the path of motion events than did their Korean counterparts. This difference called for further analyses of the two East Asian groups' L2 production qualitatively. If the cross-language transfer was negated, the articulation of motion verbs between the two groups should be similar, especially when considering Brown's (2015) universal development in bilingual construal of manner in speech. However, the results showed a significant difference between the two groups, which attested to cross-linguistic influences on L2 production. This finding is consistent with Slobin's (2004) assertion that speakers can hardly escape the influence of L1 and Brown's (2015) L1-L2 convergence and interrelationship.

4.2 Implications for Theory and Methodology

The findings of this study have theoretical and methodological implications. Theoretically, Slobin's (2004) tripartite classification of language typology (i.e. Chinese is equipollently-framed rather than satellite-framed) extended Talmy's (1985, 2000) dichotomy and took the special grammatical features of compound verbs in Chinese into consideration. Chinese linguists argue that the Chinese language has gone through an evolution from a verb-framed language to a satellite-framed language over time (Chen & Guo, 2009; Shi & Wu, 2014). Although most empirical studies on Chinese speakers' motion event encoding have treated Chinese as an

equipollently-framed language (Brown & Chen, 2013; Ji, 2017; Spring & Horie, 2013), more evidence from Chinese-speaking English learners' data could consolidate the typology of Chinese as such. Evidence generated from this study suggests that Chinese writers lean towards an equipollently-framed language, as shown in the Chinese participants' encoding patterns of the path of motion falling in between those of English and Korean. The findings of this study also indicate that cross-linguistic transfer should be deemed necessary in the development of theoretical models of L2 learning.

Methodologically, this study adds empirical evidence to the extant literature from writing samples. Previous research has investigated typological differences primarily relying on L2 learners' speech and gesture (Brown & Chen, 2013; Choi & Lantolf, 2008), leaving written output less explored. As Cook (2015) noted, written data demonstrate learners' underlying linguistic competence that temporal speech cannot exhibit. Hence, written samples provide another platform to evaluate English learners' underlying linguistic competence or traits over instantaneous performance in speech.

4.3 L1-Specific Features in L2 English Written Narratives in the Encoding of Motion Events: Chinese and Korean Learners' Conundrums

To further analyse the qualitative aspect of the motion event construals produced by the Chinese and Korean speakers, the second question was formulated to identify the locus of difference by investigating the salient linguistic features demonstrated in the description of motion events. Since the underuse or misuse of particular linguistic components and features can be a manifestation of the speaker's linguistic ability profile and their L2 English use, we qualitatively examined the Chinese and Korean groups' writing output to better understand their usage of verbs and related components.

In general, the two groups of East Asian speakers showed a tendency to use the main verb that coalesced with both manner and path, as in *exit* and *drop*, as opposed to multi-word verbal phases of *go out* and *fall down*. Such a tendency showcased East Asians' avoidance of using satellites to encode the path of a motion. This tendency could be seen as a variant of the underuse of multi-word verb phrases, which resonates with the findings of Liao and Fukuya's (2004) study that found avoidance of multi-word verbs. In addition to this typical underuse of satellites in motion events, the East Asian speakers tended to misuse prepositional verbs by leaving out the necessary preposition as multi-word verbal phrases. For example, they tended to produce a sentence *They look [at] a deer* and *There was a boy seating on his chair staring [at] a frog*… wherein the preposition *at* was not used for a prepositional verb *look at* and *stare at*. Another example of phrasal verb misuse is *They tried to figure [out] how to find it*, wherein the particle *out* was missing for a phrasal verb *figure out*.

This can be considered underuse of prepositions and particles. This may be natural language use in pragmatics because both Chinese and Korean languages do not have prepositions or phrasal verbs.

The absence of prepositions in the L1 system may also lead to an overuse of the given linguistic property to compensate for the lack of the concept in the language. The Chinese participants used an additional preposition as in *He had no idea where it went to*, where the preposition was unnecessary. Another misuse case was found in *They look at outside*, where the preposition *at* was needless to go with the adverb *outside*. However, this overuse of preposition *at* with the adverb may also likely result from the incongruence in the part-of-speech of the word *outside* between the East Asian languages and English. Specifically, the adverb in English *outside* can function as a noun at the beginning of a sentence in Chinese. For example, in the sentence 外面突然下雨了 (Lit., Outside suddenly raining; *It suddenly starts raining outside*); 外面 (/wai4mian4/, outside) is used as a noun.[6] Hence, it might have been natural for a Chinese speaker to produce a sentence like *He goes to outside* as the same structure as *He goes to the store*, treating *outside* as a noun that collocates with a preposition *to* to form the prepositional phrase *to the store*. In our Chinese speakers' data, this part-of-speech confusion was frequently observed in L2 English production, due most probably to L1 effects. Similar articulations were also observed among the Korean speakers, as in *He went to the outside with his dog*. In Korean, *outside* (밖), *inside* (안), *up* (위), and *beneath* (아래) themselves are nouns. These words need to have auxiliary words called 조사, 助詞, *helping word*, in order to express the direction or path of an action verb as in 밖으로, 안으로, 위로, and 아래로.

In reviewing the Chinese participants' data, the example *They are saving because down of the cliff is a pool* indicated the Chinese speakers' confusion of the adverb *down* as a noun as well. Similarly, another production, *The boy and dog down at earth,* revealed the Korean speakers' confusion of the adverb *down* to be an action verb. Since Korean is a verb-final language in which the verb is located at the end of the sentence, adverbs can come right after subjects. For example, the Korean sentence 그는 아래로 갔다/*Gu-nun ahraero gatda/* (he went downward) has the subject-adverb[7]-verb order (*He down went*). This Korean linguistic feature may

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[6] The word 外面, *outside,* used in the beginning of the sentence can be viewed as an example of the *topic-comment* structure of the sentence typically found in the Chinese language, in which the speaker introduces the topic up front and states an intended message. Further description is not provided on this because it is beyond the scope of this study. Regardless of its interpretation, however, what is clear is that the word *outside* is used as a noun in the sentence. In addition, the word *outside* in English constitutes an adverb, a preposition, an adjective, and a noun. However, in the given sentence, outside is not used as a noun, as in Chinese.

[7] In the Korean language, technically speaking, the adverb as one of parts-of-speech is a concept that is borrowed from English, because the concept of adverb under the Korean grammar is slightly different from that of English. The phrase " 아래로" actually consists of a noun (아래) + a helping word indicating "direction" (로), which is called 조사(helping word). Hence, although 아래로can be translated into *down* in English, it has a technically different grammatical component.

cause Korean speakers to mistake adverbs for verbs in L2 English by placing the adverb right after the subject. The example *They try to over the dead tree also showed their confusion of the adverb *over* to be a verb by missing out the real verb for the *to*-infinitive construction in the sentence. These expressions suggest that L2 learners tend to rely on L1 linguistic properties when producing sentences in L2 while acquiring L2 due to solid L1 effects, which is also consistent with Brown's (2015) L1-L2 convergence. These misuses caused by pragmatic inadequacy and confusion of word class could be labelled as variants of misuse.

Picture 7 with dramatic motions warrants further investigation. While native English speakers mainly used *fall off the cliff* to describe the scene where the boy and the dog fell off the cliff after being chased by a deer, the examples produced by Chinese speakers, such as *He falls down [off] [the] cliff*, reveal another barrier beyond underuse and misuse due to L1 influences on L2 output. Although conceptually acceptable, it exposes non-native speakers' lack of pragmatic knowledge of particles between *off* and *down* to be used to describe this motion (as well as the definite article). Specifically, while *fall off* indicates the protagonist being away from the cliff surface as the start of the falling motion, *fall down* denotes more of the character being on the ground as a result. Another similar example was identified in the description of picture 6: *He is surprised at that he fall down [off] the tree*. Without a lexicalisation system with diverse satellites to encode path in the Chinese and Korean languages, it is plausible that Chinese and Korean speakers fail to recognise which one, *off* or *down*, to use after the motion verb, even if they realise a lexical spot for a particle to encode the path of motion.

Collectively, East Asians' narrative patterns in motion events that are different from that of native English speakers could be summarised as follows: (1) underuse referring to a preference for equivalent single motion verbs conflated with path (e.g. *escape*, *seek, drop*) over phrasal verbs (e.g. *run away*, *search for, fall off*); (2) replacement (variant of underuse) involving replacing phrasal verbs with semantically equivalent single verbs, despite pragmatic differences between the two (e.g. *look for* vs. *find*, *look at* vs. *watch*); (3) misuse referring to dropping post-verbal prepositions after intransitive verbs to take an object (e.g. *search frog, *shout the frog*); (4) pragmatic inadequacy (variant of misuse) showing a lack of pragmatic knowledge in choosing and judging which post-verbal particle to encode path (e.g. *fall off* vs. *down*); and (5) confusion of word class (variant of misuse); meaning the improper use of word class, especially when prepositions, particles and adverbs can function after a verb serving the same purpose of encoding path as a satellite, and can oftentimes be used together as a bundle of words.

4.4 Implications for Pedagogy

The findings of this study bear significant implications for applications in practice. Pedagogically, this study provides learners' predominant underuse, misuse and overuse of particular verbal structures as well as overall linguistic choice and

tendency shown in L2 English output. Since the number of Chinese students ranks top in U.S. college classrooms (Institute of International Education, 2018), the findings of this study can be incorporated into L2 lesson plans or classrooms to directly tackle learners' challenges in learning English as L2. Several pedagogical implications can be drawn from the results of this study.

First, Chinese and Korean learners of English tend to encode motion events fewer than native English speakers. Therefore, learners would take advantage of L2 English instructional practices that address this linguistic feature in order to fully grasp phrasal verbs which are absent in their L1 linguistic system. Although it is not the most effective practice to teach English learners to rote linguistic technicalities for particular prepositions, adverbs or particles, it would be pedagogically appropriate to emphasise some basic grammatical rules. For example, an intransitive verb requires a preposition to take an object in the form of multi-word verbs. These rules, however, start with a solid foundation of learners' knowledge of English verbs.

Second, lesson plans for Chinese and Korean learners can be based on learner corpora that show non-native speakers' interlanguage. Learner corpora provide opportunities for contrastive interlanguage analyses in the comparison of (1) learner data with native speaker data to uncover learners' recurring patterns (e.g. misuse, under- and overuse, and their variants in satellite framing, as shown in this study) and guide material design and time investment in instruction, and (2) learner data over time to determine whether errors are L1-specific transfer difficulties or developmental (Granger, 2003). Native speaker corpora (or dictionaries), however, do not illustrate the difficulty of words or structures for learners (Granger, 2003).

Third, East Asian learners could use instructional practice on more fine-grained manner verbs in their vocabulary repertoire. Accompanied by verb vocabulary expansions, instructors could introduce some hands-on activities to demonstrate the manner and path difference with post-verbal prepositions and particles for the instruction of phrasal verb bundles. For example, White (2012) adopted an inductive approach to tap into learners' mastery of the combinations of verbs and particles (or prepositions) in phrasal verbs. In his study, White (2012) implemented the following five-step conceptual approach with theoretical rationale and pedagogical purposes: (1) A new orientation towards phrasal verbs; that is, reorientation of perception from arbitrary combinations of phrasal verbs to conceptually motivated constructions, such as mapping the meaning of particles (e.g. *up* and *out*) onto spatial relations to learners' zone of activity; (2) Students' collection of phrasal verbs through *phrasal verb hunting* from resources such as newspapers, magazines, web pages, and course texts to foster autonomous learning and target language immersion; (3) Group discussion of meaning using an *exploration worksheet* for students to engage in think-aloud strategies; (4) Express meanings of phrasal verbs through drawings to make logical sense and generate personal meaning within a context and to reinforce memory; and (5) Share drawings with peers to verbalise and internalise the concepts. Although outcome differences between pre-test and post-test were modest, student feedback was overwhelmingly positive, particularly on their conceptualisation of phrasal verbs. White's (2012) systematic classroom applications were tested effective and could be one way to facilitate East Asian's mastery and adequate usage of multi-word verbs.

5   Conclusion

The uniqueness of this study can be summarised in four ways. First, cross-language influence can be a plausible explanation for interlanguage relations. Adults typically have linguistic skills firmly established, unlike children who are still in the developmental phase, such that they have a deeply ingrained linguistic default, which can be resistant to restructure and change by L2 learning. Second, the results of this study are in line with the notion of Chinese as a typology between the satellite-framed and the verb-framed language in a linguistic typological spectrum (Chen & Guo, 2009; Slobin, 2004, 2006). Third, the results of this study expand the evidence of motion event encoding by speakers of different typological L1s in elicited written narratives, as opposed to speech data on which previous research relied. Last, the qualitative analysis of the writing data for prominent patterns and features reveals linguistic characteristics related to Chinese and Korean learners' tendency to formulate phrasal verb structures in written narratives in L2 English.

Future research is warranted to address the limitations of this study and expand its scope. The Chinese and Korean participants recruited from the same learning environment would be more comparable to each other, although the participants' English proficiency was controlled for in the analysis for this study. Although previous research has shown no difference between Japanese L2 and FL learners' performances in L2 English motion event encoding (Brown & Gullberg, 2012, 2013), one cannot rule out the possibility that L2 learners immersed in the target language learning environment would acquire nuanced linguistic patterns and usage of English prepositions and post-verbal particles better than FL learners. More research is needed to investigate the effect of such factors as a learning environment on learners' L2 production. In addition, although we did not analyse non-motion verbs (e.g. learners' use of *watch* instead of *look at*) because they are beyond the scope of this study, a comparison of the use of verbal expressions between motion verbs and non-motion verbs would help us understand L2 learners' linguistic choice and usage in written narrative or speech in L2. Informed by the overall complication of the prepositional verb lexicalisation system with diverse prepositions and particles in English, the findings on the Chinese and Korean speakers' writing output from viewing static pictures point toward a natural direction for future investigations into their non-motion verbal phrase construction and potential barriers in L2 production.

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